Validating Vaccines:

Understanding the Rhetorical Dynamics of Expertise Amid a Manufactured Controversy

Lauren R. Archer

A dissertation

submitted in partial fulfillment of

the requirements for the degree of

Doctor of Philosophy

University of Washington

2014

Reading Committee:

Leah Ceccarelli, Chair

Christine Harold

LeiLani Nishime

Program Authorized to Offer Degree:

Department of Communication

University of Washington

Abstract

Validating Vaccines:

Understanding the Rhetorical Dynamics of Expertise Amid a Manufactured Controversy

Lauren R. Archer

Chair of the Supervisory Committee:
Professor Leah Ceccarelli
Department of Communication

This dissertation examined the rhetorical dynamics of expertise around a manufactured science-based controversy. Exploring the rhetorical creation and evolution of various claims to expertise across different discursive contexts illuminates why (and in what situations) the rhetoric of expertise persuades or fails to persuade. Using the ongoing debate surrounding vaccine-induced autism as a case study, this work explored the persuasive means used by voices competing for recognition as an expert on a contested issue with technical elements. This study focused most closely on two key figures within AVC discourse: Andrew Wakefield and Jenny McCarthy. While the involvement of these two personalities in the AVC occurred on separate continents and transpired almost a decade apart, they sparked key moments in the life of this science-based manufactured controversy. In order to offer new insight into these key moments, this dissertation employed a textual-intertextual approach to rhetorically analyze key discursive moments in the evolution of this controversy while also examining reception among audiences to understand how discourses of expertise influence decision making around an issue portrayed as uncertain.

This analysis revealed that the clarity of expert language practices used in technical settings becomes obscured in public contexts, introducing ambiguity that allows for reported research to be interpreted as more certain than it is and creating discursive openings for manufacturing scientific controversy. It also uncovered the rhetorical power of style and appeals to *ethos* as substitutes for credentials or specialized knowledge when enacting expertise for non-specialist audiences who rely on judgments of trustworthiness rather than assessments of epistemic accuracy in determining which experts to believe and whose advice to follow.

Examination of parental discourses regarding vaccines illustrated that vaccine decisions derive from complex risk assessments that consider the diseases being vaccinated against, the public health threats in an individual's local environment, and the perceived vulnerability of one's child as means for gauging whether the risks posed by vaccines outweigh the risks of not vaccinating. Additionally, a careful rhetorical analysis of maternal discourses about vaccines revealed that while mothers explicitly deny believing in vaccine-induced autism, language choices and expressions reveal that an underlying sense of doubt about the issue remains. Current public discourses that portray vaccines as chemical concoctions that operate aggressively to elicit an immune system response help heighten concerns about vaccine risks. Framing vaccines as medical aids that help protect vulnerable children and localizing public health messages to highlight the risks for a particular community offer promise for addressing vaccine hesitant attitudes in meaningful ways. Additionally, medical experts must become rhetorically savvy and recognize the opportunities and constraints presented by their rhetorical situation. Moving beyond supplying more information to dialoging with parents about the risks involved creates opportunities for building trust between practitioners and patients and encouraging acceptance of expert advice.

Ultimately this dissertation argued that while the debates surrounding manufactured, science-based controversies seem to center on whether or not people believe the science, such issues are actually about which experts people trust. Such an understanding should reframe rejection of expert communication not as a matter of audience ignorance but as a failure in persuasion. Recognition of this should shift responses away from debates that can too easily become entrenched in issues of highly technical obscurities or demarcation of various forms of expertise that bear little meaning or influence on non-specialist audiences and instead focus on rhetorical opportunities for building ethos and communicating common ground.

Acknowledgements

Although this dissertation bears only the name of one author, many others had a hand in helping to shape it and support its development and eventual completion.

First and foremost, I am deeply indebted to my chair, Leah Ceccarelli, whose generosity in providing sage advice, astute insights, and eagle-eye readings not only made this project better, but also helped me become a significantly better scholar than I would be otherwise.

To my committee—Christine Harold, LeiLani Nishime, and Bruce Hevly—thank you for all the kind words, helpful reading suggestions, and provocative questions you asked; every time I had the pleasure of conversing with you about my work, I walked away the benefactor.

I would like to express my gratitude to Communication Librarian Jessica Albano for her help in tracking down artifacts and other important resources in the early stages of this project. Additionally, the Department of Communication offered support for the development of this dissertation in many ways, including the Laura Crowell Fund for graduate and student research and travel and the Daniel and Margaret Carper Dissertation Award.

To the mothers who shared with me their time (a very limited resource!) and their perspectives, thank you for helping me develop a deeper appreciation for the subtle complexities of the vaccine issue.

Thanks as well to the many amazing colleagues who offered encouragement, support, and links to any story about Jenny McCarthy along the way. A few deserve to be mentioned by name. I am endlessly grateful to Lindsey Djordjevich, for our weekly lunches, which helped me save money on a therapist and get to this point with my sanity still intact. I am also thankful for Jen Malkowski, Meara Faw, and Sheetal Agarwal, who never tired of talking with me about the autism-vaccine issue; these conversations helped me tremendously in making sense of this issue in order to make progress on the dissertation.

To my family, words cannot capture how much gratitude I have for your love, support, encouragement, and endless faith in me. Your unquestioning confidence in my success helped me persevere during moments of doubt and exhaustion. Thanks especially to my parents for reassuring me that it was okay to "still" be in school and for making it possible for me to continue pursuing this goal.

Finally, I would like to thank my husband, Brian, who has been through all the ups and downs of this journey with me and married me anyway! Your own passion, dedication, and work ethic inspired me to continually keep working toward my dream. Thank you for all your support in making this project come to fruition, from always keeping an eye out for any story related to vaccines to letting me talk endlessly about expertise to having patience with me and taking on all the household chores when I only had time to write and sleep. I could not have completed this dissertation without you, so this achievement is as much yours as it is mine.

TABLE OF CONTENTS

Chapter 1

Introduction: Enacting Expertise

First surfacing in 1998, the controversy surrounding the possibility of a link between childhood vaccination and the onset of autism has plagued medical practitioners and public health officials for over 15 years. As rhetorical scholar Thomas G. Goodnight observed, "Once initiated controversies do not so much die out as become dormant, only to reappear in more virulent form later, when small changes unsettle the balances of well-known paths of argument."[1] The autism vaccine controversy (AVC) has swelled and retreated in both scientific and public discourse, only to swell again. It has been linked to decreasing immunization rates in the UK, the US, and other locations.[2] The broader implications of this controversy relate to public health concerns and could carry severe consequences as parents, fearing a link between vaccination and autism, decide to skip or delay the recommended vaccines for their children. As a result of increasing vaccine exemptions, diseases once nearly eliminated through successful vaccination programs begin reappearing more frequently.[3] Reappearance of these diseases is not only a concern for those individuals not receiving vaccination, but also for those unable to be vaccinated due to underlying medical issues. Increased exemption rates result in the loss of herd immunity (the idea that a well-vaccinated community protects those who cannot get vaccinated), leaving some of the most health-vulnerable members of a population at risk.

Overwhelmingly the popular media consensus traces the AVC to a 1998 article published by Andrew Wakefield and 12 co-authors in the prestigious British medical journal, *The Lancet*.[4] From the beginning, the Wakefield et al. article received significant attention, and it would continue to garner headlines for years to come. Many interpreted the article as claiming that a

causal link existed between the MMR vaccine and autism while others staunchly defended it (including Wakefield himself) as doing no such thing.

Following publication of the Wakefield et al. article, researchers looked into the issue further, but subsequent scientific studies failed to produce any evidence to support a causal link between vaccination and the onset of autism.[5] Despite the scientific consensus that no relationship between vaccination and the onset of Autism Spectrum Disorders (ASD) exists, a 2010 study found that 1 in 4 parents in the U.S. still believed that vaccines caused autism.[6] Anecdotal "evidence" in the public sphere from parents reporting their experiences and challenging the messages of vaccine safety from scientific researchers and public health officials has helped sustain doubts about vaccination. Celebrity Jenny McCarthy has become one of the most vocal and well-recognized parents contributing to such discourses.[7] However, McCarthy represents just one of many parents who, despite scientific evidence to the contrary, continue to claim that a causal relationship exists between vaccines and autism.

Given its impact on public health and its staying power in public discourse, the AVC has attracted a range of scholarly attention. Scholars focus on a number of issues, from historical foundations of the controversy to the role of the media in its escalation to advice for parents on how to understand the conflicting viewpoints on the issue.[8] Additionally some rhetorical studies on McCarthy's discourse in relation to the AVC have been published.[9] This study builds from and adds to this scholarship through an extended examination of the evolving rhetorical dynamics of this science-based controversy in order to uncover which voices are most prominent and most persuasive to members of the public trying to make sense of this issue.

Considering the AVC through a rhetorical lens reveals that much of this debate about vaccine safety revolves around competing claims of expertise. At the core of the concept of

expertise lies an inherently rhetorical dimension. Experts rely on communication to relay their specialized information to non-specialists. In the public discourse arena, where healthy competition among experts exists, rhetoric becomes an important tool for persuading listeners to pay attention and trust one expert over another. In turn, categorizing or labeling someone as an expert also becomes a rhetorical practice. A rhetorical examination of communicative interactions and claims to expertise in the AVC unveils how experts come to be recognized as such by various audiences. We often rely on experts in the public sphere. As rhetorical critic John Lyne and biologist Henry Howe explained in their rhetorical study of expertise, "The expert is tapped when non-experts need access to a special knowledge they do not have, when they must depend on professional credentials to determine who is best qualified to speak *from* a technical area in question *to* a particular discourse community."[10] Citizens often depend on "expert opinion" to sort out the technical or scientific aspects of contemporary policy issues and to advise them on what opinions to form or what actions to take regarding particular issues.[11]

Alongside this increasing reliance on experts for technical information, the growing specialization within academic disciplines has led to an explosion of expertises that might be called on for making decisions (or for slowing the decision making process down). Political actors can utilize this increased reliance on experts to stall policy decisions by demanding more data while stalemates between differing technical perspectives bog down debate. Even when experts agree, the presentation of relevant arguments and corresponding evidence does not always resolve the issue in the public realm. Around certain complex issues—for example, the possibility of a link between autism and vaccines, climate change, or genetically modified foods— uncertainty among the public remains despite what the experts claim, and at times, the related expert knowledge itself comes into question. In the context of a controversy, this

competition between experts intensifies as various individuals vie for recognition as the proper authority on the subject under a debate.

In some ways, this reaction to expertise should be encouraged. Given the plethora of experts on any subject and the (often) conflicting advice experts dispense, citizens should consider recommendations thoughtfully. *Blind* acceptance of expert advice could lead to abuses of power and the exclusion of citizens from important decisions. Furthermore, simply because experts can speak to what *is* (issues of fact) does not necessarily qualify them to speak to what *should* be done (issues of policy) based on that knowledge. However, acting in contradiction to expert advice, especially in the face of overwhelming consensus among the various experts related to an issue, can prove problematic and even harmful.[12] For example, although scientists have determined that there is not a link between the MMR vaccine and the development of autism, some parents still refuse to vaccinate their children as recommended. In this case, the decision to ignore the advice of experts can have life altering (or possibly life ending) consequences.

Using the AVC as a case study, I explore how various discourse communities determine which experts to grant credence and trust and how decisions are made that align with or against expert advice. As a contemporary science-based controversy, the AVC provides a particularly compelling example to study because various claims to expertise intersect (i.e. scientific researchers, medical practitioners, and parents). Lyne claimed, "To the extent that expertise is played variably before its relevant audiences, it is in part a rhetorical construct."[13] Exploring the rhetorical creation and evolution of various claims to expertise across different discursive contexts illuminates why (and in what situations) the rhetoric of expertise persuades or fails to persuade.

In the remainder of this introduction, I offer a review of the relevant literature for this study, focusing on an overview of current scholarship on the rhetoric of expertise and scientific controversy. I then preview the various rhetorical artifacts that serve as the focus of this study, providing a justification for my selection process. I also explain my approach to examining these artifacts and end with an outline of the chapters that follow.

The Rhetoric of Expertise

Given a growing dependence on experts, academic attention has turned increasingly to issues of expertise. Two dominant views emerge from theoretical studies of expertise and experts: those who define expertise relationally and those who define it substantively. Scholars who see expertise relationally define it and seek to understand how it comes to exist through the relationships between people and even objects in social environments.[14] From this perspective, expertise tends to be viewed as socially constructed (i.e. a person becomes an expert in sociology when awarded a PhD from an established body authorized to grant such recognition). A relational view of expertise tends to assume an expert/layperson binary, typically depicting an expert as a separate being speaking with authority to an uneducated (at least in the specific knowledge of the expert) audience. This knowledge deficit in the audience creates the need for and even defines who constitutes an expert. The expert is called upon when a need arises for specific knowledge not possessed by the larger group.[15] As Lyne observed, "The 'expert' is a pivot point for the intersection of discursive domains, in that he or she makes it possible for nonspecialized publics to tap knowledge they do not directly possess. Expertise is not only a matter of the relationship of a specialist to a body of knowledge; it is also a matter of the relationship to the audience."[16] Thus, from the relational view, any person believed to possess

the requisite specialized knowledge will be deemed an expert, defined as such by the relationship between that individual and the group, as well as the context.

In contrast, a substantive view sees expertise "as something other than *relational*."[17] This perspective takes a more realist stance, viewing expertise as a characteristic possessed by an individual or group independent of relationships or recognition. From this perspective, a person becomes an expert upon obtaining a certain level of mastery and experience, regardless of bestowed credentials or recognition by others.[18] Science and technology scholars Harry Collins and Robert Evans, key promoters of a substantive view of expertise, argued that the relational view of expertise has led to the "Problem of Extension" or, as they explained it, "how do we know how, when, and why to limit participation in technological decision-making so that the boundary between the knowledge of the expert and that of the layperson does not disappear?"[19] Since a relational view defines expertise situationally, Collins and Evans warn that the status of "expert" can be extended to anyone. This would include recognizing citizens as possessing a type of expertise that deserves a hearing, which in fact several scholars have supported.[20] In contrast to those scholars who would argue for closing the gap between experts and citizens, Collins and Evans feel a clear delineation should be maintained; all other things being equal, they argue that audiences should prefer to hear from those who know what they are talking about when faced with a technical decision. While these authors do not deny the social aspects of expertise—they would agree that expertise belongs to social groups and can be acquired through social processes—they do believe a person can possess expertise regardless of whether others recognize it.[21] This commitment serves as the impetus for their alternative conception, which defines expertise based on the substance of the knowledge possessed rather than the demand for that knowledge.

Although the relational and substantive perspectives differ significantly in their views of experts, both consider communication to play a key role in expertise. However, while acknowledging the role of communication, most scholars outside the communication field rarely examine the actual discourse of experts.[22] Even Collins and Evans, who emphasize the importance of the language of experts, do not explore the rhetorical dimensions of that language.[23] Much can be gained by carefully examining the actual discourses of experts in order to understand what inventional resources they utilize to persuade non-experts of the validity and reliability of the information and advice they provide. Considering the issue of expertise from an anthropological perspective, E. Summerson Carr presented a case for attending to enactments of expertise rather than just considering acquisition of expertise (i.e. how expertise is used rather than how expertise is gained), believing that a focus on communicative interaction will provide new understandings of experts.[24] She argued, "people become experts not simply by forming familiar—if asymmetrical—relationships with people and things, but rather *by learning to communicate* that familiarity from an authoritative angle."[25] In other words, expertise is not formed by the acquisition of specialized knowledge alone, but rather exists as a result of the *communication* of that knowledge. Paying attention to the enactments of expertise by particular individuals can illustrate how expertise plays out in everyday interactions that become the foundation for important individual decisions, such as choosing whether or not to vaccinate a child.

Within rhetoric of science, more attention has been paid to the actual discourse of experts and several scholars have developed excellent case studies.[26] Thomas Lessl's work examined the tone of scientific expertise writ large. He traced the overlap between religious discourse and scientific discourse, noting how those speaking for science take on a "priestly tone" that imbues

science with the same sense of authority that the church once held.[27] His macro-level analysis demonstrates the centrality of authority in scientific expertise. My own study builds from Lessl's general observations to a specific case study to understand how the authoritative, "priestly" tone of scientific experts influences the rhetoric of a science-based controversy. I also extend Lessl's work by examining the assessments citizens make of such a tone.

Related to Lessl's study on the overall tone of scientific discourse, rhetorical scholar Charles Alan Taylor studied the rhetorical aspects of demarcation for science.[28] Taylor explored the resolution of questions of demarcation for science, examining the discursive practices used to mark out where science begins and ends and to distinguish it from politics or pseudo-science. In his work, Taylor argued that there is not a single boundary between science and non-science, but rather multiple ways in which the boundaries of science become established, often through rhetorical practices. Although scholars typically treated the demarcation issue in science a philosophical one, Taylor's rhetorical perspective created recognition for the ways in which the boundaries of science are not pre-defined and static but rather are socially constructed and continually shifting. As Taylor noted, "Science, then, is neither a mirror of nature nor intellectual anarchy. Rather, it is a production of historically shifting social communities that rhetorically demarcate themselves from other communities."[29] Considering the demarcation issue from a rhetorical perspective led Taylor to identify what he termed the scientific ecosystem, a framing that speaks to the ways in which science intertwines with other social institutions. Understanding how individuals or organizations establish a reputation as expert authorities represents, essentially, a demarcation issue. Particularly, the means for establishing scientific and technical expertise play a role in continually establishing and confirming the boundary between science and non-science. Additionally, contestations between various experts or areas of expertise

represent internal demarcation disputes or boundary issues that occur within the scientific enterprise, rather than between science and non-science. These disputes over the territory of particular areas of knowledge (and of the experts who speak for them) represent an aspect of the demarcation issue that remains understudied.[30]

Although he did not frame his study as focused on issues of expertise, Goodnight's delineation of the personal, technical, and public spheres carries certain implications for understanding the discourses of experts.[31] His seminal essay established that unique standards of argumentation and assumptions operate within each realm. Goodnight explained that the technical sphere, which includes areas like science, relies on formal means for presenting arguments and invokes higher standards of proof for making claims that require specialized knowledge as well as specialized means of communicating that knowledge.[32] In other words, the specificity and nuances of technical arguments require technical knowledge in order to be understood and technical standards in order to be accepted. In contrast, arguments that occur within the public sphere rely on less formal argumentation styles and incorporate types of evidence likely to be understood by a more general audience.

Each sphere provides a distinct context and establishes different expectations for the arguments that take place within them. As such, essential differences exist between discourses that occur in different spheres, which presents challenges when discourses move from one sphere to another. As discourse shifts from the technical sphere to the public sphere, the discursive norms of the technical sphere take on new meanings in the public realm. As Goodnight noted, "once the public sphere is entered, the private and technical dimensions of the disagreement become relevant only insofar *as they are made congruent with the practices of public forums*."[33] It is not just that the rhetorical strategies for arguments change between spheres, but also that the

practices of interpretation are different, an insight important to keep in mind in a study of the AVC, which straddles the technical and public spheres simultaneously.

This shift in discourse as it transverses spheres has not gone unnoticed by other rhetorical scholars. Through an excellent case study on the rhetoric of E.O. Wilson when he was promoting the new field of sociobiology, Lyne and Howe trace how moving between spheres can blur the standards of argumentative proof.[34] They argue that as Wilson's scientific arguments crossed discursive boundaries, the standards of accountability became unclear. Specifically, they expressed concern that as a rhetor shifts from addressing a more specialized audience to a more general audience, he or she could broaden the claims made without having to present the same rigorous level of evidence as when trying to persuade a highly technical audience well versed in the knowledge field being discussed. Lyne and Howe's study revealed interesting findings about some of the rhetorical aspects of expert discourse but was limited to a single case study. I add strength to their conclusions by considering the discourse of Andrew Wakefield, a scientific expert, as he crosses discursive boundaries with his arguments about the link between the MMR vaccine and autism. My own study also extends Lyne and Howe's work by considering reception discourse of Wakefield's claims among technical and public audiences. This examination of reception enables me to move beyond theorization of audience reaction to analysis of actual responses, showing how audiences interpreted the message Wakefield presented.

In *The Rhetoric of Expertise*, perhaps the most thorough study of the rhetorical aspects of expertise to date, rhetorical scholar Johanna E. Hartelius studied the discourse of experts as a rhetorical genre.[35] In her study she identified key discursive elements that occur across academic disciplines and knowledge areas. For Hartelius, four rhetorical concepts (or concept pairs) prove

essential to understanding the discourse of experts: invention and performance, ethos, identity and identification, and audience.[36]

Hartelius also argued for noting the ways in which expertise is both relational and substantial; according to her, trying to declare expertise as either one or the other misses the point. She stated, "The question of expertise as an individual quality versus an attribution made by others becomes moot as a rhetorical perspective reveals that it is necessarily and simultaneously a function of both. Specifically, source credibility, or *ethos*, redefines expertise as a combination of the expert's knowledge and competence and her perceived trustworthiness and goodwill."[37] This perspective draws attention to the complex ways in which recognition of expertise occurs as well as the role *ethos* plays in discourses of expertise. Typically defined as an audience's perception of a speaker's character, a speaker's *ethos* can significantly influence how an audience receives the delivered message. Aristotle classified *ethos* into three components: *phronesis* (practical knowledge), *arête* (virtue or trustworthiness), and *eunoia* (good will).[38] Hartelius acknowledged the potential role of each aspect of *ethos* and created space to talk about the important role trust plays in assessing expertise. Since a non-expert does not possess the specialized knowledge necessary to judge the validity of an expert's statement, trust becomes a substitute standard for making judgments. As a result, *arête* and *eunoia* can come to dominate evaluations of expertise, leading some to trust experts whose technical knowledge or credentials may be flawed simply because those experts emphasize that they have the public's best interest at heart. This understanding of the role of *ethos* helps explain, in part, McCarthy's ability to gain such a significant public hearing and reignite concerns about vaccine-induced autism well after the scientific community had addressed and dismissed the possibility.

Hartelius examined the rhetoric of experts across four different contexts (political, historical, medical, and informational), considering both more traditionally recognized experts and alternative forms of expertise. For example, when examining the discourse of medical expertise, Hartelius analyzed how a psychiatrist presents his clinical expertise on depression, comparing it to how patients living with depression present their experiences as another type of expertise on the subject. Hartelius recognized that expertise comes from more than mere technical training. As she stated,

> More important to a rhetorical analysis, however, are the symbolic goods: acknowledgement, authenticity, credibility, status, legitimacy, etc. Being an expert means having the right to a certain chunk of human experience. It means one's version of that experience is recognized as authentic, one's perspective is acknowledged and believed, one's voice is heard and respected. Ownership can be theorized in ways other than material property. To own an experience and thus call oneself an expert is to be validated.[39]

Within the AVC, parents of autistic children who support the argument that vaccines are linked to autism similarly aim to have their experiences and their perspective validated. A rhetorical perspective can help uncover the strategies such individuals use to declare a type of experiential expertise in order to gain a hearing.

Hartelius did an excellent job of tracing some of the essential rhetorical strategies employed by experts, but her study only scratches the surface of the various ways expertise influences public discourses. For example, although she examined expertise across various contexts, she treated each one quite independently from the others, rather than examining the rhetorical interplay between and across contexts. Additionally, although she catalogued the

discursive patterns of both more technical forms of expertise and expertise based on lived experiences, she did not address or theorize what might transpire when these different types of expertise come into conflict with one another or how such tensions might shift the rhetorical dynamics involved. And while recognizing the important role audience plays in shaping the rhetoric of expertise, Hartelius did not examine any audience reception. Focusing on texts surrounding the AVC and the reception of those texts, this study offers an extension of the work by Hartelius and other rhetoricians of science by considering the rhetoric of expertise in the context of a science-based controversy as it evolves and engages different discourse communities across various contexts, bringing multiple types of expertise into conflict.

Science and Controversy

Within rhetoric of science, scientific and science-based controversies have become prevalent objects of study.[40] Goodnight noted that "since science cannot escape its openness to probabilities and since technologies are inherently risky, contemporary controversies gather into themselves tensions between approach and avoidance, fear and hope, risk and security."[41] Rhetorical analysis of texts related to scientific and science-based controversies can reveal insights into the navigation of those tensions. Specifically a rhetorical perspective traces the impact of discursive elements on how various participants articulate, interpret, and occasionally resolve controversies that arise. Studies of internal controversies look at disputes within the scientific community. In contrast, external studies consider issues of dispute in the public realm that rely on science in some regard. These might better be termed science-based controversies. This includes disputes about what policy action to take given the available scientific

information[42] or controversies created by issues of fraud or unethical behavior from scientific figures.[43]

Closely related to the idea of science-based controversies are what Leah Ceccarelli has termed "manufactured scientific controversies."[44] As she explained, "A scientific controversy is 'manufactured' in the public sphere when an arguer announces that there is an ongoing scientific debate in the technical sphere about a matter for which there is actually an overwhelming scientific consensus."[45] Ceccarelli pointed to support for the Intelligent Design movement, denials about HIV leading to AIDS, and skepticism about human-caused climate change as examples of contemporary manufactured scientific controversies. In each of these case studies, an overwhelming majority in the scientific community believe the controversy no longer exists; however, public discourse, typically from conservative political actors, challenges such claims and argues that the science remains unsettled. Similarly, the scientific information related to a possible link between vaccines and autism has been settled for several years now; however, discourses in the public sphere, primarily from parent advocates, argue that more thorough and extensive research is still needed to settle the issue of vaccine safety. Therefore, the AVC can also be labeled a manufactured scientific controversy, but unlike many examples of this phenomenon, the manufacturing of the AVC comes from the discourse of those from across the political spectrum. Examination of the AVC adds to current understandings about the rhetorical aspects of manufactured scientific controversies, particularly the role of expertise around such contestations.

The Autism Vaccine Controversy: A Case Study

As a science-based, manufactured controversy, the AVC brings to the forefront issues regarding who counts as an expert and which experts to believe. The debate over the possibility of a connection between childhood vaccines and autism brings scientific and medical experts in conversation with parents of autistic children, who claim an expertise of their own based on their life experiences. With the AVC's rapid shift from the technical realm into the public domain and the central tension between technical expertise and experiential expertise, this science-based manufactured controversy provides the necessary dynamic to address a number of issues related to the complex role the rhetoric of expertise plays in public discourses.

This study adds additional insight into the rhetorical strategies used to gain recognition as an expert. Although Hartelius outlined some markers of a genre of expert rhetoric, this study uncovers how discourses of expertise adapt these standard appeals in the context of a science-based controversy when a rhetor must persuade an audience of his or her relevance, authority, and legitimacy to speak on the topic under debate. Additionally, I examine how shifting the discourse from technical audiences to public audiences (i.e. crossing argument sphere boundaries) changes the enactments of expertise, demonstrating how a change in the rhetorical situation shifts the rhetorical strategies employed.

In addition to analyzing the various rhetorical strategies engaged by those claiming to be experts regarding the AVC, I also examine reception discourses to understand how these different enactments of expertise manage to persuade. Reception discourses reveal how audiences understand the appeals experts use and which appeals attract the most attention, whether positive or negative. Within the context of controversy, whether manufactured or legitimate, rhetors will find themselves competing with others for recognition as experts;

studying reception provides insights into how audience members decide which experts to grant credence and trust and the degree to which expertise is persuasive in guiding decisions.

Finally, examining the enactments of expertise that emerge as the AVC evolves across discursive contexts and through time grants further insight into the rhetorical life of science-based manufactured controversies, when the dispute over the science in the technical sphere is settled long before the dispute in the public sphere. Such knowledge offers a better understanding of the ways in which enactments of expertise shape how the public interprets and responds to science-based controversies. As one scholar noted, "social learning and human betterment emerge when the experts have been able to develop usable knowledge and the decision-makers feel compelled to apply it."[46] To achieve this ideal, a deeper understanding of the relationship between expert and decision maker is needed. This study offers insights into that relationship by following the shifts in public discourse about a science-based manufactured controversy and analyzing the role expertise plays in that conversation, ultimately arguing that a better understanding of the rhetoric of expertise can be used to guide citizens in sifting through the various voices that emerge.

Study Approach

A rhetorical perspective provides a particularly useful approach for studying situations, such as the AVC, that lack consensus or encompass differing viewpoints that have not yet been resolved. Rhetorical scholars John Lucaites and Celeste Condit observed, "From the rhetorical perspective, where attention focuses on the persuasive potential of public discourse, *the emphasis is not on the truth or falsity of language, but on the power and effectiveness of the performance* to interpret and evaluate, to envision new possibilities, to call a community together and to motivate it to act in the name of shared values and interest."[47] This perspective—focusing on

impact rather than accuracy—works well for attending to enactments of expertise and reception of those enactments in the public sphere where factors beyond the correctness of information come into play.

For this study, I employ a close textual-intertextual approach as a method that privileges the text while also examining reception of the text. Such a method embraces the aims of rhetorical critic Michael Leff's close reading approach to re-center attention on the text and examine the ways in which style and form intertwine to create meaning.[48] As Leff and Sachs explained, "Working from the evidence within the text, the critic proceeds to make inferences about what the work is designed to do, how it is designed to do it, and how well that design functions to structure and transmit meanings within the realm of public experience."[49] A method of close reading enables the rhetorical critic to uncover those elements that make a text exemplary and with that understanding, a rhetorical scholar can then make a contribution to the broader understanding of how symbols influence people.

However, as a method of rhetorical criticism, close reading has been criticized for being too narrowly focused on the text. A close textual-intertextual approach avoids this by also considering responses to the artifact as a way of understanding how it functions in the world.[50] When utilizing this method rhetorical scholars consider artifacts of reception such as book reviews, articles citing the primary text, interviews, and newspaper articles, which allows the critic to not only determine the invitation offered by the text, but also, through examination of artifacts of reception, determine whether that invitation was accepted—and by whom—or whether audiences constructed alternative meanings from the text that better served their purposes or more readily aligned with their worldviews. This approach aids me in generating a

robust understanding of the claims to expertise that emerge from the various positions vying for recognition in the AVC as well as how those claims of authority are assessed.

Artifact Selection

I have elected to focus most closely on two key figures within AVC discourse: Andrew Wakefield and Jenny McCarthy. I also explore other discourses of expertise that emerge around the periphery of these two figures and the reception discourses that reveal the influence these individuals had. While the involvement of these two personalities in the AVC occurred on separate continents and transpired almost a decade apart, they represent key moments in the life of this science-based manufactured controversy. Wakefield was there from the beginning; he laid the seeds of the controversy in his research article, and then cultivated the rapid growth of that seed through his public comments.[51] While misgivings about the MMR vaccine were quick to escalate in the UK where Wakefield was stationed, concerns about vaccines developed more slowly in the US. That changed when McCarthy emerged with her story on *Oprah*, adding fuel to the vaccine hesitancy fire long after the issue had been examined and dismissed by scientists, giving the controversy new life.[52] While there are many other participants and many other moments I could examine, these represent important moments in the evolution of the controversy as well as cultural understandings of the issue. Below I outline the specific artifacts examined to access the discourses of expertise that Wakefield and McCarthy employ.

I begin my analysis with the original scientific article published in *The Lancet*, which serves as the point of origin for the AVC.[53] Focusing on this text allows me to explore the rhetorical aspects of the scientific discourse occurring around the AVC. Given the ongoing nature of the AVC and its failure to "die out," examining the rhetorical groundwork that this article laid presents an important first step in understanding the discourse that followed. I

examine the reception of this article at the time of its publication by examining responses from the technical audience to which it was directed. These responses include a critical commentary, which was published in the same issue of *The Lancet* as an accompaniment to the Wakefield et al. article, and a collection of letters to the editor published in the journal shortly thereafter.[54]

While the original scientific article had an important role to play in the beginning moments of the AVC, another key moment came when Wakefield's claims about the possible connection between autism and the MMR vaccine were revealed to the public through a press conference.[55] Considering the press conference, and a video press release that preceded it, allows me to analyze discursive shifts from the original research article to the public presentation of those findings. Additionally, since Wakefield appeared alongside several colleagues who offered significantly different interpretations of the study's findings and significance, the press conference also offers insight into the discourse that unfolds when experts lack consensus. As such, the press conference provides the means for examining the dynamics of the rhetoric of expertise when technical experts speak to non-technical audiences about a contested issue. This press conference generated significant attention, and I track reception of the attempts to publicize Wakefield's research through the media coverage it received, concentrating on coverage in the week immediately following the conference.

As mentioned above, the AVC presents an interesting case where scientific and medical experts are placed into conversation with parents claiming a certain expertise of their own. The most vocal aspect of this "parent as expert" discourse has come in the form of advocacy rhetoric. A number of advocacy groups related to vaccination reform or autism have emerged, but overwhelmingly Jenny McCarthy is identified (particularly by the media) as a key spokesperson for these groups and their cause, whether they approve of her tactics or not.[56] In order to analyze

claims of experience-based expertise in parental discourses in the public sphere, I focus on McCarthy's advocacy work in relation to the AVC. Focusing on her series of books written on the topic[57] as well as several public appearances to promote those books,[58] I analyze the enactments of expertise McCarthy employed to gain a hearing alongside more technical experts. In order to understand the responses to McCarthy's claims to expertise, I consider book reviews and a variety of articles from both the mainstream media and the blogosphere that discuss her role in the AVC.

Ultimately, parents must filter through all the information swirling about in public discourse regarding this issue and the various experts competing for legitimacy to make a decision about vaccination for their children. By looking at parenting discourses I uncover the types of discussion occurring on an interpersonal level regarding which experts to trust and whose advice to follow. In order to get a better sense of the assessments of expertise that parents make and their responses to various arguments for and against vaccination, I conducted 20 semi-structured interviews with mothers of young children (born since 2005), talking with parents electing to vaccinate as recommended and parents who chose to delay or alter the recommended vaccine schedule in some way.[59] Interviews asked mothers about their typical media diet, sources for parenting advice, understandings of the AVC, and processes for making decisions about vaccination for their children. I treat these interviews as a rhetorical artifact of reception for the AVC controversy as a whole, analyzing the ways in which parents talk about vaccination to understand their perception of experts' claims and the values that influence the parents' ultimate decision.

Chapter Previews

Chapter 2: *Hidden in a Hedge: The Harms of Expert Language Practices in Scientific Discourse*

In this chapter I examine the discursive origins of the AVC by conducting a rhetorical analysis of the 1998 Wakefield et al. article and the press conference to promote the research in the public domain that followed. My analysis explores the ways in which the traditional discursive features of the research report—such as hedging and passive voice—enable Wakefield's article to pass through the peer review process and, by extension, grant Wakefield a particular claim to expertise.

This chapter also traces the evolution of the AVC as it moved from a technical sphere context into a public sphere context by way of the press conference held by the Royal Free Hospital to promote the *Lancet* article. Within the context of the press conference, with his research part of the official scientific record, Wakefield continued to hedge his claims, but shifted the hedges from expressing uncertainty about his finding to embedding qualifiers in his comments about the appropriate response to those findings, more specifically his pronouncement that parents should revert to receiving the monovalent vaccines rather than the combination vaccine for measles, mumps, and rubella.

Wakefield's claims faced contestation by his colleagues, shaping the initial presentation of the Wakefield et al. research to the public. I examine the comments made by these colleagues on the expert panel that participated in the press conference as a matter of internal demarcation. Participants used qualifiers to bound the scope of various arenas of knowledge (i.e. arguing that a virologist was better equipped than a gastroenterologist to make certain judgments) and embed disclaimers to emphasize the limited explanatory power of the research undergirding Wakefield's policy claims. However, they failed to more directly and explicitly dismiss

Wakefield's enactment of expertise and do not provide the necessary context or explanations for an audience of non-specialists to make sense of the nuanced distinctions they discuss.

Ultimately the analysis of this chapter reinforces the important role the peer review process plays as a gatekeeper on the creation of knowledge and the production of experts. While adherence to discursive norms for the scientific community help demonstrate methodological alignment, these language practices can evoke significantly different interpretations when taken from a technical communicative setting, like an academic journal, to a public setting, like a press conference. Once introduced to a public audience, scientific information is hard to reclaim or reframe, as demonstrated by the ways in which attempts to qualify and constrain Wakefield's discourse at the press conference failed to become part of the storyline of the AVC.

Chapter 3: *Accommodating Expertise: The Disappearance of Hedges and Demarcations in Reception of Wakefield's Research*

This chapter builds from the analysis in the previous chapter by turning to the reception discourse of both the Wakefield et al. article and the Royal Free Hospital press conference. I start by examining how an audience of Wakefield's peers received his research. Reception discourse presented in the pages of *The Lancet* reveals that the rhetorical choices outlined in the previous chapter created discursive gaps that supported multiple interpretations of the Wakefield et al. article. Two dominant readings emerged; some members of the technical audience argued that Wakefield claimed a link between the MMR vaccine and autism existed without sufficient empirical evidence to support such a claim. Others defended against such an interpretation, arguing that the article met community standards for acceptance and contributed a worthwhile finding to the record of knowledge. Both readings were grounded in the text of the article, but whether readers approached the article with a technical sphere orientation or a public sphere

orientation influenced the conclusions made about what the article did rhetorically. Thus, this reception confirms the strategic ambiguity of Wakefield's rhetorical choices, helping to explain how Wakefield was able to use the article to promote his own agenda (with a change in context and argumentative standards) while still referencing the article to defend himself against accusations that he presented a link between the MMR vaccine and autism as a proven fact.

Since chapter two traces the rhetorical beginnings of the AVC from a technical sphere audience to a public audience, I also follow reception across this contextual shift. Examination of responses to the press conference, in the form of media coverage in the week following the event, reveal coverage that tends to remove hedges in headlines but incorporate expressions of uncertainty within the text of articles. Similar to the accommodations of scientific information that occur in popularized coverage of scientific research,[60] media coverage of the AVC shows that accommodations of expertise often occur, with detailed distinctions between experts disappearing in accommodations of research in news coverage. Whether newspaper editors cannot understand or do not care to specify the nuanced demarcations experts offer of their own and others' knowledge, my analysis of reception to the press conference discourse shows that critiques relying on internal demarcation claims and hierarchies of expertise will likely have limited effectiveness for persuading public audiences. The chapter ends with a review of the reception of Wakefield's claims as the years have passed.

Chapter 4: Mommy Instinct: Parenthood as Expertise

This chapter explores the rhetorical strategies used to declare the experience of parenthood as a type of expertise. While vernacular discussions explain McCarthy's ongoing presence in AVC discourses as a testament to the power of anecdotes over scientific evidence, my own examination revels more complexity to her discourse than is often acknowledged. My

analysis centers on McCarthy's advocacy work in relation to the AVC, exploring her emphasis on ethos in her enactments of expertise. I explore how McCarthy rhetorically establishes "mommy instinct" as a form of expertise on par with medical practitioners and scientific researchers. I trace the ways in which McCarthy relies on narrative in her books to first establish the power of "mommy instinct" and then argue that this instinct grants her the epistemological qualifications to speak as an expert on this topic.

My analysis also shows McCarthy relied on stylistic choices, such as her use of incrementum—an ordered series of three or more items—to enhance her claims to expertise. Bracketed by ethos appeals that stress her virtue and good will as well as comments that highlight her identity as a mother and the common values she shares with other parents, McCarthy utilizes a variety of rhetorical elements to enhance her perception of trustworthiness in order to gain a hearing and challenge technical discourses that claim vaccines are safe and effective. Her presentation argues for the legitimacy and credibility of motherhood as a form of expertise that deserves a broader hearing in public discourses around parenting decisions. At the same time, McCarthy's reliance on bodily experiences that remain resistant to outside assessments presents a unique challenge for those looking to respond and disrupt her enactments of expertise.

Chapter 5: Perceptions of a Playboy Bunny: Responding to McCarthy's Enactments of Expertise

Turning from McCarthy's presentation to her reception, chapter five provides an overview of common themes that emerge in responses to and critiques of McCarthy's discourse of expertise. Dismissals of McCarthy's legitimacy because of her past as a Playboy Playmate are frequent features in responses to her claims about vaccines. Other responses rely less on name-calling but tend to dismiss her personal experiences. I argue that both represent rhetorical

missteps in effectively countering the claims of expertise McCarthy presents. Through examination of book reviews of McCarthy's work and public reception, I show how the various ethos appeals McCarthy offers work (or not) for her target audiences.

Using this reception as a starting point, I offer suggestions for new responses to McCarthy that incorporate the insights from the analysis in the previous chapter. I propose that responses that create space for parental expertise rather than dismissing it as irrelevant or irrational may be more effective at finding ways to work with, rather than against, those enacting expertise based on lived experiences. Transcending an adversarial framing to embrace a collaborative exchange will create better opportunities for persuading parents to embrace vaccination. Additionally attention to the ways in which style structures McCarthy's claims can provide productive means for responding in kind, utilizing similar stylistic devices to enhance one's own message. Pointing out limitations to or inconsistencies in ethos appeals offers another means of limiting the power of discourses that try to substitute credibility for credentials.

Chapter 6: Parental Choice: Assessing Experts and Making Vaccination Decisions

The emphasis of this chapter is on understanding how parents assess the various forms of expertise vying for attention around the AVC and how those assessments influence their decisions regarding vaccination. Semi-structured interviews with mothers are used to construct reception discourse of the AVC as a whole. I analyze the ways parents talk about vaccines to uncover the influences on their decisions and perceptions of competing expert discourses around the AVC. Focusing on responding to claims about vaccine-induced autism misses other opportunities for addressing parental concerns about vaccination. Word choice indicates subtle influences on parental perceptions of vaccine safety that may not be readily recognized. Additionally, these interviews uncover mothers employing processes of weighing risks to make

vaccine decisions, but risk assessments were individualized and influenced by one's context. *Topoi*, or common lines of argument, emerge across the mothers interviewed, regardless of the vaccination decision made. These *topoi* point to common discursive ground that might be utilized in framing messages encouraging vaccine uptake. In particular, localizing public health messages may allow parents to better understand the risks they assume with their vaccination choice.

Chapter 7: Lessons Learned: Unweaving the Rhetorical Dynamics of Expertise Amid Controversy

In the closing chapter I bring together the observations from the previous chapters to reflect on what they reveal about the rhetorical dynamics of expertise in contemporary society. This chapter discusses the role context plays in recognition and assessment of expertise by audiences. Expertise is dynamic, not static. It can stretch beyond its epistemological foundations through discursive constructions that deflect attention from credentials and focus it on credibility and character. Such framings rely on the importance of trust in the relationship between expert and decision maker to create an opening for one's discourse. As such, the importance of *ethos*, particularly the role of *eunoia* and *arête*, in discourses of expertise, becomes clear, since establishing credibility and trustworthiness as an expert can outweigh an expert's technical credentials and legitimacy. Additionally, disputes over qualifications constitute issues of internal demarcation. Such contestations offer important sites for understanding the constructed nature of expertises and the community building that accompanies it. As such, it calls for more attention, particularly from rhetoric of science scholars.

Additionally, this chapter argues for the need to recognize and understand the persuasive impact arguments of experience, such as the mommy instinct appeal, can have in the public

sphere around issues of science-based controversy. Technical experts may be tempted to dismiss such discourses as irrational or at the very least as irrelevant and unscientific. However, given their reception, it should be clear that many interpret those making such appeals as experts in their own right and just as qualified to speak as more traditionally recognized experts.

Finally, studying the reception of discourses of expertise allows for a more robust understanding of the influence of such discourses, particularly around technical issues that are unsettled or science-based manufactured controversies. For example, the interviews I conducted show that mothers delaying or exempting out of vaccines were not making the decision blindly. Rather they were weighing information from experts as well as personal connections and Internet searches. All these sources influenced their risk assessments and ultimately their vaccine decisions. Reception also aids in identifying places for changing the discourse surrounding such issues so that citizens can feel confident in the decisions they make. By taking the time to examine how audiences receive expert information, experts involved in these discourse arenas can cultivate a new appreciation for the perspectives of nonspecialists. Such an understanding should reframe rejection of expert communication not as a result of ignorance but as a failure in persuasion.

Conclusion

Tracing the discourses of expertise involved in the AVC as it moves from a technical sphere into a public sphere grants insight into the evolution of this science-based manufactured controversy and the development of the various positions in the debate. Examining this controversy from its origin to its later articulations in public discourse opens up space for considering the multiple types of expertise employed in debates about the AVC. Exploring the

various responses and interpretations laypeople posit about these enactments of expertise provides new perspectives regarding audience assessments of competing, and often conflicting, experts. Ultimately, then, an in-depth case study of the AVC offers a more robust understanding of the role of discourses of expertise in our contemporary society.

Understanding the rhetoric of expertise takes on particular importance given the complexity of many contemporary problems and their potential influence (both positive and negative) on individuals and society as a whole. As Carr noted, "would-be experts must continuously work to authenticate themselves as experts as well as to authenticate the objects of their expertise."[61] Enactments of expertise will continue to be an influential part of public discourse. A rhetorical analysis of the AVC reveals what strategies of legitimacy and authority rhetors utilize how successful those strategies prove to be over the course of a public science-based manufactured controversy. This knowledge will allow for a better understanding of how expert discourses shape public interpretation and response to these types of issues. It also points to places for intervention, where the discourse can be changed to ensure that citizens understand the claims to expertise being made and how to evaluate those claims, ultimately empowering them to make the best decision possible regarding issues that generate a plethora of conflicting experts, each claiming to have the right answer about what action to take.

---

[1] G. Thomas Goodnight, "Science and Technology Controversy: A Rationale for Inquiry," *Argumentation and Advocacy* 42, no. 1 (2005): 27.

[2] "MMR Research Timeline," *BBC*, February 4, 2008, http://news.bbc.co.uk/2/hi/health/1808956.stm; "MMR Timeline," *The Guardian*, January 28, 2010, http://www.theguardian.com/society/2010/jan/28/mmr-doctor-timeline.

[3] For example, in 2013 189 cases of measles were diagnosed, the second highest number of cases in any given year since 2000, when measles were declared eliminated from the US. The CDC reports that 82% of these cases occurred in unvaccinated individuals, with 79% of those individuals exempting out of vaccination for philosophical reasons. The average number of cases a year from 2001-2010 was 60. Centers for Disease Control and Prevention, "Measles — United States, January 1–August 24, 2013," *Morbidity and Mortality Weekly Report* 62, no. 36 (September 13, 2013): 741–43. The highest number of cases occurred in 2011 with 222 cases diagnosed. Centers for Disease Control and Prevention, "Measles — United States, 2011," *Morbidity and Mortality Weekly Report* 61, no. 15 (April 20, 2012): 253–57. However, measles is not the only illness increasing because of vaccination exemption. In early 2012 Washington state declared cases of pertussis, a potentially life-threatening illness for infants, at epidemic levels. Centers for Disease Control and Prevention, "Pertussis Epidemic — Washington, 2012," *Morbidity and*

Mortality Weekly Report 61, no. 28 (July 20, 2012): 517–22. In 2014 the Council on Foreign Relations published an interactive map charting outbreaks of vaccine preventable diseases around the world from 2008-2014. Council on Foreign Relations, "Map: Vaccine-Preventable Outbreaks," *Council on Foreign Relations*, 2014, http://www.cfr.org/interactives/GH_Vaccine_Map/index.html.

[4] A. J. Wakefield et al., "RETRACTED: Ileal-Lymphoid-Nodular Hyperplasia, Non-Specific Colitis, and Pervasive Developmental Disorder in Children," *The Lancet* 351, no. 9103 (February 1998): 637–41, doi:10.1016/S0140-6736(97)11096-0. For an overview of the history of the Wakefield et al. article and its role in the AVC see Brian Deer, "Revealed: MMR Research Scandal," *The Times (London)*, February 22, 2004, http://www.thetimes.co.uk/tto/health/article1879347.ece; Brian Deer, "How the Case Against the MMR Vaccine Was Fixed," *BMJ* 342 (January 5, 2011): c5347–c5347, doi:10.1136/bmj.c5347; Brian Deer, "How the Vaccine Crisis Was Meant to Make Money," *BMJ* 342 (January 14, 2011): c5258–c5258, doi:10.1136/bmj.c5258; Brian Deer, "Secrets of the MMR Scare. The Lancet's Two Days to Bury Bad News," *BMJ* 342 (January 22, 2011): c7001; For examples of articles naming the 1998 Wakefield et al. article as the point of origin of this controversy see Jeffrey Kopman, "The Dangerous History of Anti-Vaccine Conspiracies," *The Weather Channel*, March 6, 2013, http://www.cfr.org/interactives/GH_Vaccine_Map/index.html; Marc Lallanilla, "Why Some Rich, Educated Parents Avoid Vaccines," *LiveScience.com*, February 21, 2014, http://www.livescience.com/43577-why-rich-educated-parents-avoid-vaccinations.html; Gregory A. Poland and Robert M. Jacobson, "The Age-Old Struggle Against the Antivaccinationists," *New England Journal of Medicine* 364, no. 2 (2011): 97–99, doi:10.1056/NEJMp1010594; Kate Rope, "The End of the Autism-Vaccine Debate?," *Parenting*, 2011, http://www.parenting.com/article/the-end-of-the-autismvaccine-debate; David Ropeik, "Wakefield Debunked, But Vaccine Fear Lives," *The Huffington Post*, January 10, 2011, online edition, http://www.huffingtonpost.com/david-ropeik/wakefield-debunked-but-va_b_805826.html; Michael Specter, "Jenny McCarthy's Dangerous Views," *The New Yorker Blogs*, July 16, 2013, http://www.newyorker.com/online/blogs/elements/2013/07/jenny-mccarthys-dangerous-views.html?printable=true&currentPage=all.

[5] American Academy of Pediatrics, *Vaccine Safety: Examine the Evidence* (American Academy of Pediatrics, April 2013), http://www2.aap.org/immunization/families/faq/vaccinestudies.pdf.

[6] Gary L. Freed et al., "Parental Vaccine Safety Concerns in 2009," *Pediatrics*, March 1, 2010, peds.2009–1962, doi:10.1542/peds.2009-1962.

[7] See, for example, Karl Taro Greenfeld, "The Autism Debate: Who's Afraid of Jenny McCarthy?" *Time*, February 25, 2010, http://content.time.com/time/magazine/article/0,9171,1968100,00.html; Brian Gresko, "Vaccinate Your Children! There Is a New Outbreak of Measles in NYC," *Babble.com*, April 3, 2014, http://www.babble.com/dad/vaccinate-your-children-there-is-a-new-outbreak-of-measles-in-nyc/; Melissa Healy, "Jenny McCarthy on 'View': A New Forum for Discredited Autism Theories," *Los Angeles Times*, July 15, 2013, http://www.latimes.com/news/science/sciencenow/la-sci-jenny-mccarthy--view-autism-20130715,0,6008429.story#axzz2jjHD1i9s; Kopman, "Dangerous History"; Mary Langan, "Parental Voices and Controversies in Autism," *Disability & Society* 26, no. 2 (2011): 193–205, doi:10.1080/09687599.2011.544059; David M. Perry, "Destabilizing the Jenny McCarthy Public-Health Industrial Complex," *The Atlantic*, July 11, 2013, http://www.theatlantic.com/health/archive/2013/07/destabilizing-the-jenny-mccarthy-public-health-industrial-complex/277695/; Nina Shapiro, "The Anti-Vaccine Epidemic," *Seattle Weekly*, June 15, 2011, online edition, http://www.seattleweekly.com/2011-06-15/news/the-anti-vaccine-epidemic/; Specter, "Jenny McCarthy's Dangerous"; Rachel Avon Whidden, "Maternal Expertise, Vaccination Recommendations, and the Complexity of Argument Spheres," *Argumentation and Advocacy* 48, no. 4 (March 22, 2012): 243–57; Emily Chivers Yochim and Vesta T. Silva, "Everyday Expertise, Autism and 'Good' Mothering in the Media Discourse of Jenny McCarthy," *Communication and Critical/Cultural Studies* 10, no. 4 (2013): 406–26, doi:10.1080/14791420.2013.841320.

[8] For a small sampling see Tammy Boyce, *Health, Risk and News: The MMR Vaccine and the Media* (New York: Peter Lang International Academic Publishers, 2007); Michael Fitzpatrick, *MMR and Autism: What Parents Need to Know* (London ; New York: Routledge, 2004); David Kirby, *Evidence of Harm: Mercury in Vaccines and the Autism Epidemic: A Medical Controversy* (Princeton, N.J.: St. Martin's Griffin, 2006); Andrea Kitta, *Vaccinations and Public Concern in History: Legend, Rumor, and Risk Perception*, Routledge Studies in the History of Science, Technology, and Medicine (New York: Routledge, 2012); Mark A. Largent, *Vaccine: The Debate in Modern America* (Baltimore: Johns Hopkins University Press, 2012); Seth Mnookin, *The Panic Virus: The True Story Behind the Vaccine-Autism Controversy* (New York: Simon & Schuster, 2012).

[9] Whidden, "Maternal Expertise"; Yochim and Silva, "Everyday Expertise."

[10] John Lyne and Henry F. Howe, "The Rhetoric of Expertise: E. O. Wilson and Sociobiology," *Quarterly Journal of Speech* 76, no. 2 (1990): 135, doi:10.1080/00335639009383910. Emphasis in original.

[11] Frank Fischer, *Democracy and Expertise: Reorienting Policy Inquiry* (New York, NY: Oxford University Press, 2009).
[12] Leah Ceccarelli, "Manufactured Scientific Controversy: Science, Rhetoric, and Public Debate," *Rhetoric & Public Affairs* 14, no. 2 (2011): 195–228, doi:10.1353/rap.2010.0222.
[13] John Lyne, "Bio-Rhetorics: Moralizing the Life Sciences," in *The Rhetorical Turn: Invention and Persuasion in the Conduct of Inquiry*, ed. Herbert Simons (Chicago: The University of Chicago Press, 1990), 52.
[14] For example, E. Summerson Carr, "Enactments of Expertise," *Annual Review of Anthropology* 39, no. 1 (2010): 17–32, doi:10.1146/annurev.anthro.012809.104948.
[15] Lyne and Howe, "The Rhetoric of Expertise."
[16] Lyne, "Bio-Rhetorics," 52.
[17] Harry Collins and Robert Evans, *Rethinking Expertise* (University of Chicago Press, 2008), 2. Emphasis in original.
[18] Collins and Evans, *Rethinking Expertise*.
[19] Ibid., 10.
[20] Goodnight, "Science and Technology Controversy"; Jeffrey T. Grabill and W. Michele Simmons, "Toward a Critical Rhetoric of Risk Communication: Producing Citizens and the Role of Technical Communicators," *Technical Communication Quarterly* 7, no. 4 (1998): 415–41, doi:10.1080/10572259809364640; Philip C. Wander, "The Rhetoric of Science," *Western Speech Communication* 40, no. 4 (1976): 226–35, doi:10.1080/10570317609373907; Brian Wynne, "Sheepfarming After Chernobyl: A Case Study in Communicating Scientific Information," *Environment: Science and Policy for Sustainable Development* 31, no. 2 (1989): 10–39, doi:10.1080/00139157.1989.9928930.
[21] Collins and Evans, *Rethinking Expertise*, 3.
[22] For an exception, see Richard Tutton, Anne Kerr, and Sarah Cunningham-Burley, "Myriad Stories: Constructing Expertise and Citizenship in Discussions of the New Genetics," in *Science and Citizens: Globalization and the Challenge of Engagement*, ed. Melissa Leach, Ian Scoones, and Brian Wynne, Claiming Citizenship: Rights, Participation and Accountability (London: Zed Books, 2005), 101–12.
[23] In their book, *Rethinking Expertise*, Collins and Evans introduce the concept of "interactional expertise," (p. 28) arguing that a person outside a group of experts in a particular technical specialty can be recognized as belonging to that expert community because s/he is capable of speaking the same language as the experts. They even conducted an experiment to test their hypothesis, finding that it was possible. However, despite this emphasis on the importance of language in assessing expertise, Collins and Evans do not discuss what language choices can be employed to convincingly convey oneself as an expert of a particular group.
[24] Carr, "Enactments of Expertise."
[25] Ibid., 19. Emphasis added.
[26] G. Thomas Goodnight, "The Personal, Technical, and Public Spheres of Argument: A Speculative Inquiry into the Art of Public Deliberation," *Journal of the American Forensic Association* 18 (1982): 214–27; E. Johanna Hartelius, *The Rhetoric of Expertise* (Lanham, MD: Lexington Books, 2010); Thomas M. Lessl, "The Priestly Voice," *Quarterly Journal of Speech* 75, no. 2 (1989): 183–97, doi:10.1080/00335638909383871; Lyne, "Bio-Rhetorics"; Lyne and Howe, "The Rhetoric of Expertise"; Carolyn R. Miller, "The Presumptions of Expertise: The Role of Ethos in Risk Analysis," *Configurations* 11, no. 2 (2003): 163–202, doi:10.1353/con.2004.0022; Carolyn R. Miller, "Novelty and Heresy in the Debate on Nonthermal Effects of Electromagnetic Fields," in *Rhetoric and Incommensurability*, ed. Randy Allen Harris (West Lafayette, IN: Parlor Press, 2005), 464–505.
[27] Lessl, "The Priestly Voice."
[28] Charles Alan Taylor, *Defining Science: A Rhetoric of Demarcation* (Univ of Wisconsin Press, 1996).
[29] Ibid., 7.
[30] Both Lyne and Howe and Miller offer case studies that touch on internal demarcation issues but they do not frame their studies as addressing this topic. Lyne and Howe, "The Rhetoric of Expertise"; Miller, "Novelty and Heresy."
[31] Goodnight, "The Personal, Technical, and Public Spheres of Argument."
[32] Ibid., 219–220.
[33] Ibid., 219. Emphasis added.
[34] Lyne and Howe, "The Rhetoric of Expertise."
[35] Hartelius, *The Rhetoric of Expertise*.
[36] Ibid., 11.
[37] Ibid.

[38] Aristotle, *On Rhetoric: A Theory of Civic Discourse*, trans. George A. Kennedy (New York: Oxford University Press, USA, 2007), II.i.5–7.
[39] Hartelius, *The Rhetoric of Expertise*, 14.
[40] Leah M. Ceccarelli, "Let Us (Not) Theorize the Spaces of Contention," *Argumentation and Advocacy* 42, no. 1 (June 22, 2005): 30–33.
[41] Goodnight, "Science and Technology Controversy," 26.
[42] John Lynch, "Stem Cells and the Embryo: Biorhetoric and Scientism in Congressional Debate," *Public Understanding of Science* 18, no. 3 (2009): 309–24, doi:10.1177/0963662507085164; Miller, "The Presumptions of Expertise."
[43] Joan Haran and Jenny Kitzinger, "Modest Witnessing and Managing the Boundaries Between Science and the Media: A Case Study of Breakthrough and Scandal," *Public Understanding of Science* 18, no. 6 (November 1, 2009): 634–52, doi:10.1177/0963662509338324; Lisa Keränen, "Mapping Misconduct: Demarcating Legitimate Science from 'Fraud' in the B-06 Lumpectomy Controversy," *Argumentation and Advocacy* 42, no. 2 (September 22, 2005): 94–113.
[44] Ceccarelli, "Manufactured Scientific Controversy."
[45] Ibid., 198.
[46] Peter Haas, "When Does Power Listen to Truth? A Constructivist Approach to the Policy Process," *Journal of European Public Policy* 11, no. 4 (2004): 576, doi:10.1080/1350176042000248034.
[47] John Lucaites and Celeste M. Condit, "Introduction," in *Contemporary Rhetorical Theory: A Reader*, ed. John Lucaites, Celeste M. Condit, and Susan Caudill (New York: Guilford Press, 1999), 5. Emphasis added.
[48] Michael Leff and Andrew Sachs, "Words the Most Like Things: Iconicity and the Rhetorical Text," *Western Journal of Speech Communication* 54, no. 3 (1990): 252–73, doi:10.1080/10570319009374342.
[49] Ibid., 256.
[50] Leah Ceccarelli, *Shaping Science with Rhetoric: The Cases of Dobzhansky, Schrodinger, and Wilson* (Chicago: University Of Chicago Press, 2001).
[51] Wakefield et al., "RETRACTED: Ileal-Lymphoid-Nodular"; Royal Free Hampstead NHS TRUST, *Broadcast News Release* (London: Campaign Productions, 1998); Arie Zuckerman et al., "Press Briefing" (Press Conference, Royal Free Hospital, February 27, 1998).
[52] "Mothers Battle Autism," *The Oprah Winfrey Show* (NBC, September 18, 2007).
[53] Wakefield et al., "RETRACTED: Ileal-Lymphoid-Nodular."
[54] A. J. Beale, "Autism, Inflammatory Bowel Disease, and MMR Vaccine," *The Lancet* 351, no. 9106 (March 1998): 906, doi:10.1016/S0140-6736(05)70317-2; Helen Bedford et al., "Autism, Inflammatory Bowel Disease, and MMR Vaccine," *The Lancet* 351, no. 9106 (March 1998): 907, doi:10.1016/S0140-6736(05)70320-2; David Black, Henry Prempeh, and Tony Baxter, "Autism, Inflammatory Bowel Disease, and MMR Vaccine," *The Lancet* 351, no. 9106 (March 1998): 905–6, doi:10.1016/S0140-6736(05)70316-0; R. T. Chen and F. DeStefano, "Vaccine Adverse Events: Causal or Coincidental?," *Lancet* 351, no. 9103 (February 28, 1998): 611–12, doi:10.1016/S0140-6736(05)78423-3; Richard Horton, "Autism, Inflammatory Bowel Disease, and MMR Vaccine," *The Lancet* 351, no. 9106 (March 1998): 908–9, doi:10.1016/S0140-6736(05)70324-X; J. W. Lee et al., "Autism, Inflammatory Bowel Disease, and MMR Vaccine," *The Lancet* 351, no. 9106 (March 1998): 905, doi:10.1016/S0140-6736(98)26012-0; Keith J. Lindley and Peter J. Milla, "Autism, Inflammatory Bowel Disease, and MMR Vaccine," *The Lancet* 351, no. 9106 (March 1998): 907–8, doi:10.1016/S0140-6736(05)70321-4; Simon Murch, Mike Thomson, and John Walker-Smith, "Autism, Inflammatory Bowel Disease, and MMR Vaccine," *The Lancet* 351, no. 9106 (March 1998): 908, doi:10.1016/S0140-6736(05)70323-8; A. J. Wakefield, "Autism, Inflammatory Bowel Disease, and MMR Vaccine," *The Lancet* 351, no. 9106 (March 1998): 908, doi:10.1016/S0140-6736(05)70322-6.
[55] Zuckerman et al., "Press Briefing."
[56] Greenfeld, "The Autism Debate"; Gresko, "Vaccination Your Children!"; Jeffrey Kluger, "Anti-Vaccine Crusaders Are, As Always, Wrong," *Time*, April 2, 2014; Kopman, "Dangerous History"; Langan, "Parental Voices"; Shapiro, "The Anti-Vaccine Epidemic"; Specter, "Jenny McCarthy's Dangerous."
[57] Jenny McCarthy, *Louder Than Words: A Mother's Journey in Healing Autism* (New York: Dutton Penguin, 2007); Jenny McCarthy, *Mother Warriors: A Nation of Parents Healing Autism Against All Odds* (New York: Dutton Penguin, 2008); Jenny McCarthy and Jerry Kartzinel, *Healing and Preventing Autism: A Complete Guide* (New York: Dutton Penguin, 2009).
[58] "Interview with Jenny McCarthy," *Larry King Live* (CNN, September 26, 2007); "Jenny McCarthy's Autism Fight," *Larry King Live* (CNN, April 2, 2008); "Jenny McCarthy Speaks about Autism," *Fox On the Record with Greta van Susteren* (Fox News Network, June 6, 2008); "Mothers Battle."

[59] Parents with children born in or after 2005 were making vaccination decisions right as vaccine-hesitant discourses in the US started to intensify with McCarthy's public appearances in 2007. I backdated the age range to 2005 rather than 2007 because children born in 2005 would have been around the age of 2 when McCarthy first began speaking. Since the MMR is typically given around the age of 2 and is one of the key vaccines to come under fire with this controversy, the parents of children around that age were likely to be particularly attentive to her message.
[60] Jeanne Fahnestock, "Accommodating Science," *Written Communication* 15, no. 3 (1998).
[61] Carr, "Enactments of Expertise," 21.

Chapter 2

Hidden in a Hedge: The Harms of Expert Language Practices in Scientific Discourse

A vast majority of scientific research never gains much attention beyond a small community of interested scientists and engineers. But, in 1998 the prestigious British medical journal *The Lancet* published an article that continues to garner attention 15 years later, even after being renounced by most of those involved in its publication and officially retracted by the publishing journal. In an early report case study of 12 children, Andrew Wakefield and 12 co-authors announced evidence of inflamed bowel issues in children who showed developmental regression despite previous normal progress.[1] However, the article's wide recognition is not due to this finding. Rather, it has received significant attention, both positive and negative, because it is credited with establishing a link between the MMR (measles, mumps, and rubella) vaccine and the onset of autism spectrum disorders (ASD).[2] Helping draw attention to the research, Wakefield presented the findings from the study at a press conference the day before the article was officially published, catapulting the MMR-autism issue into the media spotlight and, by extension, onto the public agenda. Despite an explicit denial of proving a link between autism and the MMR vaccine in the article's text, many still view this article as claiming to have established the scientific grounds for such a conclusion, and, as a result, the Wakefield et al. article is commonly identified as *the* starting point of the autism vaccine controversy (AVC).[3]

In this chapter, I focus on the discursive origins of the AVC, conducting a rhetorical analysis of the original Wakefield et al. article as well as the video news release and press conference to publicize the study.[4] Rhetorical scholar Jeanne Fahnestock identified the Wakefield et al. article as a particularly interesting case when disqualification should have

occurred through peer review, but did not.[5] A rhetorical analysis of the Wakefield article sheds insight into how this article managed to elude disqualification initially and successfully pass through the peer review process. Although the Wakefield et al. article typically gets cited as the source of the AVC (as noted above), there has yet to be a close rhetorical analysis of this infamous text or the public promotion that followed. Despite this, claims about the rhetorical style of the article have been made. For example, rhetoric of science scholar Carol Reeves stated in passing that the Wakefield et al. article employed a bold rhetorical style that contributed to a misreading of the article by the media and the public, but she offers no further discussion of why she classifies Wakefield's style in that way and provides no textual examples to illustrate this style.[6] My own reading suggests that it was not bold style that allowed a misreading of this text, but quite the reverse—a careful hedging that hid a strategic ambiguity of meaning. A rhetorical analysis of the Wakefield et al. text illuminates the rhetoric choices its authors made and how those choices influenced later interpretations of its message.

In addition to the Wakefield et al. article, I also consider a video press release and press conference to promote the article.[7] The rhetorical significance of the Wakefield et al. article must be considered in the context of the events that occurred following its publication. Although media coverage often cites the Wakefield article as creating questions about vaccination, in reality, it was Wakefield's comments during a video press release and later at a press conference that explicitly raised concerns about the MMR vaccine. Thus, an analysis of the comments made as part of the publicity for the article is necessary to fully comprehend the discursive origins of the AVC. However, without an understanding of what authorization the scientific article provided, the press conference comments cannot be fully appreciated. I first examine the rhetorical strategy of the scientific article, then I trace how the contents of the article created

opportunities for Wakefield's controversial comments to be made under the guise of expert advice.

For all the attention and commentary surrounding this article, the Wakefield et al. article reads like a typical research report, following the norms and requirements of scientific research articles, especially through its use of hedging and passive voice. These rhetorical choices aid the article in successfully passing through the peer review process in order to be published as part of the scientific record.[8] That the Wakefield et al. text reads like a standard research article makes it all the more essential to determine what rhetorical elements enabled it to serve as the point of origin for the AVC. I argue that Wakefield incorporated enough strategic ambiguity into the scientific text to allow for a broad reading of the article that provided sufficient context for his claims questioning the safety of the MMR vaccine at the press conference, setting up the seemingly typical article to serve as the discursive foundation for the broader controversy.[9] Wakefield could reference the carefully composed 1998 *Lancet* article to defend himself against accusations of making unsupported claims about the MMR vaccine. In particular, the hedges incorporated in the article created discursive gaps that allowed Wakefield to later fluctuate between the explicit text of the article and the implied message of the hedges, depending on the context. In other words, the Wakefield et al. article reveals how the very language practices used to demarcate oneself as an expert in a technical sphere context introduce ambiguity in a public sphere context, opening a space for the construction of a manufactured scientific controversy.

I begin by considering how the Wakefield case fits within the broader context of the demarcation issue in science. I then offer a brief review of the rhetorical aspects of the scientific research article before turning to close examination of the original Wakefield et al. article, revealing how the text's use of hedging and incorporation of strategic ambiguity supports

multiple readings. With a firm understanding of the article's rhetoric in place, I examine the public promotion of the article. In particular, I scrutinize the press conference for enactments of expertise that the panelists employ to try to shape media reporting. I also trace the discursive struggle between the experts involved in the press conference to control the meaning of this article. Finally, I consider the implications of this analysis for understanding the problem of scientists transporting published scientific work from a technical context into a public context, as well as the role of hedging and other linguistic signs of technical expertise in creating and perpetuating science-based controversies.

Discursive Management of Demarcation

Overall the rhetoric of the Wakefield et al. article and the discourse surrounding its publication can be understood as part of the ongoing process of demarcation within the scientific enterprise. The demarcation "problem" in science relates to specifying means for distinguishing science from non-science, which is often approached as a philosophical problem. Rhetorical scholar Charles Taylor presented it as a rhetorical problem. He argued, "The view of science developed here holds that the meaning of science, as a set of social practices, is constructed in and through the discourses of scientists as they respond rhetorically to situations in which certain of their social, technical, and professional and technical [sic] interests are problematized in ways that may or may not be apparent either to the scientist or to the analyst of his or her activities."[10] From a rhetorical perspective, peer review operates as a key practice of demarcation, with publication distinguishing the work that meets the standards of science from the work that does not. Wakefield needed his study to pass through the peer review process to be officially accepted as part of the scientific record and to build his own expertise to speak on the issue. The rhetorical

choices he employed in the *Lancet* article reflect discursive strategies for successfully passing the demarcation test of peer review to have his research classified as science.

Despite the tendency for scholarly attention to focus on the boundary between science and non-science or pseudo science, the demarcation problem does not stop there. Even scholars working on the demarcation problem at this prominent boundary acknowledge that it is not the only one being constructed. As Thomas Gieryn put it, "The utility of boundary-work is not limited to demarcations of science from non-science. The same rhetorical style is no doubt useful for ideological demarcations of disciplines, specialties or theoretical orientations within science."[11] In other words, issues of internal demarcation within the scientific enterprise can and do arise. Internal demarcation can relate to carving out a disciplinary niche,[12] but might also entail struggles between individuals over claims to authority. Thus, in the same way that one category of scientific demarcation functions to classify the difference between science and non-science, some discursive struggles over claims to expertise operate as discourses of internal demarcation, attempting to create boundaries between individuals and groups, establishing the authority of some while downplaying the credibility of others.

Scholars have turned their attention to some of these internal struggles without always identifying themselves as working on demarcation issues. In observing a public debate that involved scientific experts, rhetorical scholars Jean Goodwin and Lee Honeycutt observed that comments from audience members often focused on criticizing the expert speakers rather than their science.[13] Audience members engaged in a process of classifying experts according to various standards to determine which one would gain their support; in other words they use demarcations that exist within science to evaluate those involved in the debate. Science and technology scholar Roland Bal observed a similar contestation over expertise occurring in the

Dutch courtroom. He noted, "What conclusions could be drawn, by whom, and on the basis of what evidence proved not to be clear-cut a priori, but they were part of the judicial process."[14] Clear categorization of which types of expertise were needed and which individuals could offer the most reliable testimony was not determined *a priori* but rather in situ. In other words, discourses of demarcation played a role in determining which experts would be heard in court and, as a result, whose conclusions would influence the interpretation of the case at hand.

While these studies relate to a process of demarcation generally, some work has examined the specific rhetorical elements of demarcation between areas of expertise. Rhetorical critic Carolyn Miller examines differences in *topoi* preferences between biologists and physicists for framing research presenting the possibilities of risks from exposure to electromagnetic fields.[15] These discursive preferences offer a means for biologists and physicist to distinguish between their approaches to the issue. In other words, discursive elements help establish disciplinary identity and delineate subspecialties from one another. Health communication scholars Srikant Sarangi and Angus Clarke studied discursive strategies used by genetic counselors to construct what they term "zones of expertise."[16] These strategies included invoking disclaimers about limitations in knowledge or deferring to the advice offered by other experts in order to avoid offering an "expert's opinion" on issues they did not feel qualified to address.[17] These strategies engage in a process of demarcation, establishing one's territory as a specialist. While in their study Sarangi and Clarke consider such constructions as a means for specialists to save face when posed with questions they cannot sufficiently answer, such efforts to demarcate zones of expertise might also be used to amplify one's own claims of expertise by qualifying the applicability of another expert's relevance, credibility, or scope of knowledge. As I show in greater detail later, during the public presentation of the Wakefield et al. article, those involved

engaged in a demarcation struggle related to their individual status as experts on the topic and relatedly, their ability to interpret the implications of the study.

The Rhetoric of Research

The quintessential form of communication in the technical sphere created by the scientific enterprise is the research article; thus, it provides an important avenue for demonstrating one's epistemological and methodological alignment with the broader expert community. As rhetorical scholar Phillip Wander stated, "The archetypal speaking situation for the scientist occurs in addressing an audience of fellow scientists, and the archetypal form of discourse is the research report."[18] Given the central importance of this form of communication, highly specific expectations about its form, contents, and style have evolved.[19] Rhetorical scholar Johanna Hartelius noted, "Scientists and doctors are bound together by language practices that define their professional identity, both among themselves and to the outside world."[20] In order to be recognized as an expert among peers, one must exhibit those language practices. Common features (or in Hartelius's terms, "language practices") of the contemporary scientific research report include an objective style, often created through the use of passive voice and a "dummy subject;"[21] the use of complex noun phrases that increase the complexity of the language in articles;[22] and expressions of uncertainty,[23] often expressed through the use of qualifiers and hedges.[24]

Hedges form a key rhetorical feature of scientific research articles. In their study of the history of the rhetorical evolution of the scientific research article, Alan Gross, Joseph Harmon, and Michael Reidy observed that hedging within scientific research operates both stylistically and argumentatively to shape meaning:

> Stylistically, its function is to communicate doubt within the constraints of a prose where the absence of the personal automatically conveys the impression of authority and assurance. The more impersonal the prose, the greater the pressures for hedging to counterbalance the appearance of absolute certainty. Argumentatively, the function of hedging is to avoid the most common of counterarguments, the charge of over-claiming, and to help the reader gauge the author's epistemic commitment in establishing scientific facts and explanations.[25]

Hedges operate to temper certainty and limit liability by avoiding absolute claims. Hyland argued that hedges could be lexical or discourse-based.[26] Lexical hedges typically involve adding a word or phrase to reduce the certainty expressed by a statement. Discourse based hedges within the scientific research article denote the limitations of a study.[27] While hedges feature prevalently in scientific discourses, the meaning that hedges construct can vary, depending on the context in which they get used.[28]

Scientific Standards and Strategic Ambiguity in the Wakefield Article

The practice of having articles pass through a review process by technical experts grants authority to those findings that are published.[29] Through rhetorical features such as avoiding absolute statements, using passive voice, and incorporating hedges, the 1998 Wakefield et al. article maintained the discursive traditions of the research report, which helped it to successfully pass through the significant hurdle of peer review. As Greg Myers stated, "In most academic fields, and certainly in all fields of biology, every claim that counts, however renowned the originator, must appear in a journal that makes decisions on the reports of referees."[30] The Wakefield et al. article's appearance in a prestigious, peer-review journal granted a certain level

of credence to the claims it made and, by extension, a certain level of status to the authors of those claims, especially the lead author—Andrew Wakefield.

Surviving the peer review process imbues a certain status to scientific research, but the process also places constraints on the final version of an article presenting that research. Those hoping to have their research accepted for publication and ensure their status in the expert community cannot merely speak the language of the expert; they must also demonstrate methodological compatibility. As Hartelius argues, "shared methodology is central to expert communities. For scientists, adherence to certain methods of inquiry is imperative for validity."[31] At the same time, researchers work to highlight the significance of their research as an addition to the body of knowledge for that community. Thus, authors must carefully construct claims to be acceptable to reviewers while still making a noteworthy contribution.[32] In order to demonstrate their distinctive contribution, within research reports authors offer potential explanations, in the form of hypotheses, for the observations they report and the data they collect. As Steven Darian put it in his study of scientific writing, "We can consider it [a hypothesis] an *assumption* based on the best available information. At a deeper level, it is a tentative explanation of why something *happens* or *happened*. The key word is *tentative*. The essence of a hypothesis is its tentativeness, its provisionality, its *suspension of certainty*."[33] Hypotheses are important for framing the significance of research; however, given their tentative nature, such statements must be carefully constructed to convey the uncertainty they contain.

The Wakefield et al. article successfully maintains scientific language practices and aligns with professional norms for making claims, as evidenced by its publication. Given the limited amount of data reported, the article contains clear denials of having met scientific standards for showing a causal connection between MMR and ASD. Most specifically, the

article states, “we did not prove an association between measles, mumps, and rubella vaccine and the syndrome described,” which unequivocally denies the existence of a link.[34] Wakefield follows this statement with a description of the insufficiency of current data that might support such a link and ends the article by calling for more research. He also discusses some of the possible limitations of the results being reported, further qualifying the study and its findings.[35] Thus, Wakefield follows the standard protocol of the research article, offering his contribution but appropriately qualifying his claims and delineating the study’s limits.

While Wakefield clearly states what the study does not prove, he does make interpretations and offers possible implications of the data he presents. However, these speculations remain within the bounds of acceptable research report statements because Wakefield embeds them with hedges, allowing him to make novel claims while distancing himself from possible criticisms. Hyland explored the social aspects of hedging in scientific articles, explaining,

> Scientists gain and keep reputations by making the highest level claims they can, demonstrating that they deserve credit for something new. But in presenting such claims they must meet both adequacy and acceptability conditions. They therefore use hedges to reduce the risk of negation on objective grounds, i.e. the match between propositional content and what reality is believed to be like, and on subjective grounds, relating to acceptable levels of self-assertion, deference, and willingness to debate.[36]

In the 1998 article, Wakefield uses hedges to avoid making scientifically unacceptable assertions and absolute statements while still making significant enough claims to argue that his findings were worthy of publication and to be granted a certain amount of authority. As Hyland explained, “In science, hedges play a critical role in gaining ratification for claims from a

powerful peer group by allowing writers to present statements with appropriate accuracy, caution, and humility."[37] Words such as "suggest," "possibly," and "may" work rhetorically to soften the level of certainty of a statement with the intention of making it more acceptable to (potentially critical or at least skeptical) reviewers.

Hedges appear throughout the Wakefield article. For example, the following excerpt contains several hedges (noted in italics): "We have identified a chronic enterocolitis in children that *may* be related to neuropsychiatric dysfunction. *In most cases*, onset of symptoms was after measles mumps, and rubella immunization. *Further investigations are needed* to examine this syndrome and its *possible* relation to this vaccine."[38]

In this excerpt, the hedges "may" and "possible" temper the certainty of the claims being made, underscoring the status of the proposed relationship as simply a hypothesis. The hedge "in most cases" offers an imprecise (i.e. nonspecific) indicator of the prevalence of a particular observation, in this case the occurrence of symptoms in relation to receiving the MMR vaccine. The inclusion of the "further investigations are needed" hedge operates to acknowledge the limitations of current knowledge and again underscores the nature of these claims as a hypothesis, in other words as preliminary and untested. Such language emphasizes the tenuous nature of the ideas being presented.

Another statement from the discussion section also contains hedging: "*These studies, together with our own* . . . support the hypothesis that the consequences of an inflamed or dysfunctional intestine *may play a part* in behavioural changes in *some* children."[39] The most apparent hedge in this statement comes from the phrase "may play a part," which actually includes two hedging moves. First, the word "may" indicates the level of certainty regarding the role of gastrointestinal infection in behavioral regression, in this case tempering certainty to

avoid an absolute statement. Second, the phrase "play a part" allows Wakefield to sidestep making a single cause fallacy by acknowledging that there are potentially other factors beyond the intestinal problems. The qualifier "some" limits the scope of this new gastrointestinal condition, noting that it will not occur in all children. In addition, the phrase "these studies, together with our own" works as a hedge by implying that Wakefield does not overreach his authority for self-assertion with this single study, but rather refers to others who supply additional backing for the claim made. While the phrase works to strengthen the meaning of the claim overall, it can be considered a hedge because it qualifies the absoluteness of the claim made here. It shows Wakefield avoids making inferential leaps; instead he cautiously—as evidenced by his hedging qualifiers—reads his data in conjunction with the findings of other scientific studies. This operates to grant the claim more credibility and believability. Such hedged language also grants the article an appropriate tone of deference to the established scientific record. Thus, in contrast to Reeves' classification of the Wakefield et al. article as relying on a bold rhetorical style, I argue that Wakefield's use of hedges lends the article a tone of caution and invokes the scientific ideal of standing on the shoulders of giants by allowing others' work to shore up the strength of one's own findings. This cautious hedging allows Wakefield to discuss the possibility of a link while giving the appearance that he is not overextending the data presented in the report or appearing overly confident.

Wakefield also incorporates hedging when making calls for future investigations. Towards the end of the article he states, "*If* there is a causal link between measles, mumps, and rubella vaccine and this syndrome, a rising incidence *might* be anticipated after the introduction of this vaccine in the UK in 1988. Published evidence is inadequate to show whether there is a change in incidence."[40] Again hedges such as "if" and "might" serve the rhetorical purpose of

allowing these interpretations to be aired in the official record of scientific knowledge without Wakefield technically declaring a causal link between the vaccine and autism.[41] Additionally, the majority of the hedges included in the Wakefield et al. article occur in the discussion section, when authors are expected to "speculate" and "extrapolate" from their findings and point to the larger significance of their work.[42]

The claims Wakefield presents regarding the possibility of a link between the MMR and autism fall within the norms of scientific discourse, given their placement in the discussion section of the article and the presence of hedges to mark them as speculative rather than declarative. By incorporating these established language practices of the field, Wakefield successfully presents his research in a format that allows it to pass through the peer review process. However, as Hyland pointed out, hedges "are likely to express several meanings simultaneously."[43] As I will show later in greater detail, the polysemous nature of these hedged statements allowed for an alternate interpretation of the article, one that led to the AVC and over a decade of debate regarding the safety of childhood immunization.

Other norms of scientific discourse present in the Wakefield et al. article grant it the same style and tone as a typical research article while creating further opportunities for multiple interpretations of the text to emerge. For example, Wakefield wrote this article in passive voice. Passive voice, which often appears in scientific writing, emphasizes results rather than the person completing the action.[44] Thus, Wakefield's reliance on passive voice would seem unremarkable. However, Wakefield incorporates passive voice in problematic ways to present information provided by the parents regarding their child's medical history. For example, in the article Wakefield states, "Onset of behavioural symptoms was associated, by the parents, with measles, mumps, and rubella vaccination in eight of the 12 children."[45] Here passive voice places the

emphasis on the association between the MMR vaccine and the onset of behavioral symptoms. By placing this information within the larger sentence as a parenthetical phrase set off by commas, Wakefield deemphasizes the fact that parents assumed and reported this association, as opposed to medical experts observing it. Wakefield relies on this phrasing twice in the article, once in the overview of the article's findings on the front page and then again in the results section.[46] Through passive voice construction, Wakefield avoids making any explicit claims himself but still inserts the idea of a link between the MMR vaccine and autism. The use of passive voice in these statements also minimizes the fact that such a link has only been hypothesized by parents, but not scientifically tested or proven. At another point in the article Wakefield remarks, "In these eight children, the average interval from exposure to first behavioral symptoms was 6.3 days (range 1-14)."[47] Again he uses passive voice to focus on the "data," but this statement proves even more problematic than the other constructions since no source is identified, even though once again this information comes from parent recall. Stated in passive voice, these statements become imbued with scientific standing despite the lack of scientific evidence to corroborate the parent reports. These constructions maintain the standards of scientific publishing while creating an opening for interpreting the article as establishing a link between the MMR vaccine and autism.

Additionally Wakefield's word choice in the article creates a subtle message regarding the connection between the MMR and autism. At one point in the article, he states, " Rubella virus is associated with autism and the combined measles, mumps, and rubella vaccine (rather than monovalent measles vaccine) has also been implicated."[48] Words such as "linked," "associated" and "implicated" frequently appear in sentences discussing the MMR vaccine and its possible involvement with the syndrome Wakefield describes in the article. Although

Wakefield may explicitly deny proving a relationship between MMR and ASD, this word choice scattered throughout the article subtly implies that a link does, indeed, exist.

A key passage in the article contains several of the rhetorical strategies outlined above. These features make the article seem to simultaneously declare and deny a causal link between the MMR vaccine and autism. Early in the discussion section, the Wakefield et al. article reads

> Intestinal and behavioral pathologies may have occurred together by chance, reflecting a selection bias in a self-referred group; however, the uniformity of the intestinal pathological changes and the fact that previous studies have found intestinal dysfunction in children with autistic-spectrum disorders suggests that the connection is real and reflects a unique disease progress.[49]

The hedge "suggests" tempers the overall claim being made here about a link between gastrointestinal infection and autism—nothing has been proven, but enough evidence exists to warrant paying attention to it. The qualifying phrase regarding the chance co-occurrence of intestinal disorders and autism also contains a hedge, "may," which serves to temper the statement and avoid an absolute claim. This qualifying phrase also operates as part of a procatalepsis, or a statement that anticipates objections and preemptively refutes them. The "however" clause that follows argues for the unlikelihood that selection bias explains the suggested connection between these two conditions. Although initially this statement seems to acknowledge a limitation of the study, through the construction of a procatalepsis Wakefield grants even more strength to his claim of a "real" connection between gastrointestinal problems (which later in the article Wakefield argues can be created by administration of the MMR vaccine) and behavior problems (i.e. autism). Wakefield further encourages such a reading through his word choice, with terms like "uniformity," "real" and "unique" implying a level of

certainty in the statement regarding the association between gastrointestinal issues and ASD. Significantly, this passage introduces a shift in the overall article; what follows becomes much more speculative as Wakefield leads the reader from a discussion about a possible link between bowel problems and ASD into a hypothetical exploration of why the MMR vaccine might be the causal factor at work.

Demarcation through More Hedges, Disclaimers, and Qualifications

Given these carefully constructed claims and cautiously hedged comments, it becomes a bit clearer how the Wakefield et al. article came to be interpreted as claiming that a link between autism and the MMR vaccine existed, despite the explicit denial in the text. If left alone, conceivably Wakefield's hypothesis about a connection between the MMR vaccine and autism would have presented a research question that was explored and ultimately disproven by the scientific community. However, in a video news release distributed to media outlets and later at a press conference to promote the article,[50] Wakefield's research crossed the threshold from the realms of science to the public domain. At that time, Wakefield made explicit what was implicit in the published text. Perhaps Arie Zuckerman, dean of the Royal Free Hospital School of Medicine, believed publicity of the study was inevitable and viewed the press release and briefing as opportunities to qualify the conclusions that would be drawn.[51] Regardless of the reason for the press conference, the public promotion of this article presented Wakefield's views to the world, propelling the article from an audience in a technical sphere to an audience in a public sphere,[52] causing a shift in the way people interpreted the article.

Video Press Release

The video press release features three segments: an interview with Wakefield about the study and its significance, including the implications for the MMR vaccine; an interview with a family that has an autistic child and who express their belief that their child's autism was caused by vaccines; and a counter viewpoint from Dr. Mark Berelowitz, a child psychiatrist and co-author, who stresses the limitations of the study in drawing conclusions about vaccines.[53]

During the interview, Wakefield carefully hedges his comments regarding whether the study proved a link between MMR and autism, but he still suggests that such a link is a real concern. For example, when asked, "Are you saying, though, then that there does appear to be a *proven* link between the vaccine and these side effects?" Wakefield stated, "No. The work certainly raises a question mark over MMR vaccine, but there is no proven link as such. And we are seeking to establish whether there is a genuine causal association between the MMR and this syndrome or not. It is our suspicion that there may well be but that is far from being a causal association that is proven beyond doubt."[54] Wakefield starts with a clear denial but embeds not-so-subtle claims about the MMR as problematic as he continues. Additionally, the hedge "beyond doubt" in Wakefield's comment encourages interpreting the findings of the original research article as stronger than they really are by suggesting that a causal association has been determined, just not proven *beyond doubt*.[55] Within a research article read primarily by technical experts, this statement may seem like an appropriately hedged claim about one's research that balances the demands of demonstrating significance without overreaching what the data shows. In a public sphere setting, though, these subtleties can be misunderstood or ignored as the media translates technical information for nontechnical audiences.[56]

Despite Wakefield's denial of having proven a link between the MMR vaccine and the syndrome described in the study, he goes on to recommend a change in vaccine practices. He supports his recommendation, stating, "there is no doubt that if you give three viruses together, three live viruses, then you *potentially* increase the risk of an adverse event occurring, particularly when one of those viruses influences the immune system in the way that measles does. And it *may* be, and studies will show this, uh, or not, that giving the measles on its own reduces the risk of this *particular* syndrome developing."[57] In this statement, Wakefield simultaneously combines expressions of certainty ("no doubt") and hedges ("potentially," "may") in discussing his recommendation, allowing him to avoid appearing to make an absolute statement but at the same time amplifying the perceived risk of the MMR vaccine. When the interviewer follows up, Wakefield adds, "Again, this was very contentious and you would not get consensus from all members of the group on this, but that is my feeling, that the uh risk of this particular syndrome developing is related to the combined vaccine, the MMR, rather than the single vaccines."[58] Although acknowledging that not all his co-authors would agree with his position, here Wakefield echoes his earlier recommendation, but this time with very little hedging (other than the qualification that this was his opinion). Thus, the hedges allow him to be technically accurate while still planting a seed of doubt. In the context of his advice about changing to the monovalent vaccines as a safety precaution, he solidifies a belief that there is a risk to be avoided, regardless of the strength of the empirical evidence to support it. Additionally, Wakefield's use of the somewhat vague "this particular syndrome" introduces enough ambiguity for listeners to make inferential leaps. While technically the "particular syndrome" being referenced is that specified in the article, which entails behavioral regression as well as an

inflamed bowel condition in children, a listener might easily substitute "autism" for "syndrome," coming to the conclusion that the MMR vaccine could cause autism.

Later in the press release video there is an interview with Mark Berelowitz, who offers a counterpoint to Wakefield's comments. While Wakefield relied mainly on lexical hedges (adding words such as "may" and "possible") to avoid absolute statements, Berelowitz employed more discursive hedges to draw attention to the limitations of the study.[59] For example, after referring to the study finding a common occurrence between autism and an inflammatory bowel condition as "intriguing" and "robust" he explains, "The strongest conclusion that we can draw from that is that we need to study this problem *better*. This was a small sample and not a randomly chosen sample. We need a much *bigger* sample of patients from a wider geographical area so that we can check that this isn't a chance finding, that it's a real finding."[60] Later in the interview he again specifies, "It is important that we check whether there is a real link between the two," and "the design of the study definitely does not allow us to identify a cause for these two clinical problems that we've found."[61] In contrast to Wakefield, Berelowitz specifically ties these limitations in the study to an inability to make recommendations to parents about vaccines, referring them to their general practitioner. He notes, "For the moment, my strongest advice to parents is to follow the guidelines of the Department of Health about vaccination. I am not a vaccination specialist. I've looked at a very small sample of patients. I'm not a public health doctor. The Department of Health vaccine guidance still holds good."[62] The interviewer follows up with a question about vaccinating for measles, mumps, and rubella separately, as Wakefield recommended. Berelowitz replies, "I can't answer the scientific question of whether it would be helpful to, to deliver the vaccines separately rather than all in one go."[63] While Wakefield bases his recommendations on his personal feelings and concerns, here Berelowitz attempts to not only

point out the limitations of the study but also the limitations of his own expertise, arguing that he is not qualified to make a recommendation due to a lack of data and a lack of necessary background knowledge. He works to carefully constrain the discussion about the significance of the study to scientific grounds, stressing the limitations of drawing conclusions that move beyond the scope of the data. He also declines an opportunity to offer advice about what to do, given the findings of the study, instead deferring to the expertise of public health officials and medical practitioners. Berelowitz offers a careful determination of what can be included within the bounds of scientifically supported conclusions based on conducted research as well as what he has the authority to recommend, given his expertise. Such comments evoke internal demarcation issues. This demarcation discourse would continue at the press conference.

While the video press release likely included this interview with Berelowitz as a balance to Wakefield's comments, the ability of Berelowitz's comments to directly challenge Wakefield's position was constrained in several ways. First, Berelowitz's interview was the final component of the video while Wakefield's was first. Since Wakefield was the lead author on the *Lancet* article, this ordering makes sense. However, in between the interview with Wakefield and the interview with Berelowitz, the video news release featured a personal interview with a family that had an autistic child. Following Wakefield's hedged hints of a link between autism and MMR, viewers hear from a family who declare their belief in such a link given their personal experience with their son. It is not until 18 minutes into the video that viewers, if they are still watching, encounter an alternative perspective on the significance of the study. Additionally, Wakefield and Berelowitz are portrayed in different ways. Wakefield is filmed at a desk, in front of a computer. He wears the quintessential white lab coat that marks the scientist,[64] a button up shirt and a tie. He sits in a relaxed stance but conveys a sense of authority and confidence. After

the interview with Wakefield, the press release includes some video footage of Wakefield working at a microscope. In contrast, the interview with Berelowitz takes place in a hospital room. He's dressed in a suit and tie, but does not wear a lab coat, which makes him seem less official, scientifically, than the coated Wakefield. Additionally, he is standing in an empty hospital room for the duration of the interview. Throughout the interview he appears impatient for the interviewer to finish his questions, looking as if he is about to interrupt the interviewer at any moment. In contrast to the relaxed and controlled presentation style of Wakefield, Berelowitz comes across less favorably. Finally, the only footage viewers see of Berelowitz working precedes the interview, with some footage of Berelowitz talking to someone at the nurse's desk. In terms of framing these two as experts, Berelowitz's activity pales in comparison to the research-oriented tasks Wakefield was shown conducting. Wakefield, and by association his perspective, are granted greater emphasis in the video news release. In a variety of ways, the expertise of Wakefield is enhanced while Berelowitz's is diminished, limiting the ability for his comments to substantially counter Wakefield's controversial claims. However, the format of the press conference would allow for more direct contestations of Wakefield's views.

Press Conference

The press conference for the 1998 Wakefield et al. article offers a compelling context for studying discourses of expertise because it presents a discussion amongst experts around a contested topic. Thus, it allows for an examination of expert vis-à-vis expert. At the press conference, Wakefield appeared alongside two co-authors (Mark Berelowitz and Simon Murch), his colleague and supervisor Ray Pounder, and the dean of the Royal Free Medical Hospital, Arie Zuckerman.[65] Each of these men presented their views on the significance of the study and the implications of its findings. Significant differences were expressed, particularly regarding the

MMR vaccine. While the majority of panelists expressed support for continued use of the combination vaccine (the current recommendation), Wakefield advanced his recommendation from the press release: to administer single vaccines, separated by at least a year, to avoid overwhelming a child's immune system, claiming this would likely prevent the syndrome described in the *Lancet* article from developing.

Although in the article the hypothesis about a link between the newly discovered syndrome and the MMR vaccine was left to the discussion section toward the end of the paper, the press conference started with a discussion about this potential association. In response to the opening question, Wakefield states,

> The, uh, association, the temporal association between MMR and autism was initially made in the United States. Two eminent doctors have published upon this subject, making the same temporal link. We have confirmed that temporal link in our small cohort. It is apparent when looking at the data, the epidemiological data, although they are imperfect, *this* particular syndrome that we are describing is very new. If one looks at, uh, isolated populations it appears to, it, uh, may appe- have come into being beyond 1988 when MMR first originated, which is something that requires extensive investigation. But I think my concern, my concerns are that one more case of this is too many. And we put children at no greater risk if we disassociate those vaccines into three but we may be averting the possibility of this problem.[66]

Wakefield again offers his recommendation regarding splitting up the MMR vaccine, but this time he includes fewer hedges and qualifications in his discussion of the research. In fact, his presentation seems to embolden the perceived strength of the study by commenting that it confirms research done by "eminent doctors" who have published on a similar issue. While the

research article contained an explicit denial of proving a causal association between MMR and autism, in his opening statement Wakefield links the two. Although he notes confirmation of a temporal association rather than a causal association, the distinction between these two, while clear to a scientific audience, may be less clear or seem less significant to a public audience. For that audience, based on Wakefield's comments above, an association exists, which is enough to introduce doubt about the MMR vaccine.

Most retrospective accounts of the AVC include some discussion of this press conference, but these commentaries tend to focus almost solely on Wakefield's comments about the MMR vaccine with little mention of the participation of Wakefield's colleagues.[67] Throughout the remainder of the press conference, the other panelists respond to Wakefield's claims and even make attempts to counter his recommendation regarding the MMR vaccine. They invoke three rhetorical strategies to try to influence the interpretations made of the study (and the stories that will be printed by the journalists in attendance): critiques of a possible link that use hedges to emphasize uncertainty, qualifications and disclaimers related to the study's explanatory data, and claims about the form of expertise necessary to fully understand the issue and the significance of the case study being presented.

Critiques of a Link Using Hedges

Immediately following Wakefield's opening statement in which he suggests single vaccines should be given, Zuckerman speaks, seeking to "answer the question more precisely."[68] Zuckerman goes on to explain, "MMR consists of 3 live, attenuated virus strains. In other words, we are administering to the children in the MMR three attenuated vaccine strains against measles, against mumps, against rubella, so a combination of three different viruses. Now, theoretically it is possible that the immune system would be *challenged* by three separate viruses.

That would be the rationale [glances at Wakefield] for giving the vaccines separately."[69] Zuckerman seems to be attempting to undermine Wakefield's recommendation, framing his own answer as more "precise" than Wakefield's emotional appeals. Additionally, he labels Wakefield's argument to separate the vaccines as "theoretical" (as opposed to one supported by robust empirical data) and includes the hedge "possible" to add to the seeming tenuousness of Wakefield's position. However, Zuckerman actually ends up endorsing the possibility of a risk with the vaccine by articulating the "logic" behind Wakefield's position and acknowledging the possibility that the vaccine could challenge a child's immune system, like Wakefield claims.

A few moments later, Zuckerman adds further strength to Wakefield's hypothesis of a link when he states, "one *possible* explanation for Dr. Wakefield's views and the position he chose, it is *possible* that at the age of 1, uh, the immune system is not fully developed and therefore challenged by three viral, live attenuated strains, *may*, uh, be associated with side effects. That needs to be more thorough."[70] Zuckerman carefully hedges his explanation to avoid absolute endorsement of Wakefield's views. The hedges allow him to admit of the possibility for the relationship Wakefield specifies between the MMR vaccine and autism without committing to the probability of that relationship. Zuckerman may believe that admitting the possibility is further tempered by his claims that this possibility needs more examination; however, the admission of a possibility, no matter how small the probability, is enough to cause concerns among parents.

Later in the press conference, Ray Pounder, at that time a professor in the Department of Medicine Centre for Gastroenterology, admits, "I think that it *appears* that these rare cases, it only appears, it only *appears* to be associated . . . it does seem that this *unique* combination, having three viruses in the same injection *may* be an unnatural or unusual event . . . Although

logically it's a wonderful idea to fix everything at the same time in the same vaccine, uh, it may not be the ideal solution . . . I would suggest that maybe it's due to be looked at again."[71] Through this statement Pounder includes a number of hedges and stresses that the association is one of casual observation rather than confirmed occurrence, carefully avoiding taking a firm position on the issue. He is not confirming the association to definitely be the case, but he acknowledges the appearance of an association. Unlike Wakefield he ends by calling for further examination of the issue rather than a change to vaccine administration policy, but his comment about the combination of three vaccines being unnatural inadvertently helps endorse Wakefield's promotion of the monovalent vaccines.

Berelowitz, the other author included in the video press release, also offers a hedged admission of a possible link while simultaneously trying to limit perceptions of that link being a reality. "I am aware autism has been around long before any vaccination program started and so it's not easy for me to feel confident that, um, that, that there's *definitely* a certain kind of autism that's caused by a *particular* environmental trigger, **now**, it *may* be but it's not easy for me to be confident about that."[72] Here Berelowitz acknowledges that a link "may" be possible, but he tries to undermine even this hedged admission by pointing out his own disbelief. However, by basing his critique narrowly on his own personal level of confidence, Berelowitz limits the ability of his comment to undermine Wakefield's position, since it frames the issue as essentially a difference of opinion rather than a lack of evidentiary support. He does use the less precise term "environmental trigger" rather than specifically naming the MMR vaccine, but given the preceding comments, it is fairly clear what he means. It seems that with his comments Berelowitz hopes to curb the interpretations Wakefield offers, similar to his comments in the press release video. Berelowitz avoids inadvertently enhancing Wakefield's argument (like

Zuckerman does when he offers a rationale for Wakefield's theory) and even offers a counterpoint to Wakefield's claims—the existence of autism before the administration of MMR. However, Berelowitz's admission of the possibility of a link, even though it is hedged and critiqued, operates similar to Zuckerman's admission, introducing enough of a possibility to create space for doubt among the public.

Limited explanatory power

In addition to hedging claims about a possible link, the other participants in the press conference offer critiques of the strength of data presented in the *Lancet* article. Simon Murch, one of the article's co-authors, notes, "We really don't know. I think that an extensive study across the European Union [inaudible] or of the nation would be really helpful."[73] Although he does not offer an explicit critique of the Wakefield study, by noting an inability to "know" based on the current data, Murch offers an implicit assessment of the study's strength. Shortly after Wakefield's opening comments, Zuckerman stresses to the journalists in attendance, "I emphasize today that these studies have not demonstrated virologically criteria which we as virologists would require for a temporal association."[74] With the use of the pronoun "we" Zuckerman classifies himself as part of a group of experts who demand higher standards of proof than the Wakefield et al. article offers. However, in the absence of further explanation of those standards or the need to meet those standards before drawing conclusions about the MMR vaccine, this qualification on the study likely does little to curb interpretations that the article demonstrates a link between the MMR vaccine and autism.

At other points, participants do not directly critique the study but rather comment on its incompleteness, arguing that further research is necessary. As noted in the quote above, Pounder argues that the appearance of an association means the MMR vaccine should be examined again.

Berelowitz notes how the limited size of the study does not lend itself to drawing conclusions about the impact on autism if vaccination rates drop. Murch argues, "We've explained the major crisis that will follow if this rushes people into making urgent decisions about their child's vaccination. We aren't saying nothing should be done. We are suggesting that the only sensible course ahead would be to, um, to form some kind of study."[75] By referring to further research as "sensible" Murch's comment frames Wakefield's suggestion as an overreaction in comparison and unfounded, based on the current data. However, like most of his fellow panelists, Murch stops short of explicitly criticizing Wakefield's stance. Later in the press conference he makes a comment about how "evidence-based medicine" should not be based on "personal fictions."[76] Murch likely offers this comment as a response to Wakefield's claims that he was merely listening to parents' stories, but again he stops short of directly criticizing Wakefield for overstepping the limits of what the data allows. While Wakefield may have clearly understood the nature of these comments, without being framed as direct challenges to Wakefield's position, this nuance may have been lost on the audience for the press briefing.

Zones of Expertise

In addition to pointing out the limitations of the *Lancet* study, the press conference participants made several comments regarding the type of expertise required to interpret the data or make recommendations about vaccine practices. This included explicit claims about areas of specialty (or lack thereof). For example, Berelowitz qualifies his expertise several times. He notes, "I am not an expert in the gut" before his comments regarding his lack of confidence in the link between the MMR vaccine and autism.[77] He also adds a disclaimer regarding his area of expertise before offering advice: "Because I'm not uh, a virologist or immunologist I can't comment expertly on the differences between giving the MMR in one dose or to separate them.

But I do know the difference to give one injection and to give three, and I would encourage families with children in their first year of life to be presenting them to their doctors and nurses for the MMR at the usual time."[78] Such statements act as disclaimers for the claims Berelowitz makes. Sarangi and Clarke analyzed how experts use qualifications like the ones Berelowitz offers to create "zones of expertise."[79] In their study looking at exchanges during genetic counseling sessions, they observed, "If the geneticist prefaces his or her assessment of the situation with 'I am not a neurosurgeon,' what she or he says next needs to be interpreted within this frame of professed inexpertise."[80] These admissions of a lack of the appropriate knowledge modify the advice attached to them, signaling to the listener that the recommendations offered should not be embraced wholesale. Like hedges, qualifying statements about one's expertise introduce tentativeness.[81]

While such comments reduce liability for Berelowitz and allow him to qualify what he can and cannot comment on with confidence, these comments can be read as attempts to qualify the reaches of Wakefield's expertise as well. By framing the limitations of his own expertise, Berelowitz also calls attention to the scope of the other panelists' expertise. However, like Murch's implicit criticisms above, Berelowitz never explicitly points out the shortcomings of Wakefield's knowledge in regards to the claims he made about vaccine practices, putting the onus on the reporters in attendance at the press conference to understand the broader significance of his disclaimers about arenas of expertise.

While Berelowitz never explicitly commented on Wakefield's scope of expertise, Zuckerman did not shy away from such criticisms. He highlighted that in contrast to the others—particularly Wakefield, he was a virologist. For example, in the comment noted above, Zuckerman frames virologists (of which he is one) as having certain standards of proof that must

be met before making claims about a temporal association. This sets virologists apart as having different standards (with the implications that these standards are more demanding than other areas of study). Zuckerman also indicates that only virologists can understand the full complexity of this issue, including the (non)existence of an association between vaccines and autism as well as the potential threat posed by vaccine-preventable diseases if allowed to come back. Given that he has aligned himself with this group of scientists, Zuckerman subtly presents himself as the one most qualified to make the ultimate judgment about this case study.[82] Towards the end of the press conference he states, "Dr. Wakefield has expressed his opinion, but he's not a virologist. I am a virologist. And so I'll give you a virologist's opinion . . . until further evidence is available, this remains a hypothesis."[83] Given his earlier framings of virologists' standards, he presents this statement as a type of final say on the issue. His opinion, as a virologist, outranks the opinion of Wakefield. However, he presumes the audience will understand the hierarchy of expertise he conjures in making this claim, a misguided assumption given the audience to which he speaks. Claims that Wakefield's research does not meet virological standards or disclaimers about the limitations of one's expertise may be meaningful to fellow researchers, but without further elaboration on why that is the case, they operate as abstract assertions to nontechnical audiences not familiar with these internal demarcation boundaries and tensions. Such distinctions rely on technical nuances that may mean very little to audiences not well versed in such discourse or they may simply seem unimportant to them in the grander scheme of things.

Ultimately then, Wakefield utilized the discursive gaps left by hedges in the *Lancet* article to authorize public claims about the MMR vaccine that were not actually supported by his research data. While his press conference comments certainly serve as a key moment in the birth of the AVC, Wakefield's claims about the MMR needed some context to seem plausible, and the

publication of his article in a peer-reviewed journal provided that.[84] At the same time, these press conference statements re-framed the article. While his fellow press conference presenters attempted to qualify and rein in the message Wakefield offered through their own use of hedges, comments about study limitations, and qualifications of expertise, the interpretation Wakefield encouraged through his comments during the press release interview and at the press conference itself made it more likely that the original article would be read as claiming that a link between MMR and ASD existed.

Discussion

Part of the continuing influence of the Wakefield et al. article comes from Wakefield's utilization of the very norms of scientific writing—particularly hedges and passive voice— in combination with strategic word choice to create an ambiguous text open to conflicting interpretations. Rhetorical analysis of this article illuminates the potential harm associated with the very language practices of experts within the domain of science. The use of hedging in order to qualify claims in the research article aided in the creation of a scientifically acceptable text and granted Wakefield the status of expert on the topic. At the same time, these hedges left discursive gaps that after publication Wakefield utilized to make unsupported comments about the MMR vaccine. Additionally, the use of passive voice allowed Wakefield to grant parent reporting the appearance of expert findings while word choice and other rhetorical devices, such as procatalepsis, helped subtly convey implicit claims that Wakefield explicitly denied elsewhere in the article.

The Wakefield et al. case proves the folly of assuming that scientific information is transparent or unambiguous.[85] The historical privileging of the scientific method and the

"objective" empirical knowledge it produces has deeply engrained a belief that science can speak for itself. But science cannot and does not speak for itself; experts do. The information and knowledge that science produces is mediated by the communication used to convey it, and primarily it is those who would be classified as experts doing the communication. The practices of science embed raw data within larger frameworks and researchers construct narratives to explain the significance of that data. As has been shown by rhetoricians repeatedly, scientific discourse is rhetorical, and the presentation of information influences the interpretation of it. In this case, the meaning of the Wakefield et al. article shifted as Wakefield used his expert status to speak about his findings and their significance as the discourse moved from the pages of a research journal to a press conference.

Hedges, within the context of the research article, mean something specific to readers familiar with this language practice employed by the scientific community. Embedded within claims about scientific findings that are presented to an audience of fellow researchers and scientists, hedges operate as a discursive constriction, limiting the scope of the claim and reducing probability to introduce uncertainty. In other words, they weaken claims and restrict the strength of the position being offered. However as these hedged statements shift from a technical sphere context to a public sphere context, their meaning shifts. As rhetorical scholars Avon Crismore and William Koppel argued, "We cannot understand the effects of hedges without considering the setting, the speaker or writer, the audience, the nature of the subject matter, and the text."[86] Particularly with lexical hedges, their ambiguous nature allows new interpretations of the same information to emerge, particularly among audiences who lack the same background knowledge on how hedges are intended to constrict meaning within research discourses.[87] Once operating as devices of restriction, in a non-technical setting these hedges signify possibility.

They expand the scope of the imaginable and shift perceptions of reality to include what may be true, even if only remotely. Indeed, as other researchers have argued, when assessing risk, if uncertainty is high, people tend to be particularly sensitive to possibility rather than probability.[88] When Wakefield implicitly hinted at a link between the MMR vaccine and autism in the *Lancet* article and then suggested using single vaccines as a precautionary response to avoid even "one more" case of this syndrome from occurring, he introduced more than enough "possibility" to frame the MMR vaccine as risky. Then, when Wakefield's colleagues offered their hedged admissions of the possibility of a link, believing they were sufficiently emphasizing the high unlikelihood of that being the case, they actually endorsed the possibility that Wakefield introduced.

The role of the Wakefield et al. article in the origins of the AVC reveals the importance of scientific peer-review, not just in monitoring the expansion of scientific knowledge but also in influencing the ebb and flow of public discourse about science. In this case, the peer-review process failed because it assumed a transparent text.[89] Wakefield's use of scientific discursive norms and inclusion of an explicit denial of proving a link between the MMR vaccine and autism allowed the article to successfully pass through the peer-review process and into the scientific record. However, as Wander noted, "A scientific research report is not just a giving of information; it is a persuasive act as well."[90] As the Wakefield et al. article demonstrates, the rhetorical elements of a scientific article can matter as much as those in a work of literature or a political speech. It cannot be assumed that the traditions of scientific publishing provide sufficient protection for keeping the scientific record safe from those who might seek to manipulate the authority of a scientific *ethos* for personal or political gain. With increasing transparency demands, expanding online availability of research reports, and shifts to publicly

promoting scientific findings, media and citizens continue to gain even greater access to scientific information without the additional training for proper interpretation. A thorough peer review process must not only evaluate the explicit claims of a research report but also should consider what alternatives of interpretation and promotion might be possible.

However, that does not mean that the peer review process is entirely to blame. The case of the Wakefield et al. article also draws attention to problems with the increasing tendency of scientists to bypass community checks and engage in "science by press conference."[91] The discursive gaps created by hedging may be particularly easy to take advantage of as information passes from a technical context into a public context, such as when promoting scientific publications through press conferences. Similar to Wakefield using the press conference for the 1998 *Lancet* article to make unsubstantiated claims regarding the MMR vaccine, other scientists have used that format to extend their contributions to "science." For example, science studies scholar Joan Haran and communication scholar Jenny Kitzinger studied the rhetoric surrounding another case of scientific fraud, the stem cell hoaxes committed by South Korean scientist Hwang.[92] Their analysis revealed how Hwang utilized the media to serve as a virtual witness, verifying the authenticity of his work to a broader public audience. Similar to the Hwang case, Wakefield utilized the media, through a press conference, to extend his scientific authenticity and promote his "findings."

One particularly troubling aspect of science by press conference practices is that they bypass opportunities to settle demarcation disputes. Rhetorical scholar Anne Holmquest observed, "Gieryn's notion of boundary-work presupposes that rhetoric provides inventional strategies by which scientists map out boundaries in response to obstacles."[93] In other words, demarcation often happens through discursive work and frequently centers on moments of

challenge. Demarcation discourses are an important part of the social practices that construct and reconstruct the domain of science. Internal demarcation, in particular, helps ensure the robustness of the scientific enterprise. Debates about the explanatory power of study setups or contestations over which form of expertise is best suited for interpreting different research data are useful for confirming epistemological and methodological alignment and maintaining standards for the creation of new technical knowledge. However, such disputes are better settled in internal settings like professional conferences or research journals. As this case shows, such discussions may confuse rather than clarify when moved away from internal settings. While Wakefield did wait for the peer review process to endorse his research, passing a key demarcation hurdle, he presented his findings to the public and the broader scientific community simultaneously. In other words no time was allowed for the internal demarcation discussion to take place. This becomes clear based on the presence of such internal demarcation discourse at the press conference. Particularly since his research was a case study with a small amount of data and limited explanatory power, it was unwise to publicly promote the research so conspicuously so early on because it granted the research more strength than the evidence on which it relied allowed.

Rhetorical critic John Lyne and biologist Henry Howe do not address science by press conference, but they do discuss a similar discursive transition in their analysis of E. O. Wilson's popularized accounts of sociobiology.[94] They argue that when experts switch discursive contexts, from a disciplinary audience to an inter-disciplinary or public audience, the standards of proof become unclear and experts often utilize rhetorical appeals rather than empirical evidence to support their position. In the case of Wilson, Lyne and Howe noted, "Wilson was not accountable to any scientific standard other than that of being a credentialed scientist with all the

trappings of high credibility implied by the cover accolades and the name of the publisher. If the readers of this popularized science assumed that Wilson had won his case within the world of science before going 'public,' they were misled."[95]

Unlike Wilson, Wakefield's views were not presented to the public without challenge. The research article was accompanied by a critical commentary in the same issue of *The Lancet*, and his fellow researchers contested Wakefield's comments at the press conference. The demarcation work that Wakefield's colleagues engage in at the press conference attempted to establish clear standards for evaluating the research being promoted and highlight the limits of the study for making conclusions about vaccination choices. Such rhetoric should have made it clear that Wakefield had not "won his case," and yet in subsequent media coverage (as I will show in the next chapter), Wakefield's views tended to be featured most prominently. This may be in part because these divergent remarks by the various press conference panelists represented a struggle over authority that was not well understood by the audience encountering it. The negotiations among panelists over the meaning and significance of the Wakefield et al. study at the press conference, while perhaps intended to constrain the claims Wakefield made about the MMR vaccine, came across as nuanced distinctions over the details of the study while leaving the overarching news value of the press conference intact, which, thanks to Wakefield's comments, becomes the need for parental caution because of a possibility of a link between MMR and autism.

Conclusion

The confluence of the 24/7 news cycle and ever-increasing pressure in the scientific realm to be first in establishing a particular finding creates a perfect storm for shifting the

traditions of science communication, particularly initial announcements of findings, more and more to a public context. With the AVC, Wakefield shared his "theory" about MMR with the public the day before the official publication of the article in the *Lancet*. Given the different interpretive practices employed in each realm, this simultaneous communication creates problems. While a like-minded technical audience well versed in communicating uncertainty should understand the speculative nature of hedged claims and the need for additional research to substantiate them, a public audience less familiar with the discursive norms of scientific rhetoric may interpret such statements as established claims. This "science by press conference" process causes concern because it creates opportunities for researchers to present information that extends beyond what the reviewers thought they were authorizing in approving a piece for publication.

As science by press conference practices expand, the chances of bad science, like Wakefield's research, reaching a public audience increase. As Andrew Moore argued, "Issuing press releases and holding press conferences on the publication of a 'sexy' paper are commonplace. The science that enters the public consciousness in this way does so without a thorough examination by the scientific community."[96] As a result, questionable or controversial findings will increasingly enter public discourse before the scientific community (beyond a few reviewers and an editor) can thoroughly investigate them. As the AVC demonstrates, once these controversies take hold they can be quite difficult to resolve, even after the scientific community has settled the issue from a technical standpoint. This shift in communicating science to the public means that more science-based controversies may take hold, stirring up debate and possibly undermining public trust in science. More research into science by press conference, particularly the rhetorical dynamics of expertise involved, is needed to better understand the

impact this communicative practice has on the relationship between science, scientific experts, and society. Studying the reception of the AVC among the public offers one particularly promising place to start.

---

[1] A. J. Wakefield et al., "RETRACTED: Ileal-Lymphoid-Nodular Hyperplasia, Non-Specific Colitis, and Pervasive Developmental Disorder in Children," *The Lancet* 351, no. 9103 (February 1998): 637–41, doi:10.1016/S0140-6736(97)11096-0.

[2] The National Institute of Mental Health defines ASD as disorders "characterized by varying degrees of impairment in communication skills, social interactions, and restricted, repetitive and stereotyped patterns of behavior. The autism spectrum disorders can often be reliably detected by the age of 3 years, and in some cases as early as 18 months." Autism is one such disorder. Estimates indicate that 3.4 of every 10,000 children from ages 3-10 have been diagnosed with autism. National Institute of Mental Health, "A Parent's Guide to Autism Spectrum Disorder," *National Institute of Mental Health*, 2011, http://www.nimh.nih.gov/health/publications/a-parents-guide-to-autism-spectrum-disorder/index.shtml#pub1.

[3] Melissa Healy, "Jenny McCarthy on 'View': A New Forum for Discredited Autism Theories," *Los Angeles Times*, July 15, 2013, http://www.latimes.com/news/science/sciencenow/la-sci-jenny-mccarthy--view-autism-20130715,0,6008429.story#axzz2jjHD1i9s; Jeffrey Kopman, "The Dangerous History of Anti-Vaccine Conspiracies," *The Weather Channel*, March 6, 2013, http://www.cfr.org/interactives/GH_Vaccine_Map/index.html; Marc Lallanilla, "Why Some Rich, Educated Parents Avoid Vaccines," *LiveScience.com*, February 21, 2014, http://www.livescience.com/43577-why-rich-educated-parents-avoid-vaccinations.html; Gregory A. Poland and Robert M. Jacobson, "The Age-Old Struggle Against the Antivaccinationists," *New England Journal of Medicine* 364, no. 2 (2011): 97–99, doi:10.1056/NEJMp1010594; Kate Rope, "The End of the Autism-Vaccine Debate?," *Parenting*, 2011, http://www.parenting.com/article/the-end-of-the-autismvaccine-debate; David Ropeik, "Wakefield Debunked, But Vaccine Fear Lives," *The Huffington Post*, January 10, 2011, online edition, http://www.huffingtonpost.com/david-ropeik/wakefield-debunked-but-va_b_805826.html; Michael Specter, "Jenny McCarthy's Dangerous Views," *The New Yorker Blogs*, July 16, 2013, http://www.newyorker.com/online/blogs/elements/2013/07/jenny-mccarthys-dangerous-views.html?printable=true&currentPage=all; Katrina vanden Heuvel, "Jenny McCarthy's Vaccination Fear-Mongering and the Cult of False Equivalence," *The Nation*, July 22, 2013, http://www.thenation.com/blog/175388/jenny-mccarthys-vaccination-fear-mongering-and-cult-false-equivalence#; Nicola Woolcock and Nigel Hawkes, "Decline in MMR Uptake Blamed for Measles Death," *The Times (London)*, April 3, 2006, sec. Health, http://www.thetimes.co.uk/tto/health/article1884070.ece.

[4] Wakefield et al., "RETRACTED: Ileal-Lymphoid-Nodular"; Arie Zuckerman et al., "Press Briefing" (Press Conference, Royal Free Hospital, February 27, 1998); Royal Free Hampstead NHS TRUST, *Broadcast News Release* (London: Campaign Productions, 1998).

[5] Jeanne Fahnestock, "The Rhetoric of the Natural Sciences," ed. Andrea A. Lunsford, Kirt H. Wilson, and Rosa A. Eberly, *The SAGE Handbook of Rhetorical Studies* (Thousand Oaks, CA: SAGE Publications, Inc., 2009), http://dx.doi.org/10.4135/9781412982795.

[6] Carol Reeves, "'I Knew There Was Something Wrong with That Paper': Scientific Rhetorical Styles and Scientific Misunderstandings," *Technical Communication Quarterly* 14, no. 3 (2005): 267–75, doi:10.1207/s15427625tcq1403_4.

[7] Royal Free Hampstead NHS TRUST, *Broadcast News Release*; Zuckerman et al., "Press Briefing."

[8] This is not to say that the science of the article did not matter, but rather to emphasize that the rhetorical choices Wakefield made in presenting these findings helped make them palatable to a panel of peer reviewers and helped the study garner approval. Initial critics of the article questioned whether it should have been published or even explicitly argued that it should not have passed the peer review process based on methodological shortcomings. See A. J. Beale, "Autism, Inflammatory Bowel Disease, and MMR Vaccine," *The Lancet* 351, no. 9106 (March 1998): 906, doi:10.1016/S0140-6736(05)70317-2; Helen Bedford et al., "Autism, Inflammatory Bowel Disease, and MMR Vaccine," *The Lancet* 351, no. 9106 (March 1998): 907, doi:10.1016/S0140-6736(05)70320-2; David Black, Henry Prempeh, and Tony Baxter, "Autism, Inflammatory Bowel Disease, and MMR Vaccine," *The Lancet* 351, no. 9106 (March 1998): 905–6, doi:10.1016/S0140-6736(05)70316-0; J. W. Lee et al., "Autism, Inflammatory Bowel

Disease, and MMR Vaccine," *The Lancet* 351, no. 9106 (March 1998): 905, doi:10.1016/S0140-6736(98)26012-0; Keith J. Lindley and Peter J. Milla, "Autism, Inflammatory Bowel Disease, and MMR Vaccine," *The Lancet* 351, no. 9106 (March 1998): 907–8, doi:10.1016/S0140-6736(05)70321-4. Given that, it seems particularly salient to closely consider the text of the article to understand how, rhetorically, it navigated the hurdle of peer review. This study builds from the work of other scholars who have also traced the role of rhetoric in the acceptance of scientific research articles by peer reviewers. See Ken Hyland, "Writing Without Conviction? Hedging in Science Research Articles," *Applied Linguistics* 17, no. 4 (December 1, 1996): 433–54, doi:10.1093/applin/17.4.433; Greg Myers, *Writing Biology: Texts in the Social Construction of Scientific Knowledge Science and Literature Series* (Madison, Wis: Univ of Wisconsin Pr, 1990).

[9] Although the 1998 article was authored by Wakefield and 12 co-authors, I will refer to Wakefield as if he authored the paper alone because investigations into the article have shown this to be the case. See General Medical Council, *Andrew Wakefield: Determination on Serious Professional Misconduct (SPM) and Sanction* (General Medical Council, May 24, 2010), Retrieved from http://www.gmcuk.org/Wakefield_SPM_and_SANCTION.pdf_32595267.pdf.

[10] Charles Alan Taylor, *Defining Science: A Rhetoric of Demarcation* (Univ of Wisconsin Press, 1996), 5.

[11] Thomas F. Gieryn, "Boundary-Work and the Demarcation of Science from Non-Science: Strains and Interests in Professional Ideologies of Scientists," *American Sociological Review* 48, no. 6 (December 1983): 792, doi:10.2307/2095325.

[12] Olga Amsterdamska, "Demarcating Epidemiology," *Science, Technology, & Human Values* 30, no. 1 (2005): 17–51, doi:10.1177/0162243904270719.

[13] Jean Goodwin and Lee Honeycutt, "When Science Goes Public: From Technical Arguments to Appeals to Authority," *Studies in Communication Sciences* 9 (2009): 27.

[14] Roland Bal, "How to Kill with a Ballpoint: Credibility in Dutch Forensic Science," *Science, Technology, & Human Values* 30, no. 1 (2005): 68, doi:10.1177/0162243904270722.

[15] Carolyn R. Miller, "Novelty and Heresy in the Debate on Nonthermal Effects of Electromagnetic Fields," in *Rhetoric and Incommensurability*, ed. Randy Allen Harris (West Lafayette, IN: Parlor Press, 2005), 464–505.

[16] Srikant Sarangi and Angus Clarke, "Zones of Expertise and the Management of Uncertainty in Genetics Risk Communication," *Research on Language & Social Interaction* 35, no. 2 (2002): 139–71, doi:10.1207/S15327973RLSI3502_2.

[17] Ibid.

[18] Philip C. Wander, "The Rhetoric of Science," *Western Speech Communication* 40, no. 4 (1976): 230, doi:10.1080/10570317609373907.

[19] Alan G. Gross, Joseph E. Harmon, and Michael S. Reidy, *Communicating Science: The Scientific Article from the 17th Century to the Present* (New York; Oxford; West Lafayette: Parlor Press, 2009).

[20] E. Johanna Hartelius, *The Rhetoric of Expertise* (Lanham, MD: Lexington Books, 2010), 106.

[21] Gross, Harmon, and Reidy, *Communicating Science*, 163.

[22] Ibid., 169.

[23] Jakob D. Jensen, "Scientific Uncertainty in News Coverage of Cancer Research: Effects of Hedging on Scientists' and Journalists' Credibility," *Human Communication Research* 34, no. 3 (July 2008): 347–69, doi:10.1111/j.1468-2958.2008.00324.x.

[24] Hyland, "Writing Without Conviction?"; Ken Hyland, *Hedging in Scientific Research Articles* (John Benjamins Publishing, 1998).

[25] Gross, Harmon, and Reidy, *Communicating Science*, 165.

[26] Ken Hyland, "Talking to the Academy: Forms of Hedging in Science Research Articles," *Written Communication* 13, no. 2 (1996): 251–81, doi:10.1177/0741088396013002004.

[27] Hyland, "Writing Without Conviction?"

[28] Avon Crismore and William J. Vande Kopple, "Rhetorical Contexts and Hedges," *Rhetoric Society Quarterly* 20, no. 1 (1990): 49–59; Kelly Horn, "The Consequences of Citing Hedged Statements in Scientific Research Articles," *BioScience* 51, no. 12 (December 1, 2001): 1086–93, doi:10.1641/0006-3568(2001)051[1086:TCOCHS]2.0.CO;2; Jensen, "Scientific Uncertainty."

[29] Greg Myer, *Writing Biology: Texts in the Social Construction of Scientific Knowledge* (Madison, WI: University of Wisconsin Press, 1990).

[30] Myers, *Writing Biology*, 63–64.

[31] Hartelius, *The Rhetoric of Expertise*, 108.

[32] Myers, *Writing Biology*, 67.

[33] Steven Darian, *Understanding the Language of Science* (Austin: University of Texas Press, 2003), 129, emphasis in original.
[34] Wakefield et al., "RETRACTED: Ileal-Lymphoid-Nodular," 641. As I discuss in the next chapter, this same line would be quoted by critics who argued that despite this statement, the article implied a link. See Lee et al., "Autism, Inflammatory Bowel," 905; Richard Horton, "Autism, Inflammatory Bowel Disease, and MMR Vaccine," *The Lancet* 351, no. 9106 (March 1998): 908, doi:10.1016/S0140-6736(05)70324-X.
[35] Wakefield et al., "RETRACTED: Ileal-Lymphoid-Nodular," 639.
[36] Hyland, "Writing Without Conviction?" 437.
[37] Hyland, *Hedging in Scientific*, 434.
[38] Wakefield et al., "RETRACTED: Ileal-Lymphoid-Nodular," 641. Emphasis added.
[39] Ibid., 639. Emphasis added.
[40] Ibid., 640. Emphasis added.
[41] This hedge seems to serve the double-purpose of undermining a potential counterargument to Wakefield's suggestions. With the hedge "might" Wakefield claims a rise in autism after the introduction of the vaccine is possible but not guaranteed. Taken in the reverse, a lack of a rise in the number of autism cases "might" be proof that a link does not exist, but it also "might" not.
[42] Françoise Salager-Meyer, "Hedges and Textual Communicative Function in Medical English Written Discourse," *English for Specific Purposes*, no. 2 (1994): 149–70, doi:10.1016/0889-4906(94)90013-2.
[43] Hyland, "Writing Without Conviction?" 449.
[44] S. Michael Halloran, "The Birth of Molecular Biology: An Essay in the Rhetorical Criticism of Scientific Discourse," *Rhetoric Review* 3, no. 1 (1984): 70–83, doi:10.1080/07350198409359083.
[45] Wakefield et al., "RETRACTED: Ileal-Lymphoid-Nodular," 637.
[46] Ibid., 638.
[47] Ibid.
[48] Ibid., 640.
[49] Ibid., 639.
[50] Royal Free Hampstead NHS TRUST, *Broadcast News Release*; Zuckerman et al., "Press Briefing."
[51] Apparently news of the study began leaking to the public the previous summer, which might help explain both the circulation of a video press release and the press conference the day before the article's publication. Sarah Boseley, "Alert Over Child Jabs," *The Guardian*, February 27, 1998.
[52] G. Thomas Goodnight, "The Personal, Technical, and Public Spheres of Argument: A Speculative Inquiry into the Art of Public Deliberation," *Journal of the American Forensic Association* 18 (1982): 214–27.
[53] Royal Free Hampstead NHS TRUST, *Broadcast News Release*.
[54] Ibid.
[55] I am grateful to Leah Ceccarelli for pointing this out.
[56] Jeanne Fahnestock, "Accommodating Science: The Rhetorical Life of Scientific Facts," *Written Communication* 3, no. 3 (July 1, 1986): 275–96, doi:10.1177/0741088386003003001.
[57] Royal Free Hampstead NHS TRUST, *Broadcast News Release*. Emphasis in original.
[58] Ibid.
[59] Hyland, "Talking to the Academy."
[60] Royal Free Hampstead NHS TRUST, *Broadcast News Release*.
[61] Ibid.
[62] Ibid.
[63] Ibid.
[64] David Wade Chambers, "Stereotypic Images of the Scientist: The Draw-a-Scientist Test," *Science Education* 67, no. 2 (1983): 255–65, doi:10.1002/sce.3730670213.
[65] Zuckerman et al., "Press Briefing."
[66] Ibid.
[67] See, for example, Brian Deer, "How the Vaccine Crisis Was Meant to Make Money," *BMJ* 342 (January 14, 2011): c5258–c5258, doi:10.1136/bmj.c5258; Mark A. Largent, *Vaccine: The Debate in Modern America* (Baltimore: Johns Hopkins University Press, 2012); Seth Mnookin, *The Panic Virus: The True Story Behind the Vaccine-Autism Controversy* (New York: Simon & Schuster, 2012). Interestingly, a number of authors, most of whom were not primary witnesses at the event, make claims about what happened at the press conference despite the fact that no public record or transcript of the event is readily available in the public domain. My own analysis is based on a transcript I created from video of the press conference that I retrieved from the General Medical Council,

which had the file from the extensive trial looking into Wakefield's conduct in this case. One journalist who was in attendance offered a brief account of the events that transpired at the press conference but this account was published years later. Based on my own examination of the press conference video, the exchanges among panelists were less dramatic than his telling implies. Jeremy Laurance, "I Was There When Wakefield Dropped His Bombshell," *The Independent*, January 29, 2010, http://www.independent.co.uk/life-style/health-and-families/health-news/i-was-there-when-wakefield-dropped-his-bombshell-1882548.html.

[68] Zuckerman et al., "Press Briefing" As Zuckerman makes this statement, Wakefield seems to chuckle to himself a bit, perhaps giving away a tension between the two or at least displaying Wakefield's disagreement with his response.

[69] Ibid. Italics indicate words on which Zuckerman placed vocal emphasis.

[70] Ibid. Emphasis added.

[71] Ibid. Italics indicate words on which Pounder placed vocal emphasis.

[72] Ibid. Emphasis added.

[73] Ibid.

[74] Ibid.

[75] Ibid.

[76] Ibid.

[77] Ibid.

[78] Ibid.

[79] Sarangi and Clarke, "Zones of Expertise."

[80] Ibid., 146.

[81] This rhetorical move in the context of expert discourses deserves further attention. In analyzing "ordinary conversations," Beach and Metzger argued that claims of insufficient knowledge, such as "I don't know," can act as deflectors, denying or at least delaying a response to a request for advice or action. However, Berelowitz introduces a similar discursive construction when qualifying his expertise, but rather than using the disclaimer as a substitute for offering advice, he continues to give a recommendation despite his self-confessed limitation to fully speak to the issue. An examination of how experts use claims of insufficient knowledge would be useful to understand how, if at all, they differ from the use of such claims in non-technical settings. It may be that, similar to the shift in the meaning of hedges observed in this case, claims of insufficient knowledge may represent another discursive feature that appears the same on the surface but serves different signifying functions in discourses occurring in a technical setting versus those in nontechnical contexts. Wayne A. Beach and Terrir. Metzger, "Claiming Insufficient Knowledge," *Human Communication Research* 23, no. 4 (June 1, 1997): 562–88, doi:10.1111/j.1468-2958.1997.tb00410.x.

[82] This is further conveyed through the set up for the press conference. While Wakefield and the other panelists are seated at a table on the far left side of the room, Zuckerman stands at a podium in the center of the room, moderating the briefing, occupying a position of central attention and authority over the others.

[83] Zuckerman et al., "Press Briefing."

[84] Several critics would note this as well, which I discuss in the next chapter.

[85] Gyorgy Marcus, "Why Is There No Hermeneutics of Natural Sciences: Some Preliminary Theses," *Science in Context* 1, no. 1 (1987): 5–51.

[86] Crismore and Kopple, "Rhetorical Contexts."

[87] Hyland, "Writing Without Conviction?" 436.

[88] Paul Slovic et al., "Risk as Analysis and Risk as Feelings: Some Thoughts About Affect, Reason, Risk and Rationality," in *The Feeling of Risk: New Perspectives on Risk Perception*, by Paul Slovic (London: Earthscan, 2010), 21–36.

[89] Michael Leff, "Textual Criticism: The Legacy of G. P. Mohrmann," *Quarterly Journal of Speech* 72, no. 4 (1986): 377–89, doi:10.1080/00335638609383783.

[90] Wander, "The Rhetoric of Science," 230.

[91] Andrew Moore, "Bad Science in the Headlines," *EMBO Reports* 7, no. 12 (December 1, 2006): 1193–96, doi:10.1038/sj.embor.7400862.

[92] Joan Haran and Jenny Kitzinger, "Modest Witnessing and Managing the Boundaries between Science and the Media: A Case Study of Breakthrough and Scandal," *Public Understanding of Science* 18, no. 6 (2009): 634–52, doi: 10.1177/0963662509338324.

[93] Anne Holmquest, "The Rhetorical Strategy of Boundary-Work," *Argumentation* 4, no. 3 (1990): 237.

[94] John Lyne and Henry F. Howe, "The Rhetoric of Expertise: E. O. Wilson and Sociobiology," *Quarterly Journal of Speech* 76, no. 2 (1990): 134–51, doi:10.1080/00335639009383910.
[95] Ibid., 141.
[96] Moore, "Bad Science," 1194.

Chapter 3

Accommodating Expertise:

The Disappearance of Hedges and Demarcations in Reception of Wakefield's Research

In the previous chapter, I examined the strategic ambiguity hidden within the Wakefield et al. article and the discursive struggle among the scientific experts to frame that study's significance at the press conference. In this chapter, I examine what transpired after the press conference ended and the journalists in attendance returned to their respective papers to write the stories that would help the public make sense of this new research with potentially severe implications for public health. In other words, I look beyond the messages Wakefield and his colleagues offered about *The Lancet* article and its implications to the reception these messages received.

I consider reception of the 1998 *Lancet* article and press conference among a technical audience as well as coverage in the media to show how Wakefield took advantage of the different contexts created by a technical sphere and a public sphere. As noted in the introductory chapter, rhetorical scholar Thomas Goodnight's delineation of the personal, technical, and public spheres describes the differing argumentative expectations and epistemological means operating within these various discursive realms.[1] Although Goodnight's organizational scheme may oversimplify the separation between argument realms, particularly in regards to the delineation between technical and public spheres, it can still prove useful in studying the rhetoric of science-based controversies. Rather than employing the personal, technical, and public spheres as ontologically accurate divisions of the discursive world, I view them as helpful descriptions to identify the interpretative frames one might take in evaluating arguments or interpreting artifacts.

In this chapter I apply the notion of technical spheres and public spheres to understand the different contexts within which Wakefield presented his message about the MMR vaccine and how that influenced the different interpretations made of his claims.

An examination of reception discourse from Wakefield's colleagues reveals that two dominant readings emerged shortly after the article's publication. While some readers declared that the article establishes a link between the MMR vaccine and autism, others maintained that it did no such thing. The difference in interpretation depends on whether readers interpreted the article in a technical sphere context or a public sphere context. I also examine the media coverage that followed the Royal Free Hospital press briefing on the article to see what interpretations emerged out of the contestation over meaning that the briefing participants presented. Considering the explicit expression of disagreement during the press conference, reception in the media allows for exploration of reception of expert discourses when experts do not express consensus.

A rhetorical perspective on science as a practice acknowledges that "knowledge is not ipso facto self-evident, but that it depends upon an audience for whatever epistemic status it achieves."[2] In order to understand the full impact of Wakefield's discourse in the evolution of the AVC, considering the claims he made is not sufficient. One must also examine the reception these claims received. Studying the reception of audiences to Wakefield's message about the MMR offers important insights into the connection between communication about scientific findings and both expert and public understanding of that information. Examination of reception discourse can also more clearly demonstrate the influence of Wakefield's comments on decisions about vaccination. More specifically, examining reception offers insight into the rhetorical function of the discursive elements identified in the last chapter. Additionally, in critiques of the

AVC, the media often gets blamed for either blowing the controversy out of proportion to keep it in the headlines or for misunderstanding the research.[3] Treating media coverage as a form of reception to the publicity of the Wakefield et al. article allows for a different perspective on the question of whether the media played an active role in constructing an unnecessary public health scare or were unintentional participants in spreading bad science.

I first consider the 1998 article's uptake and discussion among Wakefield's peers, examining responses published in *The Lancet*, including a critical commentary on the article, several letters to the editor, and the authors' responses to critiques.[4] I start with an examination of the reception among scientific and technical colleagues since presumably they make up the primary audience for an article published in a prestigious medical journal. Through an examination of their responses, I show how the rhetorical elements of the Wakefield et al. article resulted in differing interpretations among technical experts. This analysis extends Lyne and Howe's argument regarding domain specific standards of proof,[5] because it shows that ambiguity in argumentative standards exists even among the audience most equipped to interpret the rhetorical strategies Wakefield employed. This study also supports scholarship that complicates any notion of a clean division between technical and public spheres, as my examination of responses to the Wakefield et al. article in a technical sphere exposes that many of these technical experts read the article with a public sphere in mind.

After considering the reception of the Wakefield et al. article among Wakefield's peers, I consider the reception of his research in the public arena by considering the media coverage immediately following the press briefing at the Royal Free Hospital. I show how the hedged ambiguity of the research report and press conference comments gets dropped in the media stories, granting stronger certainty to the claims made about the relationship between the MMR

vaccine and autism. I also examine how news coverage chose to convey the disagreement among the experts displayed at the briefing, revealing a disconnect between headlines that conveyed a consensus and their stories that later highlighted this divide. I also reveal how the nuances of the demarcation discourses utilized during the press conference get little attention from journalists who, in their coverage, offer few—if any—clarifications regarding differences in expertise among the sources incorporated into their stories. By examining how scientists interpreted the Wakefield et al. article and tracing the interpretations later developed in the media and by members of the public, I provide a more robust understanding of the Wakefield et al. text and its influence on the origins of the AVC while contributing to a growing body of scholarship incorporating rhetorically grounded reception studies into textual analysis.

A Matter of Interpretation: Peer Reception of the Wakefield Article

Shortly after its initial publication and the press conference, two distinct interpretations of the Wakefield et al. article emerged among scientists.[6] Readers differed in their assessment of whether the article sufficiently met the standards of the community as well as over the strength of the methodology employed in the case study. In other words, these scientists debated the legitimacy of Wakefield's status as a scientific expert in this case.

The interpretations technical experts offered of the Wakefield et al. article were influenced by the context within which individuals read the article. As Fahnestock noted, "Much of the relevance of scientific articles is extratextual, not spelled out in the discourse but supplied by context, by the assumed inferences the intended audience will make."[7] For the Wakefield et al. article, that relevance and those inferences depended on which of Goodnight's argumentative spheres provided the context for the reading, and by extension, which standards of argumentation

and associated assumptions a reader applied to the text.[8] One interpretation, which primarily read the article in the context of a public sphere, highlighted the shortcomings of the study and noted the ways in which the article seemed to argue for a link between the MMR vaccine and autism. The other take on the article, which primarily read the article in the context of a technical sphere, denied such an interpretation and instead emphasized the contribution the authors made to scientific knowledge. Proponents of each interpretation claimed a concern for public health as guiding their response, but in one case this concern led to the conclusion that the article should not have been published because of its limitations, while on the other side, this concern for public health justified the article's publication *despite* its limitations.

The first interpretation of the Wakefield et al. article argued that it did more harm than good to public health in the way it *hinted* at a causal link between the MMR vaccine and autism. Those supporting such a reading challenged whether the article should have been published at all, based on its scientific shortcomings as well as its potentially negative impact on public health. This reading first emerged in the critical commentary *The Lancet* commissioned for inclusion in the same issue as the Wakefield et al. article. In the commentary Chen and DeStefano identify the Wakefield et al. article as raising "vaccine-safety concerns" and claim the authors "*suggest* that MMR immunization may lead to IBD, which results in malabsorption, consequent neurological damage, and 'autism.'"[9] While in this statement Chen and DeStefano include similar hedges as the Wakefield et al. article, in other places these hedges are removed. For example, early in the commentary, Chen and DeStefano posit, "How well then do the features of the association reported by Wakefield and colleagues fit with causality?"[10] Reporting implies more certainty and more assertion than hypothesizing; thus, in their commentary Chen and DeStefano take Wakefield's hedge statements of possibility and turn them into claims of

fact. At another point in their commentary, Chen and DeStefano claimed, "Recent evidence also suggests that measles (or MMR) does not contribute to the development of IBD, the antecedent necessary for autism according to Wakefield and colleagues."[11] While the Wakefield et al. article posed the possibility that MMR could lead to a leaky gut, which in turn may have an influence on neurological development, in their commentary, Chen and DeStefano claim Wakefield et al. present this link not only as existing but also as a "necessary" component in the development of autism. Again a hypothesis from the Wakefield et al. article is converted into an asserted claim and the hedges originally used to express the hypothesis are removed.

Chen and DeStefano credit the article with presenting a link between the MMR vaccine and autism, and then use the rest of their commentary to point out the various shortcomings of the study in proving that such a relationship exists, despite the fact that the Wakefield et al. article explicitly denies proving this link but rather poses it as a possibility. Chen and DeStefano's comments reveal the mixed reading strategy they applied to the Wakefield et al. article. While they read the methodology of the study for its rigor in comparison to technical standards, they read the hedges much differently. Presenting hypotheses and speculating about the significance of one's findings through hedged language in the discussion section of a research article is a traditional part of scientific discourse.[12] Such discursive practices serve as vital means for pushing science forward, claiming ownership of particular avenues of research, and persuading audiences of the significance of data. But rather than reading the hedges in the Wakefield et al. article as a way of introducing exploratory ideas in a scientifically acceptable way (their traditional use in a technical context), Chen and DeStefano interpret them like a non-technical audience would, as more declarative than speculative.

Others in the scientific community would also apply this mixed reading strategy to the Wakefield et al. article. Less than a month after publication, *The Lancet* published several letters in the correspondence section commenting on the publication of the Wakefield et al. article.[13] Most letters reinforced the interpretation that the Chen and DeStefano commentary highlighted. They raise concerns about the article, interpreting it as claiming that a link existed between the MMR vaccine and autism. Some letters even directly challenge the journal's decision to publish the study. For example, Beale states,

> By publishing Andrew Wakefield and colleagues' work purporting to show a link between MMR vaccination and inflammatory bowel disease and autism and related problems you give increased credence to their report. *The Lancet* is a prestigious, peer reviewed journal with high public profile. The profession, journalists, the public, and especially distressed parents of ill children suppose that a publication in your journal will be true. In this example you print a commentary, which if it had been a peer reviewer's report, should have led to the rejection of the paper.[14]

Once again we see an individual of the scientific community interpreting the Wakefield et al. article as demonstrating a link between MMR vaccination and autism, despite the explicit denial in the original article. This respondent grounds his criticism in a concern for public, rather than scientific, interpretation and reaction to the article. Of the four audiences Beale feels have been misled by publication of the Wakefield et al. article, three of them (journalists, the public, and distressed parents of ill children) fall outside the scientific community. This concern that unsupported and speculative claims regarding the MMR have been granted scientific validity through their presence in the journal recognizes the key role peer review plays in the process of demarcation. In this case Beale argues the process has failed to maintain the boundary between

science and non-science by accepting Wakefield's article for publication. His concern stems from recognition of the influence published scientific research can have on the public. Beale's reaction also demonstrates the ways in which hedging in particular leaves discursive gaps that enable alternate interpretations of scientific articles. Beale's objection pertains to publication making the article seem "true"—this comment ignores the hedges of the article that mark the presented ideas as speculative. Despite the frequent use of hedges in scientific publications, Beale reads them very differently here, reducing the hedged statements to absolute claims that must be either true or false.

In another letter, Lee et al. argue, "Wakefield and co-workers state, 'We did not prove an association between measles, mumps, and rubella vaccines and the syndrome described.' However, there are enough references in the text to lead the reader to the assumption that there is sufficient evidence provided by the study, and by other scientific publications, to suggest that there is a likely (although as yet unproven) link."[15] The writers of this letter acknowledge the explicit denial of proving a link in the text, but they argue that the article, as written, contains hints that implicitly assert the existence of such a link. The hedged statements discussed in the previous chapter create these hints, and for these commentators, the less explicit message they identify makes the article problematic, regardless of any denial it contains, because of the potential for this underlying message to dominate public interpretation. Similarly, Bedford et al. (1998) remark, "This publication provided a platform for the expression of views about MMR vaccination that have no proven scientific foundation."[16] Although these respondents do not offer any discussion of *how* Wakefield was able to use the article in this manner, their comments suggest that the article was designed to anchor broader claims than what the initial case study actually supported. While the Wakefield et al. article presented an argument in a technical sphere

regarding a case study of 12 children, each of these respondents read the article with a public sphere context in mind, interpreting some of the standards of scientific discourse—such as hedging claims—differently than they might normally interpret them when reading a research report.[17]

A second interpretation of the article emerged in the responses provided to critiques that claimed the Wakefield et al. article claimed a link between MMR and autism existed. These responses justify the decision to publish the study and defend the article as not making a claim regarding a link between MMR and autism. The same issue of *The Lancet* that featured the critical letters discussed above also included a response from Wakefield,[18] another response from three of the article's original authors—Simon Murch, Mike Thomson, and John Walker-Smith,[19] and a reply from Richard Horton, editor of *The Lancet* at the time of the article's publication.[20] Wakefield's response says little regarding how to interpret the original article and instead makes an emotional appeal regarding the need to listen to parents.[21] Wakefield defends his work in light of a concern for the public, but he does little to directly respond to the criticisms raised by his colleagues. The other authors respond more thoroughly to the criticisms raised while emphasizing that their concern for the public well being convinced them to move ahead with publishing, despite the limitations of the study. In their letter, Murch, Thomson, and Walker-Smith defend both the publication of the article and the merit of the knowledge they claim the article contributes.[22] Specifically, they respond to accusations of insufficient data by pointing out that they discussed the study's limitations, including the small data set, *in the original article*.[23] They use the text itself, and specifically a type of hedging—the tradition in scientific reports of discussing study or data limitations—as part of their defense. They further support such an interpretation of the article by pointing out that media reports had been balanced and supported

continued immunization.

Horton's reply accompanying these letters defends the decision to publish even more emphatically. He begins by declaring, "The paper by Andrew Wakefield and colleagues is an example of how researchers, editors and those concerned with the public's health can work together to *present new evidence in a scientifically balanced and careful way*."[24] Horton places the Wakefield et al. study firmly within the realm of science, describing it as an exemplar for maintaining scientific commitments while addressing issues with public relevance. He reads the hedged statements in the discussion section in a technical context, interpreting them as a cautious presentation of new ideas. He goes on to claim, "Peer review confirmed that the paper merited publication."[25] This comment supports an interpretation of the Wakefield et al. article as appropriately meeting the standards of scientific discourse, as determined by peer review. Horton also explicitly defends the article as *not* claiming a link between MMR and autism. He states, "Reported adverse comments about the safety of MMR vaccination were made at this press conference [promoting the article]. By contrast, the views expressed in the paper are *unambiguously* clear."[26] Horton attempts to disassociate the article from the press conference comments by quoting the explicit denial of proving an association in the text, using this distinction to defend his interpretation of the article and, by extension, the decision to publish it as part of the scientific record. Like Murch, Thomson, and Walker-Smith, Horton also points out that in contrast to what critics—such as Chen and DeStefano—warned, early media coverage urged cautious interpretations of the Wakefield study and encouraged continued vaccinations. Through his defense of the journal's decision and the article itself, Horton rejects the interpretation that critics of the Wakefield et al. article promoted.

These respondents who defended the Wakefield et al. article took it at face value.[27] They read it in the context of a technical sphere and assumed a technical reader who would understand the limitations of the study and be familiar with how to interpret the hedges contained in the article. Those promoting such a reading argued that the article's true narrative contributed a unique and noteworthy scientific finding. They also used the contents of the text itself, including the explicit denial of proving an association and the hedges within the article, to defend their interpretation and their classification of the article as worthy of publication.

Thus, in the aftermath of the article's publication, two opposing interpretations, both grounded in the contents of the original article, surfaced among Wakefield's colleagues within the technical realm. The discursive gaps left by the hedges contained in the article allowed for both interpretations to be "correct." One interpretation held that the article was designed to imply a causal link between the MMR vaccine and autism, while the other emphasized that the article contributed significant scientific findings worthy of publication. Eventually however, the interpretation of the article as implying, or even establishing, a causal link won out in public discourse about the Wakefield et al. study.

Reinterpretation Work: Media Representations of Wakefield's Work

Myers argued, "The fate of a claim is not decided when it is published, even when it is published in *Nature* or *Science*; it depends on who reads it, how it is read, and how it is used."[28] Early coverage of Wakefield's research would influence how his claims would circulate and be remembered. The 1998 publication in *The Lancet* significantly boosted discussions of the MMR vaccine in the media, with 356 articles that year (compared to 12 in 1995, when Wakefield published research that posited, similar to the 1998 article, a possible connection between the

MMR vaccine and Chron's disease).[29] Media scholar Tammy Boyce argued that this early coverage was rather tempered: "Media coverage of this infamous 1998 press conference has developed its own folklore. The stories that arose out of this press conference were not the panic-inducing or contentious stories that were seen in subsequent years."[30] In fact, the day of the press conference, while *The Guardian* and *The Independent featured front page stories on the Wakefield et al. article, the story was not included in The Sun's coverage and was buried in the Daily Mail to page 13 and 14.*[31] *However, d*espite claims from Horton, Boyce, and others that early media coverage urged caution in interpreting Wakefield's article, a rhetorical examination shows media presentations of this story were less careful than they initially appeared and in many ways they amplified Wakefield's implications about a link between autism and the MMR vaccine.

Although later years actually saw more coverage in terms of total numbers of stories,[32] early coverage helped the public make sense of this story when it was first introduced and set the tone for later coverage.[33] Additionally, later spikes in coverage were tied to other events beyond Wakefield's research or publicity of that research.[34] Thus, an examination of early media coverage offers the best insight into the reception that the Wakefield et al. article and Royal Free Hospital press conference received among a public audience. Additionally, those reporting on this story in the early days of its emergence faced the greatest challenge, since the uncertainty of the science behind Wakefield's claims was then at its highest. Indeed, as risk communication scholar Christopher E. Clarke noted, "When the AVC first emerged in 1998, journalists were challenged to report on a controversial issue even through a scientific consensus had not yet taken shape."[35] With this in mind, I consider the newspaper coverage of Wakefield's research in the week following the press conference.[36] Treating these articles as a reception discourse, I trace

how the hedges from *The Lancet* article and press conference statements as well as the division and demarcation claims between experts from the press conference appear (or disappear) in the media coverage.

Hedges

In the early media response to the Wakefield et al. article and subsequent press conference, many headlines announced a link between MMR and autism, turning the tentatively hedged claims of the article into declarative statements, with some stories claiming that a link between MMR and autism existed.[37] For example, the first page story in *The Independence* declared, "Doctors Link Autism to MMR Vaccine."[38] Other stories were introduced with headlines making similarly definitive claims about a link, such as "Medics Linking Jab to Autism - Bowel Disease Develops After Vaccination Team Says" and "Measles Vaccine Linked to Autism."[39] Some headlines didn't mention a link per se but framed the story as a caution about childhood vaccines with claims like "Alert Over Child Jabs," "Ban Three-in-one Jab Urge Doctors After New Fears" and "Doctors Warn of a New Child Vaccine Danger."[40] Such headlines shift the hedged claims Wakefield and his colleagues presented about the *possibility* of an association to a confirmed knowledge claim. The removal of hedges in the transition from scientific research article to popular press story should not be surprising; indeed, as other scholars have noted, the removal of such discursive disclaimers, and resulting increase in certainty, is a common feature of popularized science communication.[41] However, despite the assertions of these headlines, many of these stories included more carefully hedged claims in the main body of text. Indeed, one research project found a similar number of hedges and qualifiers in the Wakefield et al. article and a small sample of news articles about the research.[42] This disconnect between the assertions of headlines and the hedges of the main story is reflected in

one article entitled "Measles vaccine's link with autism studied." The story refers to a "*possible* link between autism and the multiple MMR vaccine" in the opening line and later explains that the link has not yet been proven and that it could likely be a "false association" since symptoms of autism become noticeable around the same time that the MMR vaccine is typically administered.[43] However, the headline frames the link as a real entity that is simply being studied, not as a hypothesis that is being explored.

The inclusion of hedges in the text of these articles may be what lead Horton and Boyce to classify this early coverage as cautious. However, with the assertive claims in the headlines, the hedges in the main text are more likely to be read as confirming the possibility of a link rather than undermining the strength of such a claim. Furthermore, in some stories the more carefully hedged claims or nuanced details of the research's limitations as well as statements encouraging continued vaccination with the MMR did not appear until much later in the story, sometimes not until the final sentences.[44] Given the journalistic convention of the inverted pyramid writing style that frontloads those details seen as most important to the story, placing such information at the end of these articles deemphasized those facts. Additionally, since headlines and lead-in paragraphs often received greater attention from readers,[45] with many readers not actually reading carefully all the way to the end of the story, if hedges did not occur until later in coverage, readers could be left with the impression that a link between the MMR vaccine and autism had been proven rather than just postulated.

Expert Demarcation

As noted in the previous chapter, over the course of the press conference, Wakefield's colleagues engaged in some careful demarcation work to control the message, noting limitations in expertise and differences in opinion from Wakefield's vaccine recommendations. However,

much of this demarcation discourse was lost in the media coverage. For example, headlines, such as those noted above, claimed that doctors (plural) linked the MMR vaccine to autism or expressed doubts about childhood vaccines.[46] For example, one story's headline read "Ban Three-in-one Jab Urge Doctors After New Fears."[47] Such headlines glossed over the fact that Wakefield alone endorsed switching to single vaccines while the others argued that the data did not warrant changes to vaccine practices.[48] Even if the headlines did not reference the researchers collectively, often the text of the story would.[49] For example, one article, whose headline cautions, "Not the Time to Panic on Vaccine" fails to distinguish between the different positions taken during the press conference, instead reporting that "Doctors at the Royal Free Hospital in London believe the three-in-one jab may be linked to the development of autism in a small number of children" and later that "Dr. Andrew Wakefield *and his team* suggest that the body is overloaded by the single dose of the three virus strains."[50] Such coverage not only fails to pick up the distinct divisions and demarcation boundaries the press conference participants tried to construct, it also grants greater credence to these claims by presenting them as supported by a group of doctors rather than, as they actually were, the claims of a lone individual.

Stories that did distinguish between the participants in the press conference often did so in a cursory way.[51] Most often the divide between them, as expressed at the press briefing, was noted by a line explaining that Wakefield suggested the combined MMR vaccine could cause the onset of autism, but "other members of the team have questioned the link."[52] While Wakefield is named and his position explicitly described, the perspectives of his colleagues and their critiques of his position are vaguely referenced as "question[s]," taking away their force to actively negate Wakefield's controversial and unsupported vaccine recommendations.

Other stories offered more detailed accounts of the division that emerged out of the press conference, but even these representations had their problems. For example, Sarah Boseley wrote a supplemental story entitled, "Doctors' Dilemma: Damned if They Publish, Damned if They Don't; Scientists Go Public With Doubts over MMR vaccine."[53] In this story, Boseley centralized the controversy and division surrounding the research findings being promoted. She even noted the tension between those appearing at the press briefing. For example, she observed, "On occasions, he [Zuckerman] even seemed at odds with the research team behind him, pointing out that they had not yet produced virological evidence for their hypothesis and adding: 'Measles vaccines are among the safest and most effective vaccines ever developed.'"[54] However, the headline states that as a group they have concerns about the MMR vaccine, when it was mostly Wakefield voicing such doubts, with the others supporting continued use of the combination shot. Additionally, in this telling, rather than Wakefield's opinion differing from his colleagues, most of whom have seniority over him, it is Zuckerman who is at odds with the other members of the research team. This framing, whether constructed intentionally or not, implies that Zuckerman's view regarding the insufficient data and safety of the MMR vaccine is the minority view (a perspective further enforced through the use of the plural "scientists" in the headline).

Additionally, despite some explicit claims about their different areas of expertise and knowledge for understanding the implications of the case study research being presented at the press conference, such qualifications were largely missing from the media coverage. Typically, the only distinction made was in labeling Wakefield as the lead researcher or the head of the research team. Occasionally, Zuckerman's qualifications also received elaboration, but typically these references were to his position as Dean of the Royal Free Hospital School of Medicine.[55]

Only one article made reference to Zuckerman's scientific expertise, naming him as a "world-renowned virology expert."[56] Such coverage shows that journalists failed to understand either the meaning or the importance of the comments presented during the press conference that attempted to construct zones of expertise and possibly hoped to undermine Wakefield's credibility for offering vaccine policy recommendations.

Other stories noting disagreement over the Wakefield article presented Wakefield not in opposition to those appearing at the press conference but to public health organizations and the government.[57] While perhaps such framings were meant to highlight the discrepancy between Wakefield's position versus the recommendation of these government bodies, such stories may have triggered a David versus Goliath framing that actually helped build sympathy for Wakefield's position. As one group of scholars put it, "The initial media portrayal of Andrew Wakefield as a noble crusader for truth opposing the uncaring Government, the medical profession and profit-focused vaccine companies, furthered skepticism about the trustworthiness of these sources."[58]

Overall, the rhetorical choices journalists made in producing their stories about the Wakefield et al. research shaped understanding of the claims made by the study and the implications of its findings. These choices also offer a glimpse into the reception of expert discourses among non-expert audiences. The inconsistency in the use of hedges in media coverage may reflect that journalists are sensitive to the uncertainty researchers want to highlight in the claims they make, but that the editors who write the headlines are either less attentive to or less concerned with the uncertainty research wish to embed in the claims they make. While in the scientific research article, hedges may help researchers make the strongest claims possible without overstepping their bounds, in the mainstream media, hedges might constrain editors from

creating the most attention grabbing story possible. Thus the absences of hedges in headlines, which serve as key attention grabbing devices, and then inclusion of hedges in the main text of a story probably results, in part, because of the constraints created by the division of labor in news creation processes, with journalists writing the stories and editors writing the headlines. However, the choice to remove hedging in headlines may also be a technique editors employ to maintain accuracy in coverage while also creating interest. Given that most media outlets aim for profitability, not public education, these practices are unlikely to change, nor would it be fair to expect them to. The lack of distinction drawing within media coverage after the elaborate qualifications and critiques offered during the press conference may similarly reflect the constraints created by journalistic norms to find ways to engage readers. Nuances can be tedious and to include such details could risk losing readers. However, given the drama created by the back and forth struggle over meaning between experts at the press conference, the absence of stories offering more elaboration of this aspect of the discourse may also reveal a disconnect between message and audience. The qualifications of expertise and internal demarcation discourses presented at the press conference may have required more elaborate background knowledge than the journalists had to recognize the significance of the distinctions being made. One possibility would be to give journalists additional training to better understand the significance of such distinctions when they are made. However, even with the inclusion of such nuances in media coverage, the broader public reader may be just as likely as the journalists before their training to miss the importance of such distinctions. This would enforce my earlier claims that such disputes are better left to internal contexts, not arenas within which technical knowledge is being offered to public audiences.

Continuing Coverage

My own examination has focused rather narrowly on one week of media coverage immediately following the Royal Free Hospital's press conference regarding the 1998 Wakefield et al. study. However, given that more than 15 years have passed since the study's publication and the story continues to garner headlines, clearly much more media coverage followed that first week. A number of scholars have examined this coverage for the lessons it might offer regarding journalistic norms and coverage of medical controversies. A key point made about the coverage of the MMR-autism issue is the role of balance in perpetuating the sense that a controversy exists. As Clarke argued, "By covering the perspectives of both supporters and skeptics of a link in the interest of balance, media discourse gave the impression that the epidemiological evidence was uncertain and a potential relationship was plausible (despite the preponderance of scientific evidence to the contrary)."[59] This balance often leads to a lack of explicit discussion of the mismatch between the overwhelming support for the MMR vaccine and the limited support, both in scientific evidence and numbers of people, against the MMR vaccine.[60] Additionally a failure to report on some of the internal demarcation discourses outlined in the last chapter further encourages a skewed view of the MMR-autism issue. As found in a content analysis and reception study of AVC media coverage in 2002, "Wakefield's recommendation that single vaccines are somehow safer than the MMR vaccine was a persistent theme in media coverage, mentioned in 58% of our sample. The fact that when Wakefield made this claim at a press conference, none of his co-authors endorsed it, was largely ignored in media coverage."[61] These observations seem to raise the question of the media's blame for the perpetual existence of the vaccine debate. On the one hand, these journalists reported the story as it existed. Additionally, the expectations scientists seemed to have, in this case at least, for

journalists to sort through a debate not yet settled in their own domain was unrealistic. On the other hand, through their rhetorical choices, such as word selection and story framing, they often helped Wakefield's cause in subtle ways. "While reporters did not necessarily endorse Wakefield's claims, the sheer repetition of the idea that the MMR jab might be linked to autism appears to have influenced public understanding of this issue."[62] Thus, the media is not entirely innocent, but to lay blame solely at their feet misses the intricate rhetorical complexity of this issue. Additionally, through the inaccurate balance and missed details of their stories about the AVC, the media provides insight into how non-specialists understand Wakefield, his claims, and his critics.

As time has passed and research has failed to find evidence of a link between autism and vaccines, critiques of Wakefield and his research have grown more explicit. In 2004, investigative journalist Brian Deer published an in-depth report that raised doubts about the 1998 study by uncovering a conflict of interest on Wakefield's part.[63] Deer's report revealed that while conducting the 12-child case study, Wakefield received money from a lawyer building a legal case for parents of autistic children against MMR manufacturers.[64] Following Deer's report, Horton issued a statement regarding the publication of the 1998 Wakefield et al. article.[65] In that statement, Horton acknowledged his regret that Wakefield did not fully reveal his conflict of interest to the editorial board. Horton stated, "We judge that all this information would have been material to our decision-making about the paper's suitability, credibility, and validity for publication."[66] That same year, 10 of Wakefield's 12 original co-authors issued a "Retraction of an Interpretation" to explicitly renege the suggestion of a link between MMR and autism.[67]

This new information also instigated the longest trial in the General Medical Council's history and the eventual retraction of the Wakefield article from the scientific record as well as a

revocation of Wakefield's medical license.[68] In 2010, 12 years after initial publication, *The Lancet* officially retracted the 1998 article, stating, "It has become clear that several elements of the 1998 paper by Wakefield et al. are incorrect . . . the claims in the original paper that children were 'consecutively referred' and that investigations were 'approved' by the local ethics committee have been proven to be false."[69] *The Lancet* editors claimed procedural violations as the basis for official retraction of the Wakefield et al. article. However, Wakefield supporters still cling to this research and the AVC persists in the public sphere, perhaps because none of the concerns about Wakefield's motivations or bias directly contradicted the data of the report.

Despite the retraction and continued rejection of Wakefield's position, Wakefield continues to defend his work and the 1998 article specifically.[70] In an interview on *Good Morning America* Wakefield stressed that the link between the MMR vaccine and autism came from parent reporting, not the scientific information his article established. He also maintains the validity of a more narrow reading of the 1998 article. Along with two original co-authors, he wrote a letter to *The Lancet* in response to the 2004 "Retraction of an Interpretation" by the majority of his co-authors. In the letter Wakefield, Harvey, and Linnell stated, "Since no interpretation of the possible MMR/autism link was offered in the original 1998 *Lancet* report, other than to state that the data did not constitute evidence of an association and suggest that further research was required, it is difficult to know quite what has been retracted."[71] A particular, careful reading of the article supports this claim. However, a different, but equally plausible, reading of the 1998 article implies a different story, leading to an interpretation of that text as arguing for such a link.

As Lyne and Howe point out, "Imagery and rhetoric do work that analysis cannot do, implying conclusions for which authors need take no direct responsibility."[72] The explicit

message of the text provided Wakefield with a defense, while the rhetorical aspects of the text allowed for the same article to serve as the basis for an international science-based controversy in the public sphere. In their study of E. O. Wilson's rhetorical positioning in the sociobiology debate, Lyne and Howe claim that repeated attacks against Wilson for taking up a position of genetic determinism supplies the best evidence that he did so, even if Wilson himself argued that he did not.[73] The same can be said for Wakefield. Despite his claims that the 1998 article did not establish a link between the MMR vaccine and autism, many read the article that way, as demonstrated not only by those scientists who responded to the initial publication but also by the journalistic response this article received and the science-based controversy it spawned.

Conclusion

In her study of media coverage around the MMR-autism issue, Boyce noted, "Health professionals, scientists, and journalists—have different reasons for transmitting information to the public and this can have complex and confusing effects on the audience."[74] As I have argued in this chapter, despite the almost uniform narrative about the AVC often found in contemporary media discourse, in the early days following the publication of Wakefield's research, responses were more varied.

Two dominant readings of the Wakefield et al. article emerged from fellow researchers and scientists: one that argued the article suggested a causal link between the MMR vaccine and autism without sufficient backing and a second that defended the article as meeting the standards for publication and contributing a significant scientific finding. Despite the differences between these readings, the strategic ambiguity of Wakefield's rhetorical choices allowed both to be grounded in the article's text and defended as "correct." In part these differences can be

attributed to the different orientations readers brought to the article's text. Although one might presume that Wakefield's peers would have read his research as part of a technical sphere discourse, my reading of their reception showed that many of them applied a public sphere orientation in their interpretation of the research. Such readings looked beyond the technical aspects of the article to consider its signification in a broader discourse about public health and vaccination. If such reading orientations had been applied during the peer review process, as suggested in the previous chapter, it is likely that the Wakefield et al. piece would have never become part of the official scientific record.[75] This speaks to one possibility for overcoming some of the shortcomings embedded within the peer review process. If reviewers can read not just for technical sphere standards but also for public sphere implications, more caution might be employed around potentially problematic topics. Since the research and knowledge published as part of the official scientific record becomes the grounds on which experts stake their claims, this caution in the peer review process may help eliminate discursive opportunities for manufacturing scientific controversy by taking advantage of the ambiguity of expert language practices when employed in a non-technical setting. However, a fine line exists between caution and censorship, so pains must be taken to ensure that such reviews do not become disguises for promoting particular ideologies or preventing challenges to existing structures and practices.

The reception of the AVC found in the media coverage also offers up lessons regarding the transfer of scientific and technical information to public arenas and non-specialist audiences. Attention has been paid to the tendency to increase the certainty of expressions and remove hedges when translating scientific and technical information into a format suitable for a public audience.[76] However, this case reveals that attention may be needed regarding the ways in which distinctions between different types of expertise might be accommodated in this transition as

well. For example, although during the press conference several comments were made distinguishing one's expertise as a virologist or one's limitations because he was not a gut specialists, media coverage glossed over such distinctions, referring to all participants as "doctors" or "researchers," lumping them together into a common pool of expertise. Additionally, when distinctions were made, they typically related to organizational distinctions rather than technical credentials (for example, referring to Wakefield as the lead researcher or Zuckerman as dean of the school of medicine). This implies that "zones of expertise,"[77] which might be carefully cultivated and constructed within a technical sphere lose distinctiveness in a public sphere setting. This would help explain Lyne and Howe's observation about the shifting standards of proof for interdisciplinary and transdisciplinary expert communication.[78] If individuals are represented as a nonspecific scientist or researcher, the standards of proof for knowledge or, more troublingly, the standards of qualification for speaking as an expert similarly become non-descript. This observation likewise endorses Collins and Evans claims that epistemological grounds for expertise can only be evaluated by those with a higher level of expertise; for those who do not posses a higher level of expertise than the expert being evaluated—for example, the journalists attending the press conference or citizens reading their papers—judgments of expertise must be based on non-epistemological grounds, such as an expert's perceived level of trustworthiness or credibility.[79]

Tracing the responses that emerged following the press conference to publicize the Wakefield et al. article further demonstrates the troubling implications of science by press conference practices. Given news makers' inability to discern (or apparent indifference to) the careful demarcations offered by the experts in positioning the significance of the Wakefield case study, promoting technical knowledge that is still in flux, no matter how carefully hedged and

qualified, can have troubling outcomes. Additionally, other researchers have shown that in the case of the AVC, "the MMR controversy was primarily covered by nonspecialist correspondents. In essence, this was a science story that moved from medical journals to the national news agenda without stopping for long with specialist correspondents."[80] With increasingly limited resources and tighter deadlines, coverage of scientific and technological breakthroughs will likely shift increasingly to generalists rather than specialists, *making science by press conference practices even more problematic.*

In his study on how scientific knowledge gets created through texts, Myers argued, "what is not printed cannot be cited."[81] This observation notes the central place of publication in the expansion of scientific knowledge. However, as evidenced by reception of the Wakefield et al. article, publication represents only the beginning in the rhetorical life of scientific knowledge. As I have shown, occasionally what is cited or credited to a particular article may differ significantly from what gets printed. In the AVC, so many different parties—including the media, concerned scientists, and parents—reference the Wakefield et al. article for an idea not explicitly stated within it. More troubling, though, the AVC demonstrates a variation of Myers' statement—that what is printed can always be cited. Even after a retraction by the majority of the article's authors as well as an official retraction by the publishing journal*,* Wakefield and this article continue to carry a certain force in ongoing conversations about the AVC.[82] While Myers' comments relate to the importance of publication for the purposes of citation within the scientific community, scientific knowledge does not remain within the vacuum of a technical context. Although the Wakefield et al. article has been thoroughly discredited for a technical audience and no longer holds validity in that realm, it continues to circulate in certain public discourse communities. While typical scientific publications never receive much notice among the general public, some

studies do grab the public's attention. As the ongoing debate over the AVC illustrates, scientists may need to think more carefully about the different interpretations of their claims that might emerge among different audiences in different contexts.

---

[1] G. Thomas Goodnight, "The Personal, Technical, and Public Spheres of Argument: A Speculative Inquiry into the Art of Public Deliberation," *Journal of the American Forensic Association* 18 (1982): 214–27.
[2] Michael A. Overington, "The Scientific Community as Audience: Toward a Rhetorical Analysis of Science," *Philosophy & Rhetoric* 10, no. 3 (July 1, 1977): 153.
[3] Tammy Boyce, *Health, Risk and News: The MMR Vaccine and the Media* (New York: Peter Lang International Academic Publishers, 2007); B. Mason and P. Donnelly, "Impact of a Local Newspaper Campaign on the Uptake of the Measles Mumps and Rubella Vaccine," *Journal of Epidemiology and Community Health* 54, no. 6 (June 2000): 473–74, doi:10.1136/jech.54.6.473; Carol Reeves, "'I Knew There Was Something Wrong with That Paper': Scientific Rhetorical Styles and Scientific Misunderstandings," *Technical Communication Quarterly* 14, no. 3 (2005): 267–75, doi:10.1207/s15427625tcq1403_4; Tammy Speers and Justin Lewis, "Journalists and Jabs: Media Coverage of the MMR Vaccine," *Communication & Medicine* 1, no. 2 (2004): 171–81, doi:10.1515/come.2004.1.2.171.
[4] A. J. Beale, "Autism, Inflammatory Bowel Disease, and MMR Vaccine," *The Lancet* 351, no. 9106 (March 1998): 906, doi:10.1016/S0140-6736(05)70317-2; Helen Bedford et al., "Autism, Inflammatory Bowel Disease, and MMR Vaccine," *The Lancet* 351, no. 9106 (March 1998): 907, doi:10.1016/S0140-6736(05)70320-2; David Black, Henry Prempeh, and Tony Baxter, "Autism, Inflammatory Bowel Disease, and MMR Vaccine," *The Lancet* 351, no. 9106 (March 1998): 905–6, doi:10.1016/S0140-6736(05)70316-0; R. T. Chen and F. DeStefano, "Vaccine Adverse Events: Causal or Coincidental?" *Lancet* 351, no. 9103 (February 28, 1998): 611–12, doi:10.1016/S0140-6736(05)78423-3; Richard Horton, "Autism, Inflammatory Bowel Disease, and MMR Vaccine," *The Lancet* 351, no. 9106 (March 1998): 908–9, doi:10.1016/S0140-6736(05)70324-X; J. W. Lee et al., "Autism, Inflammatory Bowel Disease, and MMR Vaccine," *The Lancet* 351, no. 9106 (March 1998): 905, doi:10.1016/S0140-6736(98)26012-0; Keith J. Lindley and Peter J. Milla, "Autism, Inflammatory Bowel Disease, and MMR Vaccine," *The Lancet* 351, no. 9106 (March 1998): 907–8, doi:10.1016/S0140-6736(05)70321-4; Simon Murch, Mike Thomson, and John Walker-Smith, "Autism, Inflammatory Bowel Disease, and MMR Vaccine," *The Lancet* 351, no. 9106 (March 1998): 908, doi:10.1016/S0140-6736(05)70323-8; A. J. Wakefield, "Autism, Inflammatory Bowel Disease, and MMR Vaccine," *The Lancet* 351, no. 9106 (March 1998): 908, doi:10.1016/S0140-6736(05)70322-6.
[5] John Lyne and Henry F. Howe, "The Rhetoric of Expertise: E. O. Wilson and Sociobiology," *Quarterly Journal of Speech* 76, no. 2 (1990): 134–51, doi:10.1080/00335639009383910.
[6] A. J. Wakefield et al., "RETRACTED: Ileal-Lymphoid-Nodular Hyperplasia, Non-Specific Colitis, and Pervasive Developmental Disorder in Children," *The Lancet* 351, no. 9103 (February 1998): 637–41, doi:10.1016/S0140-6736(97)11096-0.
[7] Jeanne Fahnestock, "Accommodating Science: The Rhetorical Life of Scientific Facts," *Written Communication* 3, no. 3 (July 1, 1986): 278, doi:10.1177/0741088386003003001.
[8] Goodnight, "The Personal, Technical, and Public Spheres of Argument."
[9] Chen and DeStefano, "Vaccine Adverse Events," 612. Emphasis added.
[10] Ibid., 611.
[11] Ibid., 612.
[12] Françoise Salager-Meyer, "Hedges and Textual Communicative Function in Medical English Written Discourse," *English for Specific Purposes*, no. 2 (1994): 149–70, doi:10.1016/0889-4906(94)90013-2.
[13] Beale, "Autism, Inflammatory Bowel"; Bedford et al., "Autism, Inflammatory Bowel"; Black, Prempeh, and Baxter, "Autism, Inflammatory Bowel"; Lee et al., "Autism, Inflammatory Bowel"; Lindley and Milla, "Autism, Inflammatory Bowel."
[14] Beale, "Autism, Inflammatory Bowel," 906.
[15] Lee et al., "Autism, Inflammatory Bowel," 905.
[16] Bedford et al., "Autism, Inflammatory Bowel," 907.
[17] Goodnight, "The Personal, Technical, and Public Spheres of Argument."
[18] Wakefield, "Autism, Inflammatory Bowel."

[19] Murch, Thomson, and Walker-Smith, "Autism, Inflammatory Bowel."
[20] Horton, "Autism, Inflammatory Bowel."
[21] Wakefield, "Autism, Inflammatory Bowel."
[22] Murch, Thomson, and Walker-Smith, "Autism, Inflammatory Bowel."
[23] Ibid., 908.
[24] Horton, "Autism, Inflammatory Bowel," 908. Emphasis added.
[25] Ibid., 909.
[26] Ibid., 908. Emphasis added.
[27] I focus on responses among Wakefield's peers in the immediate aftermath of publication so these respondents defending the article are primarily Wakefield's co-authors and the Lancet editor, Richard Horton. As the controversy continued and Wakefield gained additional supporters, particularly among parents of autistic children, some of these new supporters would voice similar defenses to the ones outlined here, including citing the explicit denial in the article of proving a link between the MMR and autism. See, for example, Jenny McCarthy, "In the Vaccine-Autism Debate, What Can Parents Believe?" *Huffington Post*, January 10, 2011, http://www.huffingtonpost.com/jenny-mccarthy/vaccine-autism-debate_b_806857.html.
[28] Greg Myers, *Writing Biology: Texts in the Social Construction of Scientific Knowledge Science and Literature Series* (Madison, Wis: Univ of Wisconsin Press, 1990), 100.
[29] Tammy Boyce, "Journalism and Expertise," *Journalism Studies* 7, no. 6 (2006): 892, doi:10.1080/14616700600980652.
[30] Boyce, *Health, Risk and News*, 5.
[31] Ibid.
[32] Indeed, the 356 articles in 1998 pale in comparison to the 3210 articles featured in 2002 at the height of media coverage on the MMR autism issue in the UK. Boyce, "Journalism and Expertise," 892.
[33] Andrea Kitta, *Vaccinations and Public Concern in History: Legend, Rumor, and Risk Perception*, Routledge Studies in the History of Science, Technology, and Medicine 28 (New York: Routledge, 2012), 30.
[34] For example, the 2002 spike that Boyce noted resulted from public concern about Prime Minister Tony Blair's resistance to disclose whether his son Leo had received the MMR vaccine. Boyce, "Journalism and Expertise," 892.
[35] Christopher E. Clarke, "A Question of Balance: The Autism-Vaccine Controversy in the British and American Elite Press," *Science Communication* 30, no. 1 (June 24, 2008): 97, doi:10.1177/1075547008320262.
[36] Articles were compiled by conducting a search in Lexis-Nexus for the term "MMR" in news publications from February 27, 1998 – March 6, 1998.
[37] For example, "Child Jabs Feared to Trigger Autism; Doctors Call for Caution Over 'MMR Vaccine Link,'" *The Bristol Post*, February 27, 1998; "Child Vaccine Linked to Autism," *BBC*, February 27, 1998, http://news.bbc.co.uk/2/hi/uk/60510.stm; Rachel Ellis, "Medics Linking Jab to Autism - Bowel Disease Develops After Vaccination Team Says," *Evening Chronicle*, February 27, 1998; Jeremy Laurance, "Doctors Link Autism to MMR Vaccine," *The Independent*, February 27, 1998; "Measles Vaccine Linked to Autism," *Birmingham Evening Mail*, February 27, 1998; Ian Murray, "Measles Vaccine's Link with Autism Studied," *The Times*, February 27, 1998; Anita Quigley, "Autism 'Linked' to Baby Vaccines," *The Advertiser*, February 28, 1998; Angus Nicoll, David Elliman, and Euan Ross, "MMR Vaccination and Autism 1998," *BMJ* 316, no. 7133 (March 7, 1998): 715–16, doi:10.1136/bmj.316.7133.715; "Vaccine Link to Autism-Shock," *Western Daily Press*, February 28, 1998.
[38] Laurance, "Doctors Link."
[39] Ellis, "Medics Linking Jab"; "Measles Vaccine Linked."
[40] Sarah Boseley, "Alert Over Child Jabs," *The Guardian*, February 27, 1998; Jenny Hope, "Ban Three-in-One Jab Urge Doctors After New Fears," *The Daily Mail*, February 27, 1998; Jeremy Laurance, "Doctors Warn of a New Child Vaccine Danger," *The Independent*, February 27, 1998.
[41] Fahnestock, "Accommodating Science"; Jakob D. Jensen, "Scientific Uncertainty in News Coverage of Cancer Research: Effects of Hedging on Scientists' and Journalists' Credibility," *Human Communication Research* 34, no. 3 (July 2008): 347–69, doi:10.1111/j.1468-2958.2008.00324.x.
[42] Gabriella Rundblad, Paul A. Chilton, and Paul R. Hunter, "An Enquiry Into Scientific and Media Discourse in the MMR Controversy: Authority and Factuality," *Communication & Medicine* 3, no. 1 (2006): 69–80, doi:10.1515/CAM.2006.007.
[43] Murray, "Measles Vaccine's Link." Emphasis added.
[44] "Child Vaccine Linked"; "MMR Vaccination Comes Under Renewed Fire in UK," *The Pharma Letter*, October 3, 1998, http://www.thepharmaletter.com/article/mmr-vaccination-comes-under-renewed-fire-in-uk.
[45] Kitta, *Vaccinations and Public Concern*, 30.

[46] Sarah Boseley, "Doctors' Dilemma: Damned If They Publish, Damned If They Don't; Scientists Go Public With Doubts Over MMR Vaccine: Sarah Boseley on Fears of a Backlash Against Inoculation," *The Guardian*, February 27, 1998; Ellis, "Medics Linking Jab"; Hope, "Ban Three-in-One Jab"; Laurance, "Doctors Warn"; Laurance, "Doctors Link."
[47] Hope, "Ban Three-in-One Jab."
[48] Although Pounder did, at one point during the press conference, admit that he shared a similar perspective to Wakefield regarding the appearance of a possible link between MMR and the syndrome described in the paper, he recommended further research into the MMR, not a shift to single vaccines. He also stressed that the link merely existed in appearance and only in rare cases.
[49] "Autism Scare Over Child Jab," *Belfast News Letter*, February 27, 1998; "Child Vaccine Alert Rejected; Parents Urged to Ignore Immunisation Scare," *The Mirror*, February 28, 1998; "Fears of Vaccine Link to Autism," *Western Daily Press*, February 27, 1998; Hope, "Ban Three-in-One Jab"; Laurance, "Doctors Warn"; "Not the Time to Panic on Vaccine," *Birmingham Evening Mail*, February 27, 1998; Quigley, "Autism 'Linked'"; "We'll Not Let Our Second Son Have This Jab--Autistic Boy's Parents Fear Vaccination Could Put Brother At Risk," *Evening Chronicle*, February 28, 1998.
[50] "Not the Time." Emphasis added.
[51] Ellis, "Medics Linking Jab"; Boseley, "Alert Over Child Jabs"; Laurance, "Doctors Link"; Laurance, "Doctors Warn"; Jeremy Laurance, "Child-Vaccine Setback for Worried Parents," *The Independent*, March 5, 1998; Ken Oxley, "Measles Jab Turned My Son Into An Autistic Child," *Daily Record*, March 4, 1998; "Autism Scare"; "Child Jabs Feared"; "Fears of Vaccine."
[52] Ellis, "Medics Linking Jab"; Laurance, "Doctors Link"; Laurance, "Child-Vaccine Setback"; "Autism Scare"; "Child Jabs Feared"; "Fears of Vaccine."
[53] Boseley, "Doctors' Dilemma."
[54] Ibid.
[55] "Child Jabs Feared"; Laurance, "Doctors Warn"; Boseley, "Doctors' Dilemma"; "Government Reassurance on MMR Vaccine," *BBC*, February 27, 1998, http://news.bbc.co.uk/2/hi/uk/60721.stm; Murray, "Measles Vaccine's Link"; Ellis, "Medics Linking Jab."
[56] Hope, "Ban Three-in-One Jab."
[57] Jo Revill, "Measles Jab Fear Grows Amid Drug Shortage," *The Evening Standard*, March 4, 1998; Joanne Welford, "'Don't Worry' Advice Over Vaccine Scare," *The Journal*, February 28, 1998; "Experts Play Down Fear Over Child Jabs," *The Bristol Post*, February 27, 1998; "Department of Health Tries to Allay Fears over MMR Vaccine," *Birmingham Post*, February 28, 1998; "Health Chiefs in Plea After Measles Jab Scare; Department of Health Continues to Recommend MMR Vaccine," *Daily Record*, February 28, 1998; "Measles Jabs Safe, Parents Are Told," *Belfast News Letter*, February 28, 1998; "Vaccine Link."
[58] David C. Burgess, Margaret A. Burgess, and Julie Leask, "The MMR Vaccination and Autism Controversy in United Kingdom 1998–2005: Inevitable Community Outrage or a Failure of Risk Communication?" *Vaccine* 24, no. 18 (May 1, 2006): 3925, doi:10.1016/j.vaccine.2006.02.033.
[59] Clarke, "A Question of Balance," 79.
[60] Speers and Lewis, "Journalists and Jabs," 174.
[61] Ibid.
[62] Ibid., 173.
[63] Brian Deer, "Revealed: MMR Research Scandal," *The Times (London)*, February 22, 2004, http://www.thetimes.co.uk/tto/health/article1879347.ece; Brian Deer, "How the Case Against the MMR Vaccine Was Fixed," *BMJ* 342 (January 5, 2011): c5347–c5347, doi:10.1136/bmj.c5347; Brian Deer, "How the Vaccine Crisis Was Meant to Make Money," *BMJ* 342 (January 14, 2011): c5258–c5258, doi:10.1136/bmj.c5258; Brian Deer, "Secrets of the MMR Scare. The Lancet's Two Days to Bury Bad News," *BMJ* 342 (January 22, 2011): c7001; Brian Deer, "Brian Deer: The Wakefield Factor," *Briandeer.com*, n.d., http://briandeer.com/wakefield-deer.htm.
[64] Deer, "How the Vaccine Crisis," 136.
[65] Richard Horton, "A Statement by the Editors of The Lancet," *The Lancet* 363, no. 9411 (March 2004): 820–21, doi:10.1016/S0140-6736(04)15699-7; See also, Deer, "Secrets of."
[66] Horton, "A Statement," 821.
[67] Simon H. Murch et al., "Retraction of an Interpretation," *The Lancet* 363, no. 9411 (March 2004): 750, doi:10.1016/S0140-6736(04)15715-2.

[68] Deer, "How the Vaccine Crisis," 139; General Medical Council, *Andrew Wakefield: Determination on Serious Professional Misconduct (SPM) and Sanction* (General Medical Council, May 24, 2010), Retrieved from http://www.gmc-uk.org/Wakefield_SPM_and_SANCTION.pdf_32595267.pdf.
[69] The Editors of The Lancet, "Retraction—Ileal-Lymphoid-Nodular Hyperplasia, Non-Specific Colitis, and Pervasive Developmental Disorder in Children," *The Lancet* 375, no. 9713 (February 2010): 445, doi:10.1016/S0140-6736(10)60175-4.
[70] Madison Park, "Medical Journal Retracts Study Linking Autism to Vaccine," *CNN*, February 2, 2010, online edition, http://www.cnn.com/2010/HEALTH/02/02/lancet.retraction.autism/.
[71] Andrew J. Wakefield, Peter Harvey, and John Linnell, "MMR—Responding to Retraction," *The Lancet* 363, no. 9417 (April 2004): 1328, doi:10.1016/S0140-6736(04)16017-0.
[72] Lyne and Howe, "The Rhetoric of Expertise," 145.
[73] Ibid., 149.
[74] Boyce, *Health, Risk and News*, 13.
[75] In his response, Beale makes a similar claim, arguing that the Chen and DeStefano commentary would have lead to the rejection of the Wakefield article if it had been a reviewer's report. Beale, "Autism, Inflammatory Bowel."
[76] Fahnestock, "Accommodating Science"; Kelly Horn, "The Consequences of Citing Hedged Statements in Scientific Research Articles," *BioScience* 51, no. 12 (December 1, 2001): 1086–93, doi:10.1641/0006-3568(2001)051[1086:TCOCHS]2.0.CO;2; Jensen, "Scientific Uncertainty"; Rundblad, Chilton, and Hunter, "An Enquiry Into."
[77] Srikant Sarangi and Angus Clarke, "Zones of Expertise and the Management of Uncertainty in Genetics Risk Communication," *Research on Language & Social Interaction* 35, no. 2 (2002): 139–71, doi:10.1207/S15327973RLSI3502_2.
[78] Lyne and Howe, "The Rhetoric of Expertise."
[79] Harry Collins and Robert Evans, *Rethinking Expertise* (University of Chicago Press, 2008), 62–63. This also helps explain those continuing to express support for Wakefield, despite the retractions and criticisms. Wakefield's appeals to listening to parents and framing his recommendation of the single measles, mumps and rubella shots as based on his moral conscious helped cultivate his appeal among parents who believed their children were damaged by vaccines. Such a sentiment can be seen in Jenny McCarthy's expressed support for Wakefield in an editorial penned following the official retraction of *The Lancet* article and the findings of the GMC trial. McCarthy, "In the Vaccine-Autism Debate."
[80] Speers and Lewis, "Journalists and Jabs," 173.
[81] Myers, *Writing Biology*, 96.
[82] Additionally, this text continues to be cited, despite its retraction, such as I do in this study. As it continues to be cited, this text sustains a rhetorical life despite the official sanctions leveled against it.

Chapter 4

Mommy Instinct: Parenthood as Expertise

Following her son Evan's autism diagnosis in 2005, celebrity Jenny McCarthy began speaking out about her experiences, publishing a series of books in which she discussed the issue of autism. In 2007 she began promoting the first of these books, *Louder Than Words: A Mother's Journey in Healing Autism* (hereafter *LTW*), through appearances on morning news shows and daytime talk shows, with her first appearance occurring on *The Oprah Winfrey Show*.[1] The episode featured McCarthy and fellow celebrity Holly Robinson Peete talking about their experiences raising children with autism. During the show McCarthy declared her belief that Evan developed autism after being vaccinated. In the spirit of balanced reporting, Winfrey read a statement from the Centers for Disease Control (CDC) explaining that scientific research had shown that no link between autism and vaccines existed. When Oprah finished reading the statement, McCarthy replied, "My science is named Evan and he's at home. That's my science."[2] With this statement, McCarthy positioned herself as an expert by naming her lived experience of interacting with her son as "science," equating it with laboratory research and by extension, herself with the scientific researcher. Throughout her discourse, McCarthy continued this enactment of expertise. Despite her lack of scientific credentials or technical training, she rhetorically positioned herself as one having the authority to speak on the issue of whether vaccines cause autism because of her personal experiences.

As a science-based, manufactured controversy, the autism vaccine controversy (hereafter AVC) highlights the tension that exists between experience-based expertise and more traditional notions of expertise based on technical training and professional credentials. The debate over the

possibility of a connection between childhood vaccines and autism brings scientific and medical experts in conversation with parents of autistic children, who claim an expertise of their own based on their life experiences. Indeed, as rhetorical critic Rachel Whidden noted, while there has been a rise in discourses presenting parents, especially mothers, as experts more generally, "Nowhere is this phenomenon of maternal expertise clearer than in the MMR-autism controversy in which a number of celebrities join other mothers to advance the idea that a mother's personal experience with her child is stronger evidence than research validated by the standards of the technical sphere."[3] The most vocal aspect of this "parent as expert" discourse comes from advocacy rhetoric. A number of advocacy groups related to vaccination reform and autism have emerged, but overwhelmingly McCarthy is identified (particularly by the media) as a key spokesperson for these groups and their cause, whether those groups approve of her tactics or not.[4] More than that, McCarthy is often credited with having a significant impact on raising public awareness of autism, drawing attention to the "debate" around childhood vaccines, and even causing declines in vaccine uptakes.[5] As one television host noted, "no one has made us more aware of autism and raised more questions than Jenny McCarthy. Particularly, questions about whether all children should receive the double, triple dose of vaccine at one time."[6] Thus, McCarthy represents a central discursive figure in the AVC.

While many point to McCarthy as a key voice in perpetuating the appearance of debate about childhood vaccination despite the scientific evidence to the contrary, not as much has been said to explain how McCarthy managed to gain such prominence and keep the conversation about autism and vaccines alive. For example, Whidden traces how McCarthy and other mothers use this maternal expertise appeal to insert their personal sphere arguments into discourses with a technical basis, but only briefly discusses how the "motherhood-as-expertise" trope comes to be

validated as a legitimate claim to specialized knowledge.[7] Other rhetorical scholars have considered the implications of McCarthy's discourse.[8] Rhetorical critics Emily Yochim and Vesta Silva offer a liberal feminist critique of McCarthy's mommy instinct to reveal the ways in which a discourse that may seem empowering on the surface actually operates to constrict women by setting too high a standard for being a good mother.[9] These studies do an excellent job of exploring the consequences of McCarthy's discourse once popularized. In my own study, I look to the earlier stages of McCarthy's discourse. I examine the rhetorical markers of *ethos* in McCarthy's discourse as a means for explaining how McCarthy was able to gain the attention that she did and then later turn to reception artifacts to better under how her appeals persuaded different audiences. When explanations of McCarthy's prevalence are offered, they tend to presume that her popularity results from her celebrity status or the power of narratives to override the logic of science.[10] However, I argue that McCarthy has gained a following for more than just telling a compelling story.

A careful examination of McCarthy's discourse reveals that she employs various rhetorical strategies to build ethos in order to appeal to her audience, to establish her (and other mothers') expertise, and to challenge the traditional medical enterprise. She grounds the legitimacy of her claimed expertise in her lived experience, arguing that her mommy instinct provides her with the necessary knowledge to make complex decisions regarding her son's safety and health. She presents her story in stylistic ways that amplify the expertise she asserts, and she plays up her virtue and good will. Although a celebrity, she strives to create identification with her audience through highlighting her motherhood above all else. Through these strategies, McCarthy works to persuade her audience of her legitimacy and credibility and to present motherhood as a form of expertise that challenges the claims of the larger medical enterprise.

McCarthy performs this challenge through her written works on the topic and in a number of public appearances, demonstrating the means by which lived experience can speak back to technical knowledge and complicate the debate.

In her book on the rhetoric of expertise, rhetorical scholar Johanna Hartelius claimed, "A rhetorical point of view explains why experts face similar exigencies regardless of subject matter. These exigencies, which are ubiquitous in modern culture, contain certain expectations of what experts must be and do in and through language *in order to be received as experts*."[11] I analyze McCarthy's discourse about autism and vaccines, revealing how she manages these expectations of expertise to become a legitimate voice in the debate. First, I review Hartelius's framing of the discourse of expertise as a genre. I then discuss the concept of experience-based expertise and specifically the idea of motherhood as a form of expertise. Then, I trace the history of the relationship between mothers and experts regarding parenting and child health over the 20th and into the 21st century. Turning to McCarthy's discourse, I analyze the various means of persuasion McCarthy employs to construct her ethos as an "expert," creating a place for her voice in the debate. In my analysis I focus primarily on the series of books she wrote about her experiences with Evan's autism diagnosis and treatment, but I also consider some of her key public appearances to promote these books. I conclude with a brief consideration of the significance of McCarthy's ethos construction as a means of establishing expertise.

The Discourse of Expertise as a Genre

Hartelius argued,

> Expertise is not simply about one person's skills being different from another's. It is also grounded in a fierce struggle over ownership and legitimacy. To be an expert is to claim a

> piece of the world, to define yourself in relation to certain insights into human experience . . .. To be an expert, in short, is to rhetorically gain sanctioned rights to a specific topic or mode of knowledge.[12]

At the core of the concept of expertise lies an inherently rhetorical dimension. Experts rely on communication to relay their specialized information to non-specialists. And in the public discourse arena, where healthy competition among experts exists, rhetoric becomes an important tool for persuading listeners to pay attention and trust one expert over another. Around certain complex issues—for example, the possibility of a link between autism and vaccines, climate change, or genetically modified foods— uncertainty among the public remains despite what the experts say, and at times, the related expert knowledge itself can come into question. In the context of a controversy, this competition between experts intensifies as various individuals vie for recognition as the proper authority on the subject under debate. In other words, to be seen as an expert requires one to persuade others to see one as such.

To achieve this persuasive aim, experts typically rely on some common means of persuasion that can be classified into four overarching categories: invention and performance, ethos, identity and identification, and audience.[13] These four categories highlight that while a title and credentials may play a role in identifying experts, expertise is ultimately a performance that aims to persuade. As Hartelius noted, "The expert is required to enact her position, knowledge, and experience in a public manner while considering audience and context. This means that neither 'knowing your stuff' nor having an official title is enough."[14] The most qualified expert will fail if he cannot communicate that knowledge appropriately to an audience. The reverse of this is that someone who lacks the traditional qualifications typically associated with expertise can perform the authority and credibility necessary to build trust with an audience and come to

be perceived as an expert. To further understand how one's communication as an expert might unexpectedly fail even with excellent qualifications or succeed despite a lack of qualifications, further exploration of these four means of persuasion is needed.

Invention & Performance

Invention and performance refer to the content or knowledge an expert offers and the means by which the expert offers it. Invention is the rhetorical canon associated with determining the available means of persuasion. These means of persuasion come from the substance of one's discourse (so in the case of the expert, the specialized knowledge she has to convey) but also from the style used to communicate that information. Although often in public discourse, we tout a belief in substance over style, information not presented in a palatable way receives less attention. While we uphold the ideal of being ruled by objective data and sound reasoning, aesthetics frequently carry as much if not more influence than objective rationality when making decisions about how to act in a given situation or judging an individual's legitimacy to advise on that action.[15] Thus, in the discourse of experts, both the quality and presentation of information matter: "Invention--the rhetorical canon's method of generating ideas--undergirds both the substance and the aesthetics of expertise."[16] Recognizing the role of both substance and style, Hartelius argued invention could be further broken down into what she termed "invention of inquiry" and "invention as style."[17] Invention of inquiry, according to Hartelius's schema, speaks to the epistemological grounds offered as support for an expert's claims, while invention as style addresses the ways in which the stylistic devices used influence persuasiveness. Including performance as a category along with invention serves as a reminder that ultimately the expert must present one's expertise to an audience.

Ethos

Attention to ethos recognizes the key influence credibility has on perceptions of expertise. When making judgments about which experts to listen to "what is judged is not so much the content of the evidence or advice; if we trust the expert, we trust their expertise."[18] Often defined as the character of the rhetor, ethos plays an important role in gauging credibility and trustworthiness. In her discussion of ethos in discourses of expertise Hartelius invokes Aristotle's classical theory of this means of persuasion. Aristotle breaks ethos down into three components: *phronesis* or practical wisdom, *arête* or virtue, and *eunoia* or good will.[19] Phronesis refers to the rhetor's knowledge, but not technical or theoretical knowledge. Rather phronesis corresponds to one's ability to use sound reasoning to guide action in a particular situation.[20] In the context of expertise, phronesis speaks to an expert's ability to apply his specialized knowledge to contingent circumstances in a meaningful way. Arête refers to "personal excellence in producing and preserving the ultimate good."[21] Often translated as virtue, this component of ethos relates to one's motivation for acting. For arête to be meaningful in making judgments of ethos, it must be publicly performed—in other words, intention is not enough. Eunoia references either the goodwill audiences exhibit towards a rhetor or a display of goodwill directed from the rhetor to the audience. Ultimately, Hartelius argued, eunoia is "the extent to which the speaker is perceived by the audience as understanding, empathetic, and responsive."[22] Like arête, eunoia has a public component and a civic undercurrent. Within discourses of expertise, eunoia can be related to assessing an expert's motives and commitment to the larger community.

Identity & Identification

Identity refers to the expert's performance of belonging to a particular community that serves, in part, to ground her qualifications as an expert. Certain communities establish particular

standards of discourse and performance as markers of belonging. If an expert deviates from those expectations she risks being rejected from the community and losing that identity marker as a means of establishing credibility. In part an extension of ethos, identification creates a link between the expert and the community to which she speaks. For experts, creating identification with the community being addressed is an important rhetorical strategy that can be achieved by demonstrating alignment in values, perspective, and habits.

Audience

Ultimately successful recognition as an expert requires a response by the targeted audience. Often the role of audience as consumers of expertise has been overlooked, but a rhetorical perspective on expertise makes this component more central. Without an audience conceding to perceive one as an expert, one fails rhetorically. Hartelius argued that noticing the role of the audience draws attention to the fact that experts operate within an economy of expertise.[23] Competition exists among experts, particularly of the same specialty, to be seen as credible, highlighting the importance of reception.

Beyond these general means of persuasion Hartelius identified six common discursive moves that "represent what experts *do* rhetorically."[24] These discursive markers establish the discourse of expertise as a genre, with rhetorical patterns occurring across contexts in which expertise might play a role. Independent of subject area, experts commonly engage in one or more of the following as a means for establishing legitimacy and credibility to speak. First, experts often embed themselves within networks of already recognized experts, either through association with professional organizations, citation practices in original scholarship, or name-dropping. In addition to referencing the networks within which they operate, experts explicate the means by which they generate their specialized knowledge, often specifying both

epistemological grounds for their information as well as methodological processes. In other words, in addition to telling us what they know, experts often also spend time telling us how they came to know it. As possessors of specialized knowledge, experts often take on the identity of teacher, although this can vary from educating an audience about the specialized knowledge one has to educating an audience about the processes necessary for establishing that knowledge. Experts also gesture toward some type of audience participation, but again this ranges from indicating a desire for passive acceptance of one's authority to encouraging active engagement and even participation. Experts also argue for why their specialization is needed, often conveying the rhetorical situation in such a way as to make the audience's reliance on them inevitable. Finally, experts work to highlight relevance, embedding their specialized knowledge within the context of everyday life, making connections between abstract data and concrete situations.

These genre markers and the means of persuasion outlined above can be used in conducting a rhetorical analysis to identify why an expert fails to fully persuade an audience as intended or to counter the ability of those who might be identified as non-experts to gain legitimacy and authority to speak within particular contexts. As Hartelius claimed, "experts use both their 'real' knowledge and experience in a specific field *and* their rhetorical prowess to persuade an audience."[25] More than mastery of a body of knowledge, expertise is a complex dynamic of gaining specialized knowledge and creating opportunities for making that knowledge accessible and relevant for non-specialists. Through persuasive means of invention and performance, ethos, identity and identification, and finally audience response, expertise is constantly negotiated rhetorically.

Experience Based Expertise

Scholars have discussed the importance of recognizing experience-based expertise in addition to expertise gained through formal training and acquiring technical knowledge. Wynne argued that the value of local knowledge stemming from spending significant time in a particular region or completing a particular task should not be overlooked.[26] Rather, he posited such knowledge should be considered a type of expertise, even though it is not gleaned from technical training. Similarly, Collins and Evans claimed that a person without technical training in a particular domain could develop "interactionary expertise" (an ability to understand and participate in the discourse of that domain) as a result of extended exposure.[27] Additionally, they promoted the idea that judgments of expertise should be based not just on technical credentials, but also on experience.[28]

While these views recognize the specialized knowledge that comes from extensive exposure and practice, Hartelius offered an even larger view of the importance of experience by noting the expertise that comes from having access to an embodied moment that not all share.[29] Experiencing such moments creates expertise because, "Being an expert means having the right to a certain chunk of human experience. It means one's version of that experience is recognized as authentic, one's perspective is acknowledged and believed."[30] The witness to a historical event and the patient suffering from a disease (two examples Hartelius explored in her book) represent experts because they can bear witness to a lived moment that others cannot. Similarly, following natural disasters, news coverage and interviews frequently feature survivors; the experience they underwent makes them desirable sources of first-hand knowledge. However, it may not be immediately obvious how powerful such claims to expertise can be. As Hartelius argued, "our culture places a great deal of faith in lived experience. We do not require that people doubt their

eyes and ears."[31] As a result we tend to trust the testimony of eye witnesses, which creates openings for individuals to utilize their lived experiences to challenge official discourses, whether it is a patient claiming a doctor cannot truly understand what a disease feels like or the survivor of a natural disaster challenging the official report of what transpired.[32] Something similar occurs with the AVC. McCarthy grounds her own expertise in this type of witnessing discourse, arguing for the epistemological validity of mommy instinct by offering up moments of her embodied experience as evidence. Her expertise regarding her son comes not from the extended time she has spent with him or the skills she has developed in caring for him, but from her experience of a bodily connection she claims to have with him because she is his mother.

Motherhood as expertise

The influence of discourses of motherhood is not a new subject of study. Knudson notes how the binary of good mother/bad mother often emerges around discourses that highlight someone's identity as a mother.[33] She explores this phenomenon through an analysis of peace activist Cindy Sheehan's use of her identity as a mother—specifically a mother grieving the loss of her soldier son—as the foundation for her anti-war protests regarding the U.S.'s involvement in Iraq.[34] Knudson found that those responding to, and in particular critiquing, Sheehan's protests passed judgment on her motherhood more than her claims regarding the Iraq war. Knudson's analysis shows the double-edged nature of rhetorical appeals to motherhood; while Sheenan's maternal identity created a means for her to enter the public discourse, it also operated as a distractor from the issue at hand as responses turned toward evaluating Sheenan as mother rather than the claims Sheenan made about the war. Similarly as McCarthy grounds her right to speak in her experience as a mother, she also opens herself to being critiqued for the ways she chooses to mother.

This simultaneous expression of rhetorical power and vulnerability that maternal identity entails may come, in part, from a growing tension between embracing the need for experts to provide proper guidance to mothers in order to raise happy, healthy children and asserting the right of an individual to make decisions for herself and her children in the context of increasing access to information and distrust of social institutions. Keane noted an increasing reliance on experts regarding childcare enabled by a cultural acceptance of the authority of experts more generally.[35] Keane also remarked that in the late twentieth century, even with an increase in discourses that claimed to listen to parents or recognize the expertise of mothers, professional and medical expertise still reigned supreme. Hulbert traced the rise and fall of some of the key parenting experts, starting in the 1950s.[36] She reviewed the central controversies and conversations that occurred as well as the experts' endless quest for uncovering the best method for raising children (showing that even the experts did not always have the answer). While Hulbert examined parenting advice from the perspective of the experts, Grant tackled the topic from the perspective of parents.[37] She examined the changes to child rearing for mothers living in an information age, surrounded—and often overwhelmed—by a surplus of advice books. Grant specifically looked at the rise of parenting as an activity requiring specialized expertise and the increasing medicalization of child welfare. As such, her study examined how various advice discourses circulated and were implemented (or not) by mothers in the everyday situations they faced with their children.

Apple traces the influence of the medical profession specifically on understandings of motherhood and childhood health through an examination of infant feeding practices and how they were shaped by medical advice.[38] In her book *Perfect Motherhood*, Apple expanded her view from infant feeding practices to child rearing more generally, exploring the concept of

"scientific motherhood."[39] Apple's study focused on 20th century America, tracing the steady increase of scientific knowledge and the accompanying push for mothers (and fathers) to trust the experts' advice on childrearing.

Given these historical developments of parenting discourses and the increasing encroachment of medical practitioners and parenting experts in the private domain of the home, contemporary discourses claiming parenthood as a form of expertise in its own right can be understood as pushback against the reign of the professional expert. As such they represent attempts to create space for parental voices in the larger debate about parenting expertise. Apple noted that with the move into the 21st century, and the increasing access to knowledge through the Internet, the relationship between parents and experts has shifted from one of dependency toward more of a partnership. However, Apple warned that while partnership might seem ideal, "we must be careful not to romanticize this modern partnership of mother and physician; it has created a new clinical world for both patient and doctor, a world in which there are not simple rules or procedures."[40] Apple's claim implies that while there may be more opportunities for parental contributions, this partnership remains a development that is in progress. Additionally, although a partnership, it is not necessarily a partnership of equality. Note that the exchange between doctor and mother still occurs in a clinical setting, implying that the hierarchy of doctor knowing best remains intact. It is exactly this hierarchy that McCarthy works to disrupt in her enactments of expertise based in her motherhood. I examine these enactments more closely, tracing the various appeals McCarthy employs that construct her ethos and allow her to gain a hearing as an "expert" on the issue of vaccine-induced autism.

Invention of Inquiry: Maternal Instinct

Attempts to persuade based in invention of inquiry speak to the quality, reliability, and strength of the knowledge being offered by the expert to the audience.[41] Given McCarthy's lack of medical training or credentials, this may seem a potential spot of weakness. Indeed for activists around other issues, the lack of technical knowledge served as an obstacle to being heard. For example, AIDS activists in the 90s protesting the slow approval process for drugs had to gain literacy in the science of drug trials to successfully change policies and procedures.[42] Although they had plenty of patient experiences to support their position, it was not until activists began engaging the issue in technical ways—for example challenging the appropriateness or even validity of double-blind experiments by revealing that trial participants often shared the drugs and thus undermined the idea of a control group—that they were able to gain the attention of the research community and make an impact. Thus, even when highly public, issues that involve highly technical aspects or rely on science can default to being discussed by standards more appropriate to the technical sphere than the public sphere.[43]

However, while McCarthy does invoke some technical lingo in her discourse, this is not the main means by which she presents the knowledge she offers as sound. Rather, she grounds the source of her expertise in her experiences as a mother. Specifically, she offers her "mommy instinct" as the epistemological grounds for her specialized knowledge and justification for her right to enter the debate.[44] For her claims of expertise to be well received, McCarthy must convince her audience that her experience is relevant and that motherhood serves as a legitimate claim to some type of knowledge not widely possessed by all.

Explaining the strength and reliability of mommy instinct becomes a key theme in McCarthy's first book on the autism issue, *LTW*.[45] Public appearances and future books further

enforced the validity of mommy instinct as a means of knowing. Through her description of mommy instinct and the construction of her narrative that exhibits this instinct at work, McCarthy frames not just herself, but all mothers as experts with the right to speak up and speak back to the technical experts of the medical establishment.

LTW recounts McCarthy's experiences and emotions as she learns of and then responds to Evan's autism diagnosis.[46] Throughout the book, McCarthy juxtaposes her own maternal instinct with the knowledge and efforts of the medical establishment in responding to her son's health problems. With this juxtaposition, McCarthy makes an implicit argument for the strength of her own expertise as determined by the power of her motherly gut. This mommy instinct not only allows McCarthy to know when something is amiss with her son but also guides her in making complex decisions regarding treatment and medication for Evan and judging the advice she received from medical experts. By telling the story of how she took charge of Evan's treatment and was able to successfully help him recover, at times in contradiction to the advice of some medical practitioners, McCarthy ultimately argues for the epistemological superiority of her motherly gut as compared to the science-based research and medical treatments offered by traditional Western medicine.

From the first line of the book, McCarthy hints at the power of her maternal instinct, which serves as the source of her expertise: "The moment I opened my eyes that morning, I had an uncomfortable feeling. It was as if my soul had the flu."[47] As McCarthy sits, enjoying her morning coffee in the kitchen, this uncomfortable feeling continues nagging her, eventually prompting her to check on her son, Evan, who is in his room. She finds Evan having a seizure and rushes him to the hospital. Since McCarthy finds that something is wrong with her son after experiencing this nagging feeling, the anecdote validates the power of McCarthy's instinct, but

this is not the only time that McCarthy would have a bodily experience that would help her save her son. McCarthy claims that the connection a mother has with her child is what enables this experience; when something is wrong with Evan, McCarthy feels it too. While it might seem reasonable to think that a mother would develop an ability to intuitively know when something is wrong with her child based on the child's appearance or behavior, the connection McCarthy speaks of is more than a mother responding to observable cues that her child is in pain or in danger. On another occasion, McCarthy found herself in Las Vegas for a job while her husband watched Evan back in southern California. McCarthy recounts the experience she had during this trip: "Less than five minutes into working, my heart started beating unusually fast. I began to feel dizzy and became very nauseated. I had never felt anything like this before . . . I looked up at my sister Joanne, who was with me, and said, 'Something is wrong with Evan. I know it. I feel it.'"[48] Despite the physical separation, McCarthy's mommy instinct allows her to remain in tune with what is happening to her child by creating this bodily experience. With these anecdotes, McCarthy established not only the existence but also the strength of her connection to her son and her ability to know, in her soul, when something is wrong with him. This connection defines the core of her maternal instinct.

McCarthy's overall narrative constructs an argument that mommy instinct is something real, even if beyond logical explanation, and that it offers insights beyond what any doctor can learn in a book. While she may not be able to explain how or why it works, she makes a case for recognizing its power by not just telling readers about it but by demonstrating how this instinct worked to give her knowledge of her son that doctors lacked. McCarthy refers to this connection in various ways throughout *LTW*, calling it her "motherly instinct,"[49] "mommy radar,"[50]

"motherly gut,"[51] and "emotional guidance system,"[52] but her argument remains the same—it allows her to know things about her son that others cannot always discern.

Establishing the Superiority of Mommy Instinct

McCarthy's argument about mommy instinct as a means of knowing comes full circle when she juxtaposes her ability to help Evan, guided by her motherly gut, with the shortcomings of traditional medical treatments. For example, during one of the trips to a hospital for Evan's seizures, McCarthy described herself as standing with a group of doctors, answering a list of questions she had already answered. Although surrounded by a number of highly trained medical practitioners, it is McCarthy who first noticed that her son was having another seizure.[53] During this same incident, these doctors (who happened to be interns) decided to run a test for meningitis—an invasive test that Evan had just undergone three weeks earlier, with negative results. McCarthy stated, "I felt like everyone was looking in all the wrong directions. I've always had very good instincts, and I knew the interns weren't going to find anything."[54] When the test again comes back negative, McCarthy's instinct is, once again, confirmed.

McCarthy similarly relied on her motherly instinct as a means for evaluating the information and advice offered by doctors. Initially doctors diagnosed Evan as epileptic, and McCarthy describes hearing the diagnosis:

> I sat back and felt relieved to have a label I could hold on to – something I could research and learn about. My relief lasted only a second, though. My emotional guidance system didn't agree. I blurted out, "That just doesn't seem right. Other doctors from the last hospital said that epilepsy usually runs on one side of the family. That's why everyone kept asking me that question over and over again. It feels like we're missing something." Honestly it was my maternal gut instinct that epilepsy was not the end of this road.[55]

Readers learn later that the doctor's epilepsy diagnosis was wrong. Evan was not epileptic; he was autistic (with which seizures are sometimes associated).[56] Thus, readers see McCarthy's gut feeling validated, adding to its persuasive potential. Upon finally hearing the autism diagnosis, McCarthy recalled instinctually knowing that it was right, even though she did not want to believe it.[57] Again, her motherly instinct enabled her to evaluate and this time accept the diagnosis as correct.

McCarthy also conveyed her motherly instinct as providing a way of knowing which treatments to try. McCarthy recounts an exchange with her doctor about side effects Evan was experiencing on his seizure meds. "The doctor told me I should stick with it. My emotional guidance system told me he was making another terrible mistake. *Sometimes mothers instinctively know what works and what doesn't, but the doctor wasn't interested in hearing anything I had to say.* I hung up and went online and did some research."[58] McCarthy relied on her motherly gut to guide her, which sometimes meant rejecting the recommended treatment and creating her own approach.[59] Given Evan's progress, the reader is led to believe that McCarthy made the right choices – guided by her motherly gut – to heal her son.

Although *LTW* devotes the most attention to mommy instinct, in her public discourse following the book's release McCarthy continues to talk about this important tool mothers possess. During her Oprah appearance to kick off her publicity tour for *LTW*, mommy instinct received a lot of attention, with McCarthy referencing it within the first few minutes of the show. When Oprah asked how McCarthy knew which interventions to try, McCarthy responded, **"**Mommy instinct. Mommy instinct. I went OK, I know my kid. I know the problems he's had . . . this is what makes sense to me. Man, you've got to listen to that. And that's what got us there."[60] Here McCarthy directly credits her instinct with the success she achieved in improving

Evan's health and made little mention of the doctors who helped along the way. This privileging of her role in Evan's recovery helps McCarthy establish a case for the expertise that comes with motherhood.

In her second book, *Mother Warriors: A Nation of Parents Healing Autism Against All Odds* (hereafter *MW*), McCarthy builds on the groundwork in *LTW* to establish mommy instinct as a source of specialized knowledge that warrants a mother's claims to expertise. She reiterates the importance of her mommy radar and listening to her instincts when she briefly recounts the story of Evan's diagnosis and recovery in the book's opening.[61] Throughout the book, other mother warriors confirm the existence and power of mommy instinct through their own stories.[62] These mothers add further evidence for McCarthy's claim that maternal instinct offers a way of knowing, an epistemological grounding for viewing mothers as experts.

Adding further strength to McCarthy's claim about maternal expertise, in her third book, *Healing and Preventing Autism: A Complete Guide* (hereafter *H&PA*), McCarthy receives a doctor's endorsement of mommy instinct:

> Jenny: One of the best tools God has given us mothers is instinct. It's like we have this built in radar device very deep within us that guides us while we raise our children. Evan is where he is today because I followed my instincts. Can you confirm that mommy radar ROCKS?
>
> Dr. Jerry: Mommy radar is phenomenal. I think we, as a medical community, have always underestimated mommy radar on how the kids are doing. And I can tell you, maybe because my lovely wife beat this into me, that she really does know what's going on. Mothers do possess an excellent skill set and instinctively know when their children are not "quite right."[63]

This exchange offers a particularly important endorsement of mommy instinct. Readers receive further confirmation of the power of this instinct, but this time from a credentialed medical practitioner. Not only that, but Kartzinel (Dr. Jerry) calls for other experts in the medical community to pay more attention to a mother's expertise in the process of treating children. By acknowledging a mother's ability to not only know when something is off with her child but also to know *what* is wrong, Kartzinel's validation operates rhetorically to confirm mommy instinct as a legitimate claim to expertise by McCarthy and other mothers.[64]

Through her discourse McCarthy offers a plethora of experiences as evidence to support her argument for trusting one's motherly instinct as a means for evaluating technical medical information. In making these determinations, McCarthy did not ignore technical information; in fact, she frequently admits her enthusiasm for completing her own research at the "University of Google."[65] Ultimately though, McCarthy depended on her motherly gut – that feeling she got, that embodied experience – to guide her in knowing which experts to trust, which diagnoses to believe, and which treatments to pursue. Furthermore McCarthy argued for all mothers to utilize this powerful tool. In the appendix to *LTW*, McCarthy encourages readers to consult a pediatrician, but she follows this with, "Most important, trust your instincts, and if something doesn't feel right, ask questions."[66] By offering mommy instinct as a reliable means of evaluating scientific knowledge, McCarthy's argument potentially disrupts the hierarchy of expertise itself by positing the motherly gut as an epistemological guidance system that provides the necessary knowledge to sit in judgment of, not deference to, medical experts. Through demonstrating the power and reliability of her own motherly gut, McCarthy frames herself as a credible expert voice in the larger AVC debate.

Invention as Style: Incrementum

If invention of inquiry is about the knowledge an expert possesses, invention as style is about how the expert delivers this special knowledge to make it appealing and credible.[67] More than simply the addition of rhetorical flourishes to make content more palatable, style infuses content with meaning, amplifying the argument made through form.[68] McCarthy relies on a variety of stylistic elements, from the use of narrative to present her perspective to frequent employment of argument by analogy to explain her claims. A key stylistic component to McCarthy's enactment of expertise is her use of incrementum.

Defined as "a series that goes somewhere" incrementum is a linguistic device that names three or more objects according to some type of order, such as listing items in the series from smallest to largest or from least important to most important.[69] The organizational pattern or "principle of ordering"[70] can reveal how the speaker views the items being listed. Additionally, the incrementum contains stylistic momentum that can work to persuade an audience through the pull created by the ordering used, making the implied relationship between the items in the series seem inherent rather than constructed. In McCarthy's discourse, the embedded escalation of the incrementum amplifies her claims of expertise, enhances her legitimacy to speak, and expands the scope of evidence to support her position.

Although incrementum is typically talked about at the phrase or sentence level, the figure can also operate at a higher level of discourse. Incrementum can be used to describe the overall structure of McCarthy's presentation of expertise. In particular, the series of books McCarthy authored form an incrementum that moves from the lesser to the greater in presenting evidence to support McCarthy's claims regarding the power of mommy instinct as well as the scope of evidence to support her position on the role of vaccination in escalating autism rates.

The book series starts with *LTW*, which presents the smallest scope of evidence.[71] This limited scope is indicated in the subtitle itself: *A Mother's Journey in Healing Autism*. This book presents the story of one mother. The sample size is small, but significant. Naming McCarthy's experience a journey not only implies a long and probably arduous effort, but also it embeds a sense of overcoming obstacles to reach a final destination, in this case, healing autism. In the book McCarthy offers her personal account of what happened to her son when he received his vaccines, constructing a compelling narrative that shows her struggle to come to terms with the autism diagnosis and help her son. Her goal in this book is to establish mommy instinct as the source of her expertise and to provide her testimony about what happened. The book operates as an introduction to her expertise, an introduction enforced through public appearances, such as the Oprah episode, where McCarthy continues to promote the power of mommy instinct.

The next book in the series, *MW*, builds from the starting point *LTW* offered but increases the scope of evidence presented.[72] Again the subtitle (*A Nation of Parents Healing Autism Against All Odds*) gives a sense of the book's subject. Whereas in the first book readers heard about a mother, in this book, they learn about a nation of parents. *MW* features a retelling of McCarthy's story in the first third of the book but adds to her account the stories of other mothers (and one father) who claim to have had similar experiences. Like McCarthy, these parents offer their testimony about what happened to their children, presenting their stories as evidence to support a larger claim about the harms of over-vaccination. While the content of this second book expands the scope of evidence, the format highlights the move from a single story in *LTW* to a larger sample size in *MW*. Organizationally, the first third of the book features McCarthy sharing her story, but the rest of the book, entitled "Strength in Numbers," features stories from other parents, with brief insertions from McCarthy throughout. Readers encounter a

literal proliferation of mothers with stories like McCarthy's, confirming a claim she made in *LTW* and her public appearances. The title for this section argues that these mothers are a strong force that needs to be recognized. This echoes a claim made by Dr. Jay Gordon in the foreword to the book:

> Evidence doesn't spring just from medical studies funded by drug companies and supervised by MDs and researchers on their payrolls. Evidence can come from the hundreds of families and doctors who have watched children with autism get better and even fully recover from the symptoms that kept them from mainstream education and social opportunities. This is *hard* evidence and *to deny it is specious reasoning and bad science.*[73]

With this framing, Gordon argues that the stories contained within *MW* represent an accumulation of evidence supporting the claims made in the book. *MW* helps McCarthy expand her claims of expertise by offering up additional support for the argument made in *LTW*. For anyone wishing to write off McCarthy's claims about mommy instinct as an anomaly, *MW* presents a challenge by claiming that McCarthy is not alone.

Additionally, each chapter that features a parent's story ends with a photo of that child. This provides a visual presentation of the "evidence" the story offers. This visual argument is further enforced by the inside cover of the book, which contains a collage of children's photos. Although no information about these photos is provided, the implication is that these children have been recovered by their mother warriors. The collage format highlights the increase in the scope of evidence by presenting a visual accumulation of all the children that this nation of parents has helped. Thus, readers move from Evan operating as Jenny's "science" to a collection of children operating as "science" for the claims being made.

The incrementum reaches its end with McCarthy's third book in the series, *H&PA*.[74] In this book, McCarthy and co-author Dr. Jerry Kartzinel extrapolate from individual observations and experiences to construct "a complete guide" that allows anyone to become an expert in healing autism.[75] The inside flap introduces the book as "the authoritative reference book that puts in your hands the tools you need to heal your child from autism, autism spectrum disorders, even ADD, ADHD, and a host of other disorders."[76] This book scales up from the previous works by moving from stories of reaction (healing) to discussions of prevention. With the move from offering testimony about experiences to offering advice for interventions, *H&PA* also implies that the claims being made in *LTW* and *MW* have been sufficiently supported and do not need further elaboration. Additionally, in this book McCarthy expands the number of conditions the book addresses. While the two previous books focus solely on autism, this book discusses other disorders becoming increasingly prevalent in children, including ADD and ADHD.

With the third installment in the series, it becomes clear that there is an increase in expertise. In *LTW* McCarthy was presented as the sole expert, and in *MW* readers encounter a "nation" of parent experts. In *H&PA*, everyone can be an expert through reading and following this guide. Additionally, readers encounter increasing endorsements of McCarthy's expertise, from McCarthy as expert speaking alone to McCarthy as expert speaking alongside a doctor. In *H&PA*, each chapter opens with a brief commentary from McCarthy, and then the chapter moves into a back-and-forth Q&A format.[77] While Kartzinel provides the majority of the technical info, McCarthy maintains her expert persona. She directs the conversation and demonstrates that she knows the right questions to ask to reveal the information parents need most. With each step in the incrementum, McCarthy's enactment of expertise expands. Whereas in the first book, McCarthy's story telling operated much like the testimony of an eyewitness, simply offering an

account of what happened to her, in *MW* McCarthy becomes a spokesperson, presenting the accounts of other parents, and finally in *H&PA*, McCarthy becomes a guide, using her specialized knowledge to help other parents build their own expertise.

McCarthy's public appearances similarly highlight the scope of evidence to support her claims through the rhetorical tool of incrementum, such as when she tells Larry King, "I can see if it was just one parent saying this. But when so many -- and I speak to thousands of moms every weekend and they're all standing up and saying the same thing."[78] McCarthy goes from one to many to thousands, showing the extent to which others have similar stories to share, noting that they "all" offer the same account. As an incrementum, the style of the presentation underscores the claim being made because viewers hear the increase with each step in the series. Additionally, with each change in scale, McCarthy adds further support to her enactment of expertise by expanding the grounds on which she claims her authority. Evan is not just one example; he is one of thousands. It is not merely one mother's story, but the accounts of a nation of parents and the endorsement of an M.D. that support her claims about the legitimacy of her perspective and the expertise that perspective gives her.

Arguing for vaccine damage through incrementum

McCarthy also utilizes incrementum when presenting her explanation for how she knows that vaccines contribute to autism. This first occurs in *LTW* when McCarthy explains how she pieced together a connection between vaccines and Evan's condition: "What I got from the book [Special Diets for Special Kids Two] was: Evan was possibly born with a weaker immune system; getting vaccinated wreaked havoc in his body, and mercury caused damage to the gut . . . It messed with his little body so much that he wouldn't respond when his name was called, he behaved like a drunk, and the list goes on."[79] McCarthy uses a general series followed by an

incrementum to support her reasoning. McCarthy starts with a series that specifies the process by which the vaccines impacted Evan, moving from his weakened immune system to the unspecified "havoc" she says the vaccines caused and then ending with a claim about specific damage done to his gut by a specific ingredient from the vaccines. This series makes an argument for how medical intervention made a troubling situation (Evan's weak immune system) worse.[80] It also establishes the underlying cause for Evan's symptoms, listed in the incrementum that follows (not responding to being called and acting drunk). However, in the incrementum, rather than naming a final symptom worse than those previously named, McCarthy ends with an ellipses ("the list goes on"), allowing for a never-ending list of symptoms to be placed there, rhetorically creating an opening for readers to blame vaccines and their ingredients for any number of childhood maladies.

During an appearance on *Larry King Live*, McCarthy claims, "And parent after parent after parent says I vaccinated my baby, they got a fever and then they stopped speaking and then became autistic."[81] With this incrementum, McCarthy creates a list of symptoms that followed giving a vaccine, which is placed at the beginning. Through this construction, McCarthy implies that the fever, the loss of speech, and the development of autism all stem from the vaccination.[82] By virtue of its positioning, the creator of an incrementum implies something about the first object's role in the series, makes an argument about that item without having to explicate the reasoning behind the claim. As rhetorical critic Jeanne Fahnestock explained, "Promoting some entity as an origin is frequently supported by placing it at the beginning of an ordered series."[83] In this case, by placing vaccination in the first position, McCarthy claims that vaccination operates as the cause for the list of effects that follow. The movement from one item in the series to the next moves the argument along and asks for acceptance from the audience while bypassing

the explanation of reasoning or justification for making the leap from one item to the next. A child getting a fever following a vaccine is not uncommon and so this step in the incrementum is an easy one for parents to accept. Then, the momentum of the incrementum pulls the audience along to agree with each step that follows until they end on the idea that ultimately vaccination can result in autism. By moving swiftly from one step to the next, this stylistic construction makes McCarthy's claims seem almost inevitable. Additionally, Fahnestock noted "Endowing it [an object in a series] with importance can be supported by putting it at the end of an incrementum, because the end is implicitly a position of emphasis and importance in the order of things."[84] When McCarthy constructs her incrementum in making an argument about vaccines, she places an undisputed claim (children with autism) in the spot of emphasis. This draws attention away from the argumentative move she makes by placing vaccination in the point of origin.

McCarthy also uses incrementum when acknowledging that vaccines may not be the only cause behind autism. For example, on *Larry King Live*, McCarthy states, "You know, environmental toxins play a role. Viruses play a role. Those are all triggers. But vaccines play the largest role right now."[85] In *H&PA*, Kartzinel makes a similar argument: "once our children are born, they are exposed to many potential toxins just from breathing, eating, and receiving vaccines. It is all cumulative and there seems to be a definite tipping point in many of our children."[86] The use of incrementum allows McCarthy (and Kartzinel) to make allowances and qualify their argument to avoid accusations of being anti-vaccine while implicitly arguing that vaccines are more significant that other contributors because they come last in this incrementum, the position of emphasis.

Classical Components of Ethos: *Phronesis*, *Arête*, and *Eunoia*

As discussed in the previous chapter, ethos influences judgments of expertise in significant ways. As argumentation scholar Christopher Tindale argued, "The bridge between ethos and expertise is that the ethos is a particularly important component of the expert's public appearance. It is part of their authority as speakers, giving them the status of being listened to and deserving trust."[87] For a non-specialist audience lacking the necessary background knowledge to make critical judgments about technical claims, source credibility becomes important for selecting which experts to believe. As Hartelius noted, "source credibility, or ethos, redefines expertise as a combination of the expert's knowledge and competence and her perceived trustworthiness and goodwill."[88] This works largely in McCarthy's favor, as it creates an opening for her to compensate for a lack of technical credentials by establishing herself as someone audiences can trust. However, ethos is complex, influenced not just by one's performance in a particular rhetorical situation, but also gauged by one's reputation.[89] Below I first explore how McCarthy's celebrity status influenced her vaccine advocacy before examining her appeals to establish her expertise through reliance on phronesis, arête, and eunoia as developed in her discourse.

Before taking on the role of autism advocate, McCarthy was perhaps best known for her appearances in Playboy. After Playboy launched her into the spotlight, McCarthy appeared on a handful of TV shows, becoming known for her crass humor.[90] When her time in the entertainment spotlight began to dwindle, McCarthy managed to transition her rude and outrageous stage persona into an authorial voice. She first emerged as an author with her book *Belly Laughs*, an autobiographical book that promised to tell the whole truth about pregnancy. The book sold well, ending up on the New York Times best sellers list, and McCarthy followed

with two more books discussing the good, the bad, and the ugly of child rearing and marriage.[91] While readers encountered a slightly more domesticated version of McCarthy, the books still contained a no-holds-barred approach to the subjects under discussion as McCarthy tackled everything from stretch marks to sex. McCarthy's approach clearly struck a chord with certain readers, as each installment reached the New York Times Best Seller list.[92] Additionally, these books allowed McCarthy the mother to emerge and gain a following.

Both parts of McCarthy's reputation (McCarthy the Playboy bunny and McCarthy the mother) influence perceptions of her expertise in the AVC context. When being introduced during public appearances, references to McCarthy's entertainment resume were frequent. Even in 2009, after McCarthy had been actively advocating for autism for several years, she was still set up as the starlet. For example, during one appearance, the anchor setting up the show remarked, "Jenny McCarthy is already well-known for her beauty and her winning personality. But there is another side to the star."[93] While McCarthy cannot escape her celebrity status, she often works to reframe it as a benefit for her current cause, claiming that she sees it as her mission to be the voice for other mothers because she has the ability to book talk shows and get media coverage.[94] She even credits her previous humor books with getting people's attention for the later books on autism.[95] At times though, she also works to distance herself from her reputation as performer, at least in the context of her autism advocacy. In *H&PA*, through an exchange with Kartzinel, McCarthy portrays performing as something she did in the past, emphasizing that now her job is helping others, because trying to "help the world is much more fun."[96]

While McCarthy works to distance herself from her previous life as a performer,[97] McCarthy also utilizes her reputation as a no-holds-barred truth teller, especially around

motherhood, in previous books to shore up her credentials and to present herself as trustworthy. She even comments in *LTW,* the first book in which she tackles the autism topic, "I've never been a good liar, as you can tell from all of my books."[98] This rhetorically enhances the legitimacy of her claims that sometimes border on conspiracy theory by making it seem like she is courageously telling readers what the pharmaceutical companies and doctors do not want them to know, just like in previous books when she revealed the ugly truths about pregnancy and motherhood that no one wants to admit for fear of tainting the joy that is supposed to accompany such experiences.

In her storytelling, McCarthy does not try to paint herself in the most flattering light. She includes moments where she is mean to others or violates social norms, and she readily admits she sometimes relied on prescription pills to get her through tough moments.[99] The lack of a filter in recounting events makes an implicit argument for the books as brutally honest. McCarthy is telling the whole truth, even if that truth means admitting her own faults. Of course, so as to not undermine her ethos, McCarthy relies on procatalepsis to help excuse her behavior. When describing these ugly moments, she often admits how terribly she behaved, but goes on to explain that it resulted from the pressure of these high crisis moments regarding Evan's health.[100] These moments get framed as the reaction of a mother wracked with grief, presumably making them more understandable. The failures of the medical establishment are not so easily excused. Additionally, although McCarthy shifts to a more serious topic in her books about her experiences with Evan's autism, she works to maintain that same persona and tone that worked so well in her previous works. Despite some heart-wrenching moments, these books still contain elements of McCarthy's trademark crass humor. Whether making jokes about the Mormons who persistently show up at her door[101] or poking fun at the effect gravity has had on her body[102] these

moments remind readers that it is still McCarthy telling the story. Of course while these moments help McCarthy continue to appeal to her fans and make a case for her honesty, they also potentially present liabilities. McCarthy's frequent use of obscenities in the books and during public appearances might offend those not used to such style, while McCarthy's confessions about her behavior present opportunities for those critical of her to challenge her ethos.

While McCarthy's reputation, particularly her career as a Playboy model, may create constraints, it also presents opportunities, given her success as an author and the prominent emphasis on her identity as a mother in her books. McCarthy works to negotiate the former by redefining herself as someone looking to help others while capitalizing on the later to enhance her credibility as one claiming expertise in the AVC. Although her reputation precedes her and influences her autism advocacy discourse, McCarthy's ethos as expert is not confined to previous knowledge viewers or readers might have of her. Across the arc of her advocacy communication, McCarthy works to construct her expert ethos anew, touching on each of the three classical components of ethos that combine to portray a source's credibility: phronesis, arête, and eunoia.

Recall McCarthy's claims about mommy instinct. The main theme in her narrative about relying on her gut for guidance in helping Evan recover speaks to McCarthy's phronesis, or practical knowledge. From putting cold rags on Evan during his seizures to knowing that certain medications were doing more harm than good, McCarthy not only makes claims about the knowledge she gained from her gut and the "University of Google," but shows herself repeatedly putting this knowledge to work.[103] Phronesis speaks to an ability to use one's knowledge appropriately within a given context, and McCarthy demonstrates this through various anecdotes

that recount her knowing how to act to save her son, even in moments when the traditional medical enterprise was at a loss.[104]

For example, as Evan becomes more allergic to things in the process of introducing therapies to help him recover McCarthy describes herself as, "the lead detective in a mystery novel, trying to put clues together as to why Evan was having certain symptoms. I refused to ever put a Band-Aid on the problem."[105] McCarthy highlights this ability she has to know what Evan needs again and again, whether reading Evan's mind about wanting some juice or knowing when something in his behavior was off.[106] In *LTW* she also comments that Evan was only having seizures on her husband's watch, implying that her phronesis exceeded that of Evan's father.[107] These portrayals not only enhance McCarthy's ethos through showing her ability to use her knowledge to take action, it also shores up the legitimacy of mommy instinct as a way of knowing.

While the ability to pragmatically apply one's specialized knowledge is an important aspect of an expert's ethos, practical knowledge alone is not enough to demonstrate credibility. An important component to ethos, arête—or virtue—speaks to an expert's interest in offering their expertise to others. McCarthy's overall status as a mother of a child with special needs builds her arête. Through the anecdotes she shares about her experiences, she conveys her commitment to helping her son. For example, in *LTW*, she recounts her processes for finding interventions to help Evan: "If I was going to fix Evan, I had to find the culprit for the sudden allergies and consistent fevers. I dug in and continued to do more mommy research. I've always hated unanswered questions, and you could be damn sure I was going to get the bottom of everything that came my way."[108] McCarthy's word choice is worth noting. Referring to herself as digging in, finding a culprit, and getting to the bottom of things emphasizes McCarthy's

perseverance. Additionally, calling these efforts "mommy research" allows her to frame her discourse as grounded in knowledge while still distinguishing herself as a mother from the cold, disinterested persona often associated with scientific researchers. While McCarthy acknowledges her fierce commitment to helping Evan, she also demonstrates balance and restraint. This included, as she admitted to Oprah, going back to work so she could pay bills and putting her romantic life on hold so she could focus on Evan's health.[109] These anecdotes convey McCarthy as one forsaking her own comfort to sacrifice for Evan, adding to her virtuousness.

Additionally, McCarthy conveys arête through showing restraint and putting her child's well being first. At one point she acknowledges that even a well-meaning mother could go too far; however, that was not her, because she "vowed not to make Evan a guinea pig in testing every new thing on the market."[110] While McCarthy conveys herself as dedicated without overdoing it, she also builds her arête through the enthusiasm she shows for the successes they experience. She recalls crying when Evan first understood a complex joke[111] and throughout *H&PA*, Jenny shows her enthusiasm for being Evan's caretaker, doing this research, and finding out everything that she needed to know to make him better, even when it means learning about some unpleasant topics.[112] McCarthy's arête culminates in arguing that she offers her story as a commentary on something much larger. She states, "I hope you realize that this is not a book about autism. It's a book about faith. It's the story of a mother who believes anything is possible and never stopped looking for answers."[113] By framing her book as about faith, McCarthy offers her story as one person's account of trying to rise above the obstacles encountered in life, building in appeals to her arête.

The final component of ethos that determines one's overall credibility is eunoia, or goodwill. While eunoia can relate to either a rhetor's goodwill to the audience or the expression

of goodwill from the audience toward the rhetor, here I focus on McCarthy's demonstrations of eunoia for her audiences. Working in conjunction with arête, McCarthy's demonstration of eunoia stems from her repeated commitment to share her story for the benefit of other parents. In *H&PA* McCarthy talks about realizing that she had a mission in life after Evan had a seizure that led to cardiac arrest. She declared, "that's my mission now. To make sure ALL of our children are going to be okay."[114] Rather than focusing on her child alone, McCarthy conveys herself as committed to a much larger cause, for the sole benefit of her audience. In *MW*, she confesses that she is not much of a fighter, but while on her book tour for *LTW* she decided she could not give up because so many mothers were counting on her.[115]

McCarthy acknowledges that the story she tells upsets some people because she challenges the medical complex, but she promises to never "shut up" because she wants to teach others how to avoid her situation.[116] This mission is about providing information to those looking for it and helping others benefit from her work. She explained in one appearance, "There is so much treatment available. And no one told me, which is why I wrote the book."[117] Here she demonstrates goodwill toward the larger community by passing along what she has learned so that others can help their children. McCarthy further enforces her goodwill by stressing that this is the harder choice:

> It would have been a lot easier to never tell anyone my son had autism, considering he's in a typical school and no one would have ever known. That would have been a lot easier. So the fact that I came out put him on the cover and exposed him to all of this. Was it worth it? Hell yes. For all those little kids that are going to feel better because of Evan's story? You're damn right I would do it again.[118]

Elsewhere she states that she offers up her story because she believes her experience offers a lesson: "I hope all parents out there come to realize that YOU are in control of YOU and of your child's health. YOUR voice is the one your child is counting on. Please educate yourself fully make the best decision for YOU. The life you are bringing into this world is counting on it."[119] This frames her discourse as solely for the audience's benefit, so that they might learn from the path she has taken, rather than for her own benefit. McCarthy's claim aims to present her motives as pure and showcase her goodwill towards her audience.

Identity and Identification

Creating identification with one's audience is about establishing common values and beliefs. Many of the rhetorical moves McCarthy makes to establish her ethos also work to create identification with her audiences. Her status as a mother and willingness to fight in dealing with autism help her connect to readers and viewers.

McCarthy highlights her identity as a mother heavily throughout her discourse. As she stresses on Oprah, "Where there was no hope, I'm giving a little. I'm just a mom telling a story of other moms."[120] To demonstrate that despite her celebrity status she experiences motherhood the same way as other women, she provides a glimpse into McCarthy as mother. Readers are first introduced to this aspect of McCarthy's persona when McCarthy dedicates *LTW* to Evan and refers to herself as "Mommy." She also frequently conveys the depth of her love for her son, recalling that during one of Evan's seizures, "I told God if he was taking Evan, He would have to take me too. This boy was my everything, the sunshine of my life."[121] Her dedication goes so far that, McCarthy confesses, she even took some of Evan's seizure medicine to see how it made her feel and to know what Evan was experiencing.[122] Although perhaps extreme, McCarthy believes

this love and dedication to her child is an emotional perspective that other mothers can relate to because they experience the same type of dedication to their children. Several times she mentions how much difficulty she had going back to work when she knew Evan was suffering. As hard as it was, she did it because "moms gotta do what moms gotta do."[123] Here McCarthy appeals to other mothers who have had to work outside the home to create a sense of connection between them. Again this alignment of experiences highlights similarities between audience members and McCarthy.

McCarthy's experiences and interactions with doctors become another key factor in her efforts to identify with her audience. She highlights that she understands what the process is like from a mother's perspective. For example, after asking Kartzinel to explain the medical purpose of an EEG, McCarthy proceeds to explain what an EEG is like from the mom's perspective, even offering tips to those who might have to take their child for such a procedure in the future.[124] Additionally, when McCarthy recounts times when she felt ignored by doctors and frustrated by their insistence on conducting unnecessary tests or continuing to prescribe medication that was not helping Evan, readers may recall similar experiences.[125] If, like her, they have experienced at best indifference and at worst blatant dismissal from their pediatricians, McCarthy's appeals to their common experience boost her perceived trustworthiness, because unlike the doctors, McCarthy appreciates the importance of a mother's knowledge about her child.

Further McCarthy conveys mothers as a united group. Through her rhetoric she frames the mothers in her audience as already a part of her cause. For example, McCarthy dedicates *MW* to "all the warriors who have come before me and to all the warriors who will come after. Just know that even though they might have silenced some of our children, they will never silence *us*. Our voices will shake the ground of those who are responsible until all of our children are safe

from harm."[126] By presenting mothers as a united force, to reject the cause becomes de facto a rejection of one's identity as mother. One would become part of the "they" that is silencing the "us" in which McCarthy invites her audience to participate. On the other hand, to support McCarthy's claims of expertise is simultaneously a move to self-empowerment, since McCarthy grounds her specialized knowledge in her experience as a mother.

Through identification, McCarthy primes her audience to be more receptive to what she has to say. By stressing her similarities with her audience, McCarthy improves the chances that they will show her goodwill in return and accept her claims to expertise, not necessarily on the basis of her qualifications but because of the shared values and perspective. Rhetorically, this can distract attention away from assessing the grounds on which McCarthy presents herself as an expert. Additionally, by entrenching her motherhood, McCarthy may be attempting to curtail attempts to discredit her by referring to her previous employment with Playboy. In other words by focusing on herself as a mother, McCarthy constructs a prolepsis of sorts that emphasizes her motherhood rather than her stardom.

Audience

Although ultimately the audience determines their own response, McCarthy offers cues as to the appropriate response to her enactments of expertise through offering descriptions of how others have responded. For example, in *MW*, she remarks that there were so many comments and questions for her following her appearance on Oprah that oprah.com crashed.[127] This enhances claims of expertise by framing her as someone many others seek out for advice and guidance. She also discusses the outpouring of communication from parents sharing their stories with her. She even recounts a letter from a mom explaining how McCarthy was

responsible for diagnosing her son because the mom realized her child had autism after hearing McCarthy's description of Evan's characteristics during a television appearance.[128] Not only does this letter demonstrate a positive response to McCarthy's story, but it also conveys an endorsement of McCarthy's expertise, since her words helped this mother diagnosis her son, typically an activity reserved for medical doctors. A similar situation occurred when McCarthy appeared on *Larry King Live*. During the audience call in time, King read an email from a viewer, which stated, "My son Gabriel was diagnosed with autism, May 6th, 2006, after countless hours of therapy, loads of debt, and altered diet and a whole lot of love, he's doing well. He's a preschooler, recovered or nearly there. Please keep sharing, Jenny. Your audience is vast."[129] Again the positive response enhances McCarthy's credibility.

McCarthy also gets endorsement from those appearing with her. Fellow celebrity Holly Robinson Peete appeared alongside McCarthy several times on her *LTW* tour. Peete comments on how much she learned from McCarthy, even though Peete's child was diagnosed with autism several years before McCarthy's child. Peete also claimed McCarthy was doing so much good for parents who had autistic children.[130] Hosts offer similar praise. When appearing on *Larry King Live*, Larry King ended the program by commenting on how "impressive" McCarthy had been.[131] Oprah called *LTW* "riveting" and "beautiful."[132] And in the forewords to her first two books, the medical practitioners who wrote them praise McCarthy and her involvement in the issue, arguing she is one whose voice should be heard.[133]

These moments of response that get incorporated into McCarthy's discourse aid the persuasiveness of McCarthy's message by acknowledging that others have been persuaded. They invite acceptance of viewing McCarthy as an expert because they speak to others who have been helped by McCarthy sharing her story. They also give hints regarding who McCarthy sees as her

target audience. Although McCarthy often speaks about wanting to persuade the CDC to change vaccine policy or doctors to listen to mothers more, her primary audience is parents, especially mothers. Her ultimate aim seems to be carving out space for the experience-based expertise of mothers to be recognized and respected. This comes through in directives when she tells mothers to trust their instincts and to speak back to their doctors when they do not agree.[134] Even in public appearances when she is aggressively debating doctors and researchers about vaccine safety and necessity, it can be argued that this is a performance for her target audience of parents. She is demonstrating for them how to enact one's parental expertise and engage with more technical experts by illustrating rhetorical strategies to use in order to be heard. The format of *H&PA* does something similar. With the question and answer format, McCarthy and Kartzinel emulate the type of interaction McCarthy wants mothers to have with their pediatricians. Thus McCarthy's enactments of expertise are not aimed at the medical experts she attacks, but at the parents these medical experts are also trying to persuade. If McCarthy's target audience is parents, and in particular mothers, than her enactments of expertise must be understood in the context of being aimed at that audience. This implies that for McCarthy, achieving success does not require that she be recognized as an expert by the American Pediatric Association (APA) or the Centers for Disease Control (CDC), but by the women who buy her books and tune in when she is on Oprah.

Discussion

As tempting as it may be to believe that McCarthy's rise to prominence in this debate is a case of anecdotal evidence winning out, this analysis reveals that something more complex is happening rhetorically. McCarthy utilizes her personal experiences as credentials for her claims to expertise. Arguing for the epistemological strength of mommy instinct, she presents

motherhood as a specialized way of knowing, one that can rival the claims and knowledge of medical practitioners and scientific researchers. McCarthy's style enhances her enactments of expertise, particularly her use of incrementum, which through form augments the seeming validity of her claims. Employment of phronesis, arête, and eunoia along with appeals meant to create identification with her audience allow McCarthy to identify herself as more trustworthy than medical professionals whom she portrays as frequently dismissing parental experiences and concerns. Particularly the promotion of her goodwill and appeals to her identity as a mother prime her target audience of parents to more readily accept her message.

Embedded within McCarthy's discourse is a rhetorical "what if?" Her references to experiences that parents can relate to and her employment of style to link her conclusions regarding vaccines to those experiences open up space for doubt. As one respondent observed, "As a pediatrician, I know her theories have caused confusion, fear, and harm for parents and their children . . . lacking medical training and an understanding of infectious disease, she has changed the landscape of the United States medical practice. That's the power of the word."[135] Between the privileging of personal experiences in our culture and the compelling rhetorical construction of McCarthy's discourse, one mother's theory has gained significant promotion and discussion.

McCarthy's ability to gain widespread access through the media to promote her message and directly challenge the claims of technical experts and medical practitioners on this issue speaks to the persuasive potential of experience-based expertise. Her ongoing public presence and success in spreading her message confronts assumptions that rationality persuades and serves as a reminder that scientific data and theoretical understandings of a topic are not always sufficient to dictate action. In part this is because decisions regarding how to use the knowledge

generated by fields like science and medicine, particularly when determining risk acceptance, require shared values and priorities. Empirical data and research reports actively work to avoid invoking values or suggesting priorities, but discourses of personal experiences have different discursive opportunities and constraints. While the technical expert likely wants to appear as objective as possible, the witness relies on likability to gain a hearing. As Hartelius argued, "We construct the witnesses as experts because we find their stories plausible. We find their stories plausible in part because we identify with them."[136] Those offering up their experiences as a form of expertise often do so through narrative, relying heavily on emotional appeals and value claims. Additionally, these discourses of witnessing quickly get elevated to claims of expertise, which helps explain why McCarthy's narrative about caring for her autistic son becomes privileged among certain audiences over the empirical data and scientific claims offered by researchers.

There are those who think that McCarthy has gained such a significant hearing because she has anecdotes while science has data. This view fails to see that there is more to McCarthy's discourse than just a personal story. Yes, at the center of McCarthy's presence in this debate is a compelling narrative about a mother's experiences and her fight for her child. But built around this narrative, McCarthy has interwoven various rhetorical strategies to enhance her performance of expertise. Uncovering these rhetorical strategies offers a better means of responding in order to help parents reject the doubt that McCarthy introduced.

In the complex and often contested terrain of healthcare and medical treatment, arguments that offer one's body as a warrant for claims of expertise will likely become increasingly widespread. Hartelius is correct in observing that, "Everyone is regarded as an expert on their own life; reporting on one's own experience does not require special training."[137]

Recognizing this also means understanding the potential for experience-based claims of expertise to dominate public discourses and encourage actions that go against sound medical advice or the current understanding of science, similar to what has occurred within discourse around the AVC. The problem with McCarthy is not her participation in the discussion, it is the claim that her experience provides sufficient grounding to determine that vaccination is related to the onset of autism in some children. The challenge remains to determine how to encourage those with relevant experiences to participate in public discourses while effectively bounding the conclusions drawn from these experiences. Understanding the rhetorical means by which experience-based claims of expertise operate proves essential to navigating debates about policy and procedures that rely on scientific and technical information but cannot, ultimately, be decided by data alone.

---

[1] Jenny McCarthy, *Louder Than Words: A Mother's Journey in Healing Autism* (New York: Dutton Penguin, 2007); "Mothers Battle Autism," *The Oprah Winfrey Show* (NBC, September 18, 2007).
[2] "Mothers Battle."
[3] Rachel Avon Whidden, "Maternal Expertise, Vaccination Recommendations, and the Complexity of Argument Spheres," *Argumentation and Advocacy* 48, no. 4 (March 22, 2012): 251.
[4] Karl Taro Greenfeld, "The Autism Debate: Who's Afraid of Jenny McCarthy?" *Time*, accessed March 23, 2014, http://content.time.com/time/magazine/article/0,9171,1968100,00.html; Melissa Healy, "Jenny McCarthy on 'View': A New Forum for Discredited Autism Theories," *Los Angeles Times*, July 15, 2013, http://www.latimes.com/news/science/sciencenow/la-sci-jenny-mccarthy--view-autism-20130715,0,6008429.story#axzz2jjHD1i9s; Mary Langan, "Parental Voices and Controversies in Autism," *Disability & Society* 26, no. 2 (2011): 193–205, doi:10.1080/09687599.2011.544059; Jeffrey Kopman, "The Dangerous History of Anti-Vaccine Conspiracies," *The Weather Channel*, March 6, 2013, http://www.cfr.org/interactives/GH_Vaccine_Map/index.html; David M. Perry, "Destabilizing the Jenny McCarthy Public-Health Industrial Complex," *The Atlantic*, July 11, 2013, http://www.theatlantic.com/health/archive/2013/07/destabilizing-the-jenny-mccarthy-public-health-industrial-complex/277695/; Nina Shapiro, "The Anti-Vaccine Epidemic," *Seattle Weekly*, accessed March 23, 2014, http://www.seattleweekly.com/2011-06-15/news/the-anti-vaccine-epidemic/; Michael Specter, "Jenny McCarthy's Dangerous Views," *The New Yorker Blogs*, July 16, 2013, http://www.newyorker.com/online/blogs/elements/2013/07/jenny-mccarthys-dangerous-views.html?printable=true&currentPage=all.
[5] See, for example "Anti-Vaccine Body Count," accessed June 10, 2014, http://www.jennymccarthybodycount.com/Anti-Vaccine_Body_Count/Home.html; Healy, "Jenny McCarthy on 'View'"; Kopman, "Dangerous History"; Jeffrey Kluger, "Anti-Vaccine Crusaders Are, As Always, Wrong," *Time*, April 2, 2014; Kopman, "Dangerous History"; Langan, "Parental Voices"; Specter, "Jenny McCarthy's Dangerous"; Whidden, "Maternal Expertise."
[6] "Can Autism Be Prevented? Star's Controversial New Claim," *Good Morning America* (New York, NY: ABC, April 1, 2009).
[7] Whidden, "Maternal Expertise."

[8] Ibid.; Emily Chivers Yochim and Vesta T. Silva, "Everyday Expertise, Autism and 'Good' Mothering in the Media Discourse of Jenny McCarthy," *Communication and Critical/Cultural Studies* 10, no. 4 (2013): 406–26, doi:10.1080/14791420.2013.841320.
[9] Yochim and Silva, "Everyday Expertise."
[10] Moshin Ali and Branavan Manoranjan, "On Vaccines and Irrationality: Leveraging Emotion for the Greater Good," *The Meducator* 1, no. 23 (2013): 15–16; Healy, "Jenny McCarthy on 'View'"; Perry, "Destabilizing"; Phil Plait, "...But How Do We Recover From Jenny McCarthy?" *Bad Astronomy, Discover Magazine*, October 20, 2008, http://blogs.discovermagazine.com/badastronomy/2008/10/20/but-how-do-we-recover-from-jenny-mccarthy/.
[11] E. Johanna Hartelius, *The Rhetoric of Expertise* (Lanham, MD: Lexington Books, 2010), 3, emphasis added.
[12] Ibid., 1.
[13] Hartelius, *The Rhetoric of Expertise*.
[14] Ibid., 10.
[15] Paul Slovic et al., "Risk as Analysis and Risk as Feelings: Some Thoughts About Affect, Reason, Risk and Rationality," in *The Feeling of Risk: New Perspectives on Risk Perception*, by Paul Slovic (London: Earthscan, 2010), 21–36.
[16] Hartelius, *The Rhetoric of Expertise*, 11.
[17] Ibid.
[18] Wendy Faulkner, James Fleck, and Robin Williams, "Exploring Expertise: Issues and Perspectives," in *Exploring Expertise: Issues and Perspectives*, ed. Robin Williams, Wendy Faulkner, and James Fleck (Basingstoke: Palgrave MacMillan, 1998), 1–27.
[19] Aristotle, *On Rhetoric: A Theory of Civic Discourse*, trans. George A. Kennedy (New York: Oxford University Press, USA, 2007).
[20] Hartelius, *The Rhetoric of Expertise*, 12.
[21] Ibid.
[22] Ibid.
[23] Ibid., 14.
[24] Ibid., 29. Emphasis in original.
[25] Ibid., 9.
[26] Brian Wynne, "Sheepfarming After Chernobyl: A Case Study in Communicating Scientific Information," *Environment: Science and Policy for Sustainable Development* 31, no. 2 (1989): 10–39, doi:10.1080/00139157.1989.9928930.
[27] Harry Collins and Robert Evans, *Rethinking Expertise* (University of Chicago Press, 2008), 30.
[28] Ibid., 68.
[29] Hartelius, *The Rhetoric of Expertise*.
[30] Ibid., 14.
[31] Ibid., 93.
[32] Ibid., 86.
[33] Laura Knudson, "Cindy Sheehan and the Rhetoric of Motherhood: A Textual Analysis," *Peace & Change* 34, no. 2 (April 1, 2009): 166, doi:10.1111/j.1468-0130.2009.00548.x.
[34] Knudson, "Cindy Sheehan."
[35] Christopher R. Keane, "Managerial Hegemony, Cultural Change, and the Transformation of Infant Care Advice in the United States in the Twentieth Century," *International Journal of Health Services* 31, no. 1 (January 1, 2001): 181, doi:10.2190/9350-27KH-83CN-033A.
[36] Ann Hulbert, *Raising America: Experts, Parents, and a Century of Advice about Children* (New York: Vintage Books, 2004).
[37] Julia Grant, *Raising Baby by the Book: The Education of American Mothers* (New Haven: Yale University Press, 1998).
[38] Rima D. Apple, *Mothers and Medicine: A Social History of Infant Feeding, 1890-1950* (University of Wisconsin Press, 1987).
[39] Rima D Apple, *Perfect Motherhood: Science and Childrearing in America* (New Brunswick, N.J.: Rutgers University Press, 2006).
[40] Ibid., 168.
[41] Hartelius, *The Rhetoric of Expertise*, 11.
[42] Valeria Fabj and Matthew J. Sobnosky, "AIDS Activism and the Rejuvenation of the Public Sphere," *Argumentation and Advocacy* 31, no. 4 (March 22, 1995): 163.

[43] G. Thomas Goodnight, "The Personal, Technical, and Public Spheres of Argument: A Speculative Inquiry into the Art of Public Deliberation," *Journal of the American Forensic Association* 18 (1982): 214–27.
[44] "Mothers Battle." Both Whidden and Yochim and Silva also explored McCarthy's mommy instinct discourse. Whidden considered how McCarthy interjects herself into technical sphere discourses by claiming mommy instinct; Whidden, "Maternal Expertise." Yochim and Silva explored the implications of McCarthy's mommy instinct from a feminist perspective, arguing that it unduly burdens mothers rather than empowering them by placing the responsibility for a child's recovery on the mother; Yochim and Silva, "Everyday Expertise."
[45] McCarthy, *Louder Than Words*. Although McCarthy discusses the influence of her instinct in this book, she does not refer to it as "mommy instinct" until her appearance on *The Oprah Winfrey Show* to promote the book on September 18, 2007. In *LTW* McCarthy typically uses the qualifier "maternal" rather than "mommy."
[46] Ibid.
[47] Ibid., 1.
[48] Ibid., 132.
[49] Ibid., 20, 30, 40, 49, 53, 159.
[50] Ibid., 81.
[51] Ibid., 30,49,67.
[52] Ibid., 30, 40, 65, 83.
[53] Ibid., 19.
[54] Ibid., 20.
[55] Ibid., 30.
[56] Ibid., 53.
[57] Ibid., 65.
[58] Ibid., 40 emphasis added.
[59] Ibid., 139.
[60] "Mothers Battle."
[61] Jenny McCarthy, *Mother Warriors: A Nation of Parents Healing Autism Against All Odds* (New York: Dutton Penguin, 2008), 2.
[62] Ibid., 65, 68, 80, 93, 112, 123, 132, 166, 171.
[63] Jenny McCarthy and Jerry Kartzinel, *Healing and Preventing Autism: A Complete Guide* (New York: Dutton Penguin, 2009), 26.
[64] Note, though, that he does stop short of claiming mothers possess the necessary means to determine how to treat whatever is wrong with the child, perhaps as a means of preserving some sacred domain for the technical experts in the face of mommy instinct.
[65] McCarthy, *Louder Than Words*, 166; "Mothers Battle."
[66] McCarthy, *Louder Than Words*, 195.
[67] Hartelius, *The Rhetoric of Expertise*, 11.
[68] Michael Leff and Andrew Sachs, "Words the Most Like Things: Iconicity and the Rhetorical Text," *Western Journal of Speech Communication* 54, no. 3 (1990): 252–73, doi:10.1080/10570319009374342.
[69] Jeanne Fahnestock, "Incrementum and Gradatio," in *Rhetorical Figures in Science* (New York: Oxford University Press, USA, 1999), 92.
[70] Ibid., 95.
[71] McCarthy, *Louder Than Words*.
[72] McCarthy, *Mother Warriors*.
[73] Jay N. Gordon, "Foreword," in *Mother Warriors: A Nation of Parents Healing Autism Against All Odds* (New York: Pen, 2008), xvii–xviii, emphasis added.
[74] McCarthy and Kartzinel, *Healing and Preventing Autism*.
[75] Ibid.
[76] Ibid.
[77] Ibid.
[78] "Jenny McCarthy's Autism Fight," *Larry King Live* (CNN, April 2, 2008).
[79] McCarthy, *Louder Than Words*, 104–105.
[80] This statement also operates as a hedge, allowing McCarthy to say she does not think vaccines *cause* autism but rather that they trigger it. This allows McCarthy to defend herself as not being anti-vaccine because she acknowledges that vaccines are not the only contributor. In this case she grants that Evan's immune system, if weakened, played a role as well. Of course, her admission that Evan had a weak immune system is itself hedged

(with "possibly"), revealing that while McCarthy may technically claim that more than vaccines are to blame for Evan's autism, she places the onus of that responsibility on immunization, also indicated by the fact that two items in this incrementum tie back to vaccination, the vaccines themselves and the "mercury" in the vaccines.
[81] "McCarthy's Autism Fight."
[82] This statement also starts with the repetition "parent after parent after parent" that also adds to the sense that this story is not just one parent's story but that the experience is shared by a large number of parents.
[83] Fahnestock, "Incrementum," 96.
[84] Ibid.
[85] "McCarthy's Autism Fight."
[86] McCarthy and Kartzinel, *Healing and Preventing Autism*, 210.
[87] Christopher W. Tindale, "Character and Knowledge: Learning from the Speech of Experts," *Argumentation* 25, no. 3 (August 1, 2011): 334, doi:10.1007/s10503-011-9224-9.
[88] Hartelius, *The Rhetoric of Expertise*, 11.
[89] Ibid.
[90] "Jenny McCarthy Biography," *The Biography Channel*, accessed April 5, 2014, http://www.biography.com/people/jenny-mccarthy-20872229; "Jenny McCarthy," *HarperCollins Speakers Bureau*, accessed April 5, 2014, http://www.harpercollinsspeakersbureau.com/speaker/jenny-mccarthy/.
[91] "Jenny McCarthy."
[92] Ibid.
[93] "Jenny McCarthy Speaks about Autism," *Fox On the Record with Greta van Susteren* (Fox News Network, June 6, 2008).
[94] McCarthy, *Louder Than Words*; McCarthy, *Mother Warriors*, 8.
[95] McCarthy, *Louder Than Words*, 85.
[96] McCarthy and Kartzinel, *Healing and Preventing Autism*, 167. Of course, this distinction between her previous life as an entertainer and her current life as a "mother warrior" gets blurred later as McCarthy reemerged into the entertainment spotlight, even posing in Playboy again, endorsing electronic cigarettes, and landing a gig as a host on ABC's *The View*.
[97] In the author biography included in these books, McCarthy excludes her entertainment experiences altogether and only mentions her written works.
[98] McCarthy, *Louder Than Words*, 51.
[99] Ibid., 68.
[100] See, for example, McCarthy, *Louder Than Words*, 20.
[101] Ibid., 45.
[102] McCarthy and Kartzinel, *Healing and Preventing Autism*, 203.
[103] McCarthy, *Louder Than Words*.
[104] Ibid.; McCarthy, *Mother Warriors*.
[105] McCarthy, *Louder Than Words*, 139–140.
[106] Ibid., 26, 159.
[107] Ibid., 142.
[108] Ibid., 139–140.
[109] "Mothers Battle."
[110] McCarthy, *Louder Than Words*, 104.
[111] Ibid., 170.
[112] McCarthy and Kartzinel, *Healing and Preventing Autism*.
[113] McCarthy, *Louder Than Words*, 191.
[114] McCarthy and Kartzinel, *Healing and Preventing Autism*, 3.
[115] McCarthy, *Mother Warriors*, 45.
[116] McCarthy and Kartzinel, *Healing and Preventing Autism*, 262.
[117] "Interview with Jenny McCarthy," *Larry King Live* (CNN, September 26, 2007).
[118] Ibid.
[119] McCarthy and Kartzinel, *Healing and Preventing Autism*, 275, emphasis in original.
[120] "Mothers Battle."
[121] McCarthy, *Louder Than Words*, 15.
[122] Ibid., 42.
[123] Ibid., 52.

[124] McCarthy and Kartzinel, *Healing and Preventing Autism*, 195.
[125] McCarthy, *Louder Than Words*, 28, 40, 49.
[126] McCarthy, *Mother Warriors*.
[127] Ibid., 17.
[128] Ibid., 51.
[129] "Interview with McCarthy."
[130] "Mothers Battle"; "Interview with McCarthy."
[131] "Interview with McCarthy."
[132] "Mothers Battle."
[133] Gordon, "Mother Warriors"; David Feinberg, "Foreword," in *Louder Than Words: A Mother's Journey in Healing Autism* (New York: Penguin, 2007), ix–xiii.
[134] McCarthy, *Louder Than Words*, 195; McCarthy and Kartzinel, *Healing and Preventing Autism*, 275; "Mothers Battle."
[135] Wendy Sue Swanson, "Jenny McCarthy on The View: Trading Experience for Expertise," *KevinMD.com*, August 5, 2013, http://www.kevinmd.com/blog/2013/08/jenny-mccarthy-view-trading-experience-expertise.html.
[136] Hartelius, *The Rhetoric of Expertise*, 94.
[137] Ibid., 118.

Chapter 5

Perceptions of a Playboy Bunny: Responding to McCarthy's Enactments of Expertise

Rhetorical scholar Johanna Hartelius argued that attending to the importance of audiences was key to understanding discourses of expertise.[1] In the previous chapter, I explored the appeals McCarthy relies on to cultivate her expertise capital. In this chapter I examine reception of McCarthy's discourse in order to uncover how audiences perceived the enactments of expertise McCarthy offered. By charting both the means of persuasion McCarthy employs to establish her expertise and the responses to those appeals, more productive ways of responding to such claims can be developed.

Although a plethora of responses to McCarthy have been offered, some themes emerge across them. An examination of reviews for McCarthy's books reveals three typical responses. Some readers express support for McCarthy and the work she is doing for the autism community. Other reviewers sympathize with McCarthy's experience as a mother of a child with special needs but reject her claims to expertise. A third response completely rejects McCarthy's discourse and actively critiques her attempts to position herself as an authority in the debate. Commentary in media coverage tends to reveal more opponents than supporters. Opponents often resort to critiquing McCarthy's former profession as a Playboy bunny or dismissing her right to speak altogether. Despite these critiques, McCarthy continues to have a voice in the debate and is seen as a public health threat. I argue this is because such responses fail to understand how McCarthy's discourse operates rhetorically and the persuasive appeals she utilizes. Taking the analysis from the previous chapter as a starting point, I offer several suggestions for responding to McCarthy that focus on presenting rhetorical counterparts to McCarthy's own appeals.

Since much of my analysis in the previous chapter focused on the rhetorical strategies employed in McCarthy's books, I start by examining reception of McCarthy as expressed through user-written book reviews. I then consider discourses about McCarthy and her claims to expertise in the media more generally. Building from this reception and McCarthy's various appeals as identified in the previous chapter, I suggest responses that might unsettle the persuasive pull of McCarthy's discourse. I close by offering some recommendations about how to best react to discourses of experience-based expertise that elevate personal anecdotes over scientific evidence.

Reception of McCarthy's Enactments of Expertise

While the depictions of audience response McCarthy incorporated into her own discourse were overwhelmingly positive and supportive, an examination of reception discourses around McCarthy reveals a larger variety of perspectives. Audience feedback ranges from the extremes of adoration to detestation. For those who are fans or at least sympathetic to her position, many of her rhetorical strategies achieve some success, but for those inclined to disagree with or adamantly oppose McCarthy, her appeals often serve as the starting point for attacks against her claims to expertise.

Book Reviews

Overall McCarthy's books on autism fared well. They all made it to the New York Times Bestsellers list and receive relatively high ratings on Amazon.[2] *Louder Than Words* has seen the most success, probably helped by McCarthy's appearance on *Oprah* shortly after it was published. On Amazon it has an average rating of 4.1, with 245 five-star reviews out of 375 reviews total. The next closest category is one-star reviews, with 52 respondents. *Mother*

Warriors, her second book, has received 135 reviews, earning an average rating of 4.3, with 101 five-star reviews. Again the next highest category is one-star reviews with 17.[3] Finally, *Healing & Preventing Autism* has an average rating of 4.1 out of 5 with 115 reviews.[4] Eighty of those reviews gave the book five stars, while 19 reviewers gave the book one star. While there are significantly fewer one-star reviews than five-star endorsements with each book, the fact that these two rating categories have the most responses demonstrates the love/hate extremes of reactions to McCarthy's discourse. These extremes can be seen more specifically with a quick perusal of the written comments.

Response to McCarthy is often split, even among those who make up part of her target audience. Reviews most commonly come from parents with autistic children or those with close ties to the community, and three typical responses occur. There are those who echo the responses McCarthy describes in her own discourse, expressing their appreciation for McCarthy's message and help.[5] For example, one review opens with the claim, "This is a compelling work that definitely shows there is power in asking questions."[6] Another mother, in reviewing *MW*, claims McCarthy's appearance on Oprah offered her hope shortly after her son's diagnosis. She states, "A huge thanks to Jenny McCarthy. She is our autism Angel and because of her, we have our son back. We are forever grateful!"[7] These supportive responses often credit McCarthy with offering hope or thank her for speaking up about issues that do not get enough attention. They also often claim to have had success similar to McCarthy's in recovering their children.[8]

A second common response involves expressing sympathy for McCarthy's experiences while rejecting the legitimacy of her claims to expertise. Some parents express sympathy for McCarthy's situation or appreciation for her story, but are less enthusiastic about fully embracing her claims regarding autism treatments or vaccine concerns. Such reviews typically acknowledge

how compelling McCarthy's narrative is, but point out various reasons for why they reject the claims to expertise McCarthy makes.[9] For example one reviewer begins by stating, "I am the mother of an autistic child and am extremely tired of people recommending her books to me. I have great respect and empathy for what she went through with her son but I think it is dangerous and irresponsible for her to be our spokesperson . . .. Every autism case is unique and there are many kids who nothing helps them."[10] Not only does this mother reject McCarthy's message, she expresses resentment that McCarthy is often treated as representative of the entire community of parents with autistic children. However, even while this reviewer explicitly rejects McCarthy's experience as representative of her own, she expresses sympathy for McCarthy and what she has gone through. Thus, she grants the validity of McCarthy's experience, even while trying to limit the extent to which it represents others' experiences. Other reviews critique McCarthy because they find her story, while engaging, to be unrealistic when compared to the situation faced by most parents with autistic children. In particular, the mismatch between the financial resources McCarthy had for helping Evan and the limitations faced by non-celebrity parents cause readers to stop short of jumping on McCarthy's bandwagon.[11] These responses reveal a failure in McCarthy's attempts to create identification with her audience. Despite her attempts to emphasize a shared identity as mothers, her identity as celebrity kept these appeals from being fully successful.

The third common response features those parents who reject McCarthy and her message outright and these critiques point to the shortcomings in McCarthy's appeals, at least for some audience members. One reviewer, who was particularly critical, questioned McCarthy's motives, essentially offering a critique of her ethos:

> As I began reading Mother Warriors, the beginning of the book was initially harrowing and inspiring - it was moving to see her talk more extensively about parents' personal experiences with seeing their children regress in their developmental milestones after immunization and slip away into the autism spectrum. However, as I read on, it became apparent that it is a thinly disguised infomercial and that she has now carved out a new lucrative career as an autism spokesperson.[12]

The review goes on to point out several perceived conflicts of interest (tied to the products she promotes) as well as limitations to the information McCarthy provides. This reviewer felt strongly enough to sign her full name at the end of the review and identify herself as an autism coach (making some ethos appeals of her own). Although not a parent of an autistic child herself, she has strong connections to that community and her response reveals limitations in McCarthy's ethos, especially her appeals to arête and eunoia.

Media Responses

Beyond reviews of McCarthy's books, public commentary on her involvement in the AVC features various critiques, admonishments, and even personal attacks published in various media outlets and Internet blogs. Critiques of McCarthy often focus on pointing out the flaws in her argument. For example, one article discussing McCarthy's influence explains, "She aligned herself with pseudoscience. She mistook 'mommy instinct' for fact."[13] This comment attempts to explain why McCarthy's position is wrong without dismissing the personal experience McCarthy offers. In fact, earlier in the article the author explicitly acknowledges the right of McCarthy to share her story. Through pointing out the flaws in McCarthy's argument, specifically the evidence (mommy instinct) she offers to support her claims, this author draws attention to gaps in McCarthy's claims. Other critics similarly try to point out that McCarthy's reliance on

anecdote rather than empirical data undermines her position.[14] Such responses critique the position McCarthy takes rather than the person she is. While such responses would seem to hold potential for limiting the influence of McCarthy's claims regarding vaccines, recent research has shown that presenting vaccine hesitant parents with information that dispels vaccine myths can actually operate to further entrench resistance to vaccination.[15] Thus, such critiques may fail to encourage vaccine uptake.

Some authors move beyond critiquing McCarthy's argument to offer admonitions of the position McCarthy has chosen for the potential harm it causes and the fear it creates.[16] For example, one author argues, "McCarthy takes advantage of parents' fears by offering them a deceivingly clean-cut solution to the scary threat of autism. And not only that, she is unabashedly making money off of it and benefiting from the controversy"[17] This critique not only accuses McCarthy of stirring up unfounded anxiety among parents, she accuses her of doing it for profit, challenging McCarthy's appeals to arête and eunoia. Another commentator remarks, "Despite the evidence, it is easy to understand why the parent of an autistic child—in fear and confusion and desperation—might find McCarthy's claims enticing. These are parents at their most vulnerable and McCarthy, though perhaps well intentioned, has preyed on them. This fear-mongering is incredibly dangerous."[18] By describing McCarthy as "preying" on these parents, this author activates a metaphor of helpless parents as prey, being hunted and destroyed by a frightening predator. This word choice may reflect an attempt to infuse McCarthy, who is often noted for her beauty and charm, with some dark undertones that might make it easier to be critical of her rhetoric. Such critiques shift their attention to McCarthy's motives. They excuse those who might have been persuaded by her claims while challenging her ethos. Such attempts

to undermine appeals to arête and eunoia might be successful at deflecting McCarthy's claims to expertise, but only if they can steer clear of being perceived as personal attacks.

Responses that resort to personal attacks often argue against McCarthy by pointing out her work as a Playboy bunny or emphasizing her looks.[19] For example, one critic remarks,

> The most recent 'expert' to weigh in on that [the idea that vaccines cause autism] is former *Playboy* Playmate Jenny McCarthy, who demonstrated her 38-C IQ in claims on Oprah [Winfrey's talk show] and in her best-selling book. She's part of the bizarre segment of our society that sees childhood vaccines as some sort of black magic and have latched onto the unquestionable rise in autism rates to make the point.[20]

Such responses often rely on snarky dismissal of McCarthy, relying on wit rather than content to undermine McCarthy's enactments of expertise. In the quote above, the author equates McCarthy's intelligence with her bra size, implying that intelligence and beauty are somehow mutually exclusive. Note also the strawman construction of McCarthy's position that this author relies on, distorting McCarthy's expressed concerns about vaccines by equating them with "black magic." While McCarthy's concerns may not have scientific grounding, distorting them in this extreme way undermines the critique this author is trying to construct.

Such belittling will likely do little to disrupt the belief of McCarthy's supporters. For those persuaded by McCarthy's appeals to goodwill, the lack of eunoia toward McCarthy demonstrated by those resorting to personal attacks will likely further entrench support for McCarthy. Additionally, these ad hominem attacks do little to respond to the actual claims McCarthy makes. Rather, they focus on dismissing her right to speak wholesale. While McCarthy may be blonde and a former Playboy Bunny, neither of these facets of her identity prevents her from having the right to speak in the public domain, and given the privilege our

culture often grants to personal experience, commentaries that seem to flippantly dismiss McCarthy's experience may backfire. Such responses are likely to appeal to those already inclined to be dismissive of McCarthy and her claims, but they will probably do very little to disrupt problematic beliefs about vaccines that parents might develop after exposure to McCarthy's message.

While many people respond to McCarthy's claims by simply dismissing them as the rantings of a Playboy bunny, not all listeners so lightly ignore McCarthy's assertions. Particularly for mothers with autistic children or mothers feeling uncertain about vaccination, McCarthy's story can resonate quite strongly with them. Additionally, McCarthy's enactment of expertise in her own discourse creates a potential for self-empowerment for these mothers and fits with pre-existing cultural beliefs in the importance and validity of lived experience.

Responding to Mommy Instinct As Expertise

Hartelius noted that in the rhetoric of someone claiming experience-based expertise, reference to "bodily function is an epistemological foundation. Even more significantly, referencing it is a powerful discursive strategy in the rhetoric of expertise."[21] Descriptions of visceral experiences can operate quite persuasively because they create moments of identification between a rhetor and audience members, in part because the audience can relate their own bodily experiences to those being described by the rhetor. Since we trust our own bodily experiences and assign meaning to them, we also tend to grant credence to the bodily experiences others.[22] In the case of McCarthy, her vivid description of these embodied moments that physically guide her offer convincing moments in her narrative about the power of mommy instinct. While such moments may be persuasive, it is not because McCarthy presents foolproof

evidence and bases her claims on sound reasoning. Rather, by grounding her argument in her mommy instinct and offering her body as the warrant, McCarthy operates epistemologically beyond the realm of science, which makes it difficult to challenge her claims of expertise without dismissing her lived experience or devolving into the realm of ad hominem attacks. The evidence offered – the embodied experience – is unverifiable because no one else can attest to exactly what that experience was like for that body. Although everyone may have the ability to communicate these experiences, when such experiences become the basis of advocacy discourse, a conundrum arises because they are not open to being tested by others.

As an experience-based expertise that grounds itself in embodied moments, mommy instinct presents an argumentative challenge. Other types of experience-based expertise develop through long-term exposure or practice resulting in unique knowledge or skills. In these cases, claims to expertise can be countered by disputing the length of exposure or relevance of the experience. However, argumentative claims based on a mother's gut feelings leave little room for such counterarguments. While theoretically the limitations of such arguments may be clear, in public debate one declaring such "mother as expert" arguments as logically flawed risks being construed as arrogantly dismissing a mother's lived experience. Given the tendency in our culture to privilege the lived experience,[23] such responses are likely to backfire.

Rather than directly dispute claims regarding the power of mommy instinct, challengers might find more success in acknowledging the power of mommy instinct but then pointing out its limitations. Such responses could focus on establishing the boundaries beyond which a mother's instinct is limited in providing guidance and where the expertise afforded by medical training and advanced technology can supplement a mother's gut feelings. For example, in McCarthy's first book, Evan gets an EEG. McCarthy learns that Evan had three seizures while

the test took place, but McCarthy had no idea he was seizing because those seizures did not produce symptoms that could be observed without specialized equipment.[24] While on previous occasions McCarthy had been able to know when Evan was seizing when others did not, here the roles are reversed. This moment offers an opportunity to discuss how medicine can move beyond the realm of what is observable to the naked eye to determine underlying causes and undetected symptoms that can enrich what mommy instinct might reveal. After all, McCarthy does not completely deny the ability of medical experts to help her child, but she expresses frustration over those practitioners who ignored her instincts to administer unnecessary tests,[25] insist Evan was fine,[26] or encourage continued use of medication with problematic side effects.[27] Thus, responses to arguments of motherhood as experience-based expertise should highlight how medicine and mommy instinct can operate in collaboration rather than opposition.

Responding to Incrementum as Escalating Expertise

It is not just the evidence (mommy instinct) that McCarthy presents but also the way in which she presents that evidence that enable her claims to appear well supported. One must not overlook the rhetorical power of style in building the appearance of expertise and the certainty of claims made. The use of incrementum in particular allows McCarthy to capitalize on the momentum of the style to present a string of claims with little evidence to support them, other than parental observation. However, by recognizing the stylistic devices McCarthy relies on, opportunities for responding to her problematic claims can be identified. Answering style with style can disrupt the ability of form to enhance the claims made. Fahnestock observed,

> A series interposed between the two given terms can, however, have two quite different argumentative effects: it can bring the preexisting end points together, but it can also

> push them further apart. It brings together when an audience sees the links that connect one end of the series with the other; it pushes apart by showing how many steps intervene between one end and the other.[28]

By expanding and adding complexity to the incrementum McCarthy offers and drawing out the steps necessary to move from one aspect (a fever following vaccination) to the next (losing the ability to speak) to the next (being diagnosed as autistic), the pull of her argument that vaccines are the underlying cause of autism can be disrupted. Regarding the increase in scope McCarthy establishes through use of incrementum, one might counter this with another incrementum, one that demonstrates the expanding scope of support for the position that there is no link between vaccination and autism. Rather than simply declaring that overall research shows no support for such a claim, incrementum can be used to present the same information but in a way that enables style to enhance the argument being made. This might be done in a variety of ways. An incrementum that highlighted the amount of research showing no link between vaccination and autism might be useful (i.e. perhaps from the first study to make such a claim to further studies adding support over the next couple of years, to all the most recent studies). An incrementum could also demonstrate the broad scope of support for rejecting the claim that vaccines cause autism by listing the different types of people and organizations who take that position (i.e. perhaps building from recognized research organizations and respected institutions to nonprofits, parent groups, and even celebrities). An incrementum that scaled up in terms of prestige might also be useful (i.e. from lesser known researchers to more well known figures or organizations, such as the APA, CDC or WHO). Finally, an incrementum that presented the range of research done regarding the link between vaccines and autism might be useful (for example, moving from research that established vaccine safety generally to research that addressed thimerosal or MMR

specifically to research that addressed giving vaccines in combination.) While style might enhance McCarthy's claims to expertise, style can also be used to counter such claims and strengthen the case made by those responding to McCarthy's discourse.

Responding to Ethos in Enactments of Expertise

Through appeals to ethos McCarthy frames herself as a trustworthy and credible voice in the debate, despite her lack of specialized training or technical knowledge. However, McCarthy's ethos simultaneously presents a potential pitfall because of her inability to completely separate her current discourse from her previous reputation and because of missteps within the discourse itself that undermine efforts to build appeals to *phronesis*, *arête*, and *eunoia*.

Pointing out contradictions within one's appeals to ethos may offer the most promising opportunity for disrupting reliance on ethos to enact expertise. Drawing attention to someone who relies heavily on appeals to arête and eunoia while offering little in terms of phronesis may disrupt the ability of ethos to substitute for expertise. However, in McCarthy's case this strategy may have limited effectiveness. McCarthy uses mommy instinct to establish phronesis and those persuaded by her claims regarding the power of a mother's gut will likely judge her as able to act on the knowledge she has. However, more success may come from pointing out contradictions in her appeals to arête and eunoia.

For all her attempts to appeal to her virtue, McCarthy's brutal honesty, even about herself, introduces elements to the narrative that potentially undermine these appeals. When she reveals she used pills to help her "escape" when she could not handle what was happening or when she admits she had an employee at a day care fired for making a comment about her son's strange behavior, McCarthy reveals an unpleasant and decidedly non-virtuous side of her

character.[29] For some this true confession style might elicit further support because it shows McCarthy's humanness, flawed as it is, but for others pointing out this contradiction can create openings to reflect more critically on her character.

Additionally, while McCarthy makes a case for her goodwill toward other mothers and her commitment to sharing her story in order to help them avoid the same struggles she faced, there are some moments of interference to her claims of eunoia. For example, McCarthy promotes therapies (Teach2Talk) and supplement providers (Kartner and Kirkman Lab) in her books with which she has financial connections. She also promotes her own organizations, Generation Rescue and TACA NOW, over other autism support and advocacy groups and at times even critiques (although subtly) the work other organizations are doing.[30] She has an interest, sometimes financial, in promoting certain interventions over others, a point noted in some of the responses to McCarthy's claims, often as a reason for rejecting her enactments of expertise. Thus, for all the goodwill appeals McCarthy makes, she does not represent a completely neutral party and some portions of her message may be biased. Again, directing awareness to this contradiction may help some audience members move past the appeal of McCarthy's seeming goodwill to consider what her ultimate intentions might be or whether she is as trustworthy and credible as she claims.

Pointing out contradictions or gaps in ethos appeals may prove useful for responding to McCarthy and others using appeals to arête and eunoia to enhance their credibility. However, it should be noted that such strategies could easily backfire or quickly slide into the realm of ad hominem attacks (or at least be accused of doing so). Bringing to light contradictions but stopping short of making evaluations of them may be one way to avoid this; however, this also

risks blunting the critique being offered. It may be worth considering if there are other ways of challenging ungrounded claims to expertise before disputing ethos appeals.

Responding to Identity and Identification Appeals

Similar to responding to ethos appeals as a means of enacting expertise, one can point out differences that prevent identification to disrupt such appeals. In McCarthy's case, she provides these moments of difference in the discourse itself. While McCarthy may be a mother, her celebrity status does influence her experiences. Moments in her narrative that bring this difference into the spotlight undermine McCarthy's attempts to connect with her readers. While McCarthy highlights her motherhood heavily throughout her books and her appearances, her identity as a celebrity is never far removed, from introductions that highlight her entertainment past to moments in her narrative reminding readers that McCarthy lives a very different lifestyle. Anecdotes that start with her at photo shoots or on film sets remind readers of McCarthy's status. While the celebrity appeal may make audiences eager to buy her books or tune in when she makes an appearance on a talk show, it can also restrict opportunities for identification, as demonstrated by reception to McCarthy. Mothers not living on a celebrity salary cannot afford to buy medical grade heart monitors and do not have connections to get access to the best neurologist.[31] Highlighting these moments potentially weakens the identification McCarthy attempts to build through appeals to understanding a mother's love and fierce loyalty to her child. Additionally, McCarthy creates an impossible standard for mothers to meet, demanding an endless quest of trying different therapies and doing research online to help one's child. Such efforts are expensive and time consuming. But perhaps more troubling, McCarthy's discourse creates the possibility of parents feeling like they have failed their child or have not done enough

if their child does not progress in the same ways Evan did.[32] Pointing this out may help show how McCarthy's values do differ from her audience, limiting her ability to substitute identification for her credibility and legitimacy as an expert.

Conclusion

Given the perception that McCarthy carries significant influence regarding vaccination decisions, opponents have tended to respond with critiques in order to turn the tide. Unfortunately the instinctual response to directly challenge McCarthy may not achieve the desired effect. Some critics have tried to undermine McCarthy by highlighting her history as a Playboy Bunny and MTV comedienne. However, McCarthy shows no embarrassment or shame of her past. On the contrary, McCarthy readily discusses the choices she has made and seems proud of her journey into the celebrity spotlight. In fact in 2012, McCarthy chose to pose for Playboy yet again, at the age of 39.[33] Attempts to embarrass or shame McCarthy into silence have failed so far, and criticisms discounting McCarthy because of her past career choices may hurt the ethos of those issuing such denouncements. Similarly criticisms grounded in her looks do little to address the issue on the grounds McCarthy presents. Such tactics also undermine a critic's ethos since arguing against McCarthy's credibility based on her looks comes across as an ad hominem fallacy at best and sexist at worst. Resorting to snarky comments about McCarthy can also suggest a lack of other viable reasons for dismissing her argument. While these caustic diatribes help recommit those in one's camp who already disagree with McCarthy, such criticisms likely do little to deter those who may be more vulnerable to McCarthy's narrative. In fact efforts to dismiss McCarthy based on her looks or her celebrity status may encourage an image of McCarthy as a hero,[34] brave enough to face personal attacks to promote a story she feels

parents need to hear, making her a more sympathetic figure to some audiences. McCarthy proves an easy target, but the doubt she introduces is more resilient. Responses that limit themselves to critiquing the quality of McCarthy's argument or admonishments directed at McCarthy's conflict of interests offer more promise for disrupting McCarthy's influence.

Chronicling McCarthy's various persuasive appeals allows for a deeper understanding of how she became a key figure, emerging from the parental voices participating in this manufactured science-based controversy. It also allows for identifying potential opportunities to disrupt her dominance and shift the discourse. Recognizing the empowerment McCarthy's appeals to mommy instinct offer her audience, challenges to McCarthy's discourse should embrace the knowledge and experience a mother has regarding her child but point to the limitations of that instinct, particularly those demonstrated in McCarthy's stories, as well as emphasize how medicine can enhance that maternal knowledge. Shifting the discourse from an adversarial parent versus medical practitioner struggle to a collaborative partnership can create openings for better acceptance of safety studies and scientific findings while also undermining McCarthy's claims that doctors do not take mothers seriously or care about what they have to say. Responding to McCarthy's style with style might also prove productive. This can involve drawing attention to how McCarthy's message relies on stylistic devices such as incrementum to persuade, but it may also mean incorporating stylistic choices that counteract the effects of McCarthy's style or employing the same styles that prove successful for her. Given McCarthy's reliance on arête and eunoia to build an appearance of trustworthiness, pointing out potential conflicts may challenge McCarty's use of ethos to enhance her enactments of expertise. Finally, pointing out ways in which the identification McCarthy offers to her audience is limited because of dramatic differences in identity may limit the persuasive potential of her overall message.

Some of these approaches have been used in responses to McCarthy already. Several critiques point out McCarthy's inability to understand the experience and financial strain faced by non-celebrity parents caring for autistic children. Others point out the conflict of interest created by McCarthy's personal stake in certain treatments and organizations. McCarthy continues to be seen as a danger to public health, even when not making explicit claims about vaccines.[35] However, few critics have pointed out or responded to McCarthy's use of style, other than noting her reliance on narrative. Critiquing McCarthy's style or using style to respond to her claims offers a previously unexplored means for upsetting the power of McCarthy's discourse.

It must also be recognized that responding to McCarthy directly and debating her perspective may have limited success for converting her supporters. Her warrant for her expertise is grounded in her bodily experiences of her "mommy instinct," which operates beyond the realm of science and the traditionally accepted means for generating knowledge. Countering such claims with appeals to empirical data and scientific studies will fail to undermine McCarthy's claims that she *just knows* what happened to her son when he was vaccinated. Incommensurability is created, and for those persuaded by McCarthy's appeals, altering their position with data may prove nearly impossible. A more productive strategy would be to focus on improving the persuasiveness of the message regarding the benefits and necessity of vaccines. Those who do not fully buy McCarthy claims, but who have been affected by the "what if?" her discourse created may remain open to more traditional arguments, particularly if enhanced by ethos appeals to help make them more palatable. For example, those promoting empirical evidence as the grounds for their argument about vaccines need to promote their own trustworthiness and build identification with their audience. Learning from the rhetorical strategies that worked for McCarthy can help enhance the success of such messages.

[1] E. Johanna Hartelius, *The Rhetoric of Expertise* (Lanham, MD: Lexington Books, 2010), 14.
[2] "Customer Reviews Louder Than Words: A Mother's Journey in Healing Autism," *Amazon.com*, accessed April 3, 2014, http://www.amazon.com/Louder-Than-Words-Mothers-Journey/product-reviews/B003F76DPG/ref=dp_top_cm_cr_acr_txt?showViewpoints=1; "Customer Reviews Mother Warriors: A Nation of Parents Healing Autism Against All Odds," *Amazon.com*, accessed April 3, 2014, http://www.amazon.com/Mother-Warriors-Parents-Healing-Against-ebook/product-reviews/B001AO0FZA/ref=dp_top_cm_cr_acr_txt?ie=UTF8&showViewpoints=1; "Customer Reviews Healing and Preventing Autism: A Complete Guide," *Amazon.com*, accessed April 3, 2014, http://www.amazon.com/Healing-Preventing-Autism-Complete-Guide/product-reviews/B0040RMEI0/ref=dp_top_cm_cr_acr_txt?showViewpoints=1.
[3] "Customer Reviews."
[4] "Customer Reviews."
[5] Lisa V, "Hopeless to Hopeful," *Amazon.com Customer Reviews*, March 10, 2011, http://www.amazon.com/review/RXJFODOSN7C8W/ref=cm_cr_pr_perm?ie=UTF8&ASIN=B0040RMEI0; Frank Seidel and Nicole Seidel, "Compelling & Hopeful! . . . But Lacking a Variety of Teaching Options, Example: No Mention of the Son-Rise Program," *Amazon.com Customer Reviews*, October 3, 2007, http://www.amazon.com/review/RBPFPTTZJZJ38/ref=cm_cr_pr_viewpnt#RBPFPTTZJZJ38; Rachel "Niko's Mommy," "A Fellow Mother Warrior," *Amazon.com Customer Reviews*, September 23, 2008, http://www.amazon.com/review/R2AHZJ5ZILVL29/ref=cm_cr_rdp_perm.
[6] Seidel and Seidel, "Compelling & Hopeful."
[7] Rachel "Niko's Mommy," "A Fellow."
[8] Choosy, "Great Book for Treatment," *Amazon.com Customer Reviews*, April 8, 2009, http://www.amazon.com/review/R20QJUZOUKOJ7/ref=cm_cr_pr_viewpnt#R20QJUZOUKOJ7.
[9] Midwest Mom "Honeybee's Mommy," "Very One-Sided and Not as Compassionate as Expected," *Amazon.com Customer Reviews*, November 13, 2008, http://www.amazon.com/review/R27LZA8JV0P1TK/ref=cm_cr_rdp_perm.
[10] M. Dresback, "UGH!" *Amazon.com Customer Reviews*, October 11, 2008, http://www.amazon.com/review/R3EM68EA80F0UU/ref=cm_cr_pr_perm?ie=UTF8&ASIN=0525950699.
[11] Lorel Shea, "Mixed Feelings," *Amazon.com Customer Reviews*, June 30, 2009, http://www.amazon.com/review/R23QLSCEKW2KJ0/ref=cm_cr_pr_viewpnt#R23QLSCEKW2KJ0; H. Michaelsen, "There Are Better Books from a Parents' Perspective," *Amazon.com Customer Reviews*, November 23, 2007, http://www.amazon.com/review/RGI2V54EU6VD1/ref=cm_cr_pr_viewpnt#RGI2V54EU6VD1.
[12] Sue "Common Sense Mom" Bennett, "Irresponsible, Offensive Infomercial," *Amazon.com Customer Reviews*, October 1, 2008, http://www.amazon.com/review/R3NOBOYGFGPSAD/ref=cm_cr_pr_perm?ie=UTF8&ASIN=0525950699.
[13] Wendy Sue Swanson, "Jenny McCarthy on The View: Trading Experience for Expertise," *KevinMD.com*, August 5, 2013, http://www.kevinmd.com/blog/2013/08/jenny-mccarthy-view-trading-experience-expertise.html.
[14] Phil Plait, "...But How Do We Recover From Jenny McCarthy?" *Bad Astronomy, Discover Magazine*, October 20, 2008, http://blogs.discovermagazine.com/badastronomy/2008/10/20/but-how-do-we-recover-from-jenny-mccarthy/.
[15] Brendan Nyhan et al., "Effective Messages in Vaccine Promotion: A Randomized Trial," *Pediatrics*, March 3, 2014, peds.2013–2365, doi:10.1542/peds.2013-2365.
[16] Emily Calandrelli, "5 Reasons Jenny McCarthy Is Even More Dangerous Than You Thought," *PolicyMic*, September 23, 2013, http://www.policymic.com/articles/64549/5-reasons-jenny-mccarthy-is-even-more-dangerous-than-you-thought; David M. Perry, "Destabilizing the Jenny McCarthy Public-Health Industrial Complex," *The Atlantic*, July 11, 2013, http://www.theatlantic.com/health/archive/2013/07/destabilizing-the-jenny-mccarthy-public-health-industrial-complex/277695/; Michael Specter, "Jenny McCarthy's Dangerous Views," *The New Yorker Blogs*, July 16, 2013, http://www.newyorker.com/online/blogs/elements/2013/07/jenny-mccarthys-dangerous-views.html?printable=true&currentPage=all; Swanson, "Jenny McCarthy on The View"; Editorials, "There Isn't Enough Science in the World to Debunk Anti-Vaccine Quackery for Some People," *NY Daily News*, January 17, 2011, http://www.nydailynews.com/opinion/isn-science-world-debunk-anti-vaccine-quackery-people-article-1.154665; Katrina vanden Heuvel, "Jenny McCarthy's Vaccination Fear-Mongering and the Cult of False Equivalence," *The Nation*, July 22, 2013, http://www.thenation.com/blog/175388/jenny-mccarthys-vaccination-fear-mongering-and-cult-false-equivalence#.
[17] Calandrelli, "5 Reasons."
[18] vanden Heuvel, "Jenny McCarthy's Vaccination."

[19] Michael Fumento, "Anti-Vaccine Fanatics Are Free Riders," in *Vaccines*, ed. Sylvia Engdahl, Current Controversies (Greenhaven Press, 2009), 68–73; Melissa Healy, "Jenny McCarthy on 'View': A New Forum for Discredited Autism Theories," *Los Angeles Times*, July 15, 2013, http://www.latimes.com/news/science/sciencenow/la-sci-jenny-mccarthy--view-autism-20130715,0,6008429.story#axzz2jjHD1i9s.
[20] Fumento, "Anti-Vaccine Fanatics," 71.
[21] Hartelius, *The Rhetoric of Expertise*, 123.
[22] Hartelius, *The Rhetoric of Expertise*.
[23] Ibid.
[24] Jenny McCarthy, *Louder Than Words: A Mother's Journey in Healing Autism* (New York: Dutton Penguin, 2007), 28.
[25] Ibid., 19.
[26] Ibid., 49.
[27] Ibid., 41.
[28] Jeanne Fahnestock, "Incrementum and Gradatio," in *Rhetorical Figures in Science* (New York: Oxford University Press, USA, 1999), 97.
[29] McCarthy, *Louder Than Words*, 68, 62.
[30] Jenny McCarthy, *Mother Warriors: A Nation of Parents Healing Autism Against All Odds* (New York: Dutton Penguin, 2008), 129; "Interview with Jenny McCarthy," *Larry King Live* (CNN, September 26, 2007).
[31] McCarthy, *Louder Than Words*, 37–39, 51–52.
[32] For an excellent analysis of the problematic implications of McCarthy's discourse from a feminist perspective, see Emily Chivers Yochim and Vesta T. Silva, "Everyday Expertise, Autism and 'Good' Mothering in the Media Discourse of Jenny McCarthy," *Communication and Critical/Cultural Studies* 10, no. 4 (2013): 406–26, doi:10.1080/14791420.2013.841320.
[33] "Jenny McCarthy Playboy Cover: Actress Poses Nude At 39," *Huffington Post*, June 25, 2012, http://www.huffingtonpost.com/2012/06/25/jenny-mccarthy-playboy-cover-nude-age-39_n_1624283.html.
[34] Andrea Kitta, *Vaccinations and Public Concern in History: Legend, Rumor, and Risk Perception*, Routledge Studies in the History of Science, Technology, and Medicine (New York: Routledge, 2012), 18.
[35] *Jenny McCarthy Is a Public Health Hazard*, 2014, http://www.youtube.com/watch?v=4Z6De19zT3w&feature=youtube_gdata_player; "Anti-Vaccine Body Count," accessed June 10, 2014, http://www.jennymccarthybodycount.com/Anti-Vaccine_Body_Count/Home.html; Phil Plait, "Jenny McCarthy Asks; the Internet Slam Dunks," *Bad Astronomy, Slate*, March 17, 2014, http://www.slate.com/blogs/bad_astronomy/2014/03/17/jenny_mccarthy_antivaxxer_gets_remedied_on_twitter.html.

Chapter 6

Parental Choice: Assessing Experts and Making Vaccination Decisions

Over the course of the previous chapters, I examined various discursive threads in the AVC and their reception to trace the overall evolution of this manufactured controversy as well as the influence of enactments of expertise. In this chapter, I turn my attention to the discourse of parents regarding vaccination choices as a means of gauging reception of the AVC writ large. As seen in the last chapter, discussions about parents related to the AVC often focus on advocate parents, such as McCarthy, promoting their belief that vaccines caused autism in their children. Given the strong public presence of these advocates, parents in the midst of making vaccination decisions can be overlooked. Yet they are the ones currently trying to filter through all the claims of expertise, information, and opinions regarding this issue to make a decision for their child.

Despite the success vaccines have had as a public health tool, parents still express concern about this medical technology.[1] Standing on the outside of the discussion and assessing it abstractly, vaccination may seen like an easy decision to make, but parents declare that when making the decision for one's own child, it is not so straightforward. In trying to make up their minds parents encounter a cacophony of public opinions, medical advice, and emotional appeals that introduce doubt more than they induce action. Historian of science Mark Largent explains his perspective as a father on this issue:

> Caught between the two [pro and anti vaccine perspectives], I must decide whether or not to have particular vaccines administered to my daughter. As much as I may appreciate open debate in a democratic society, the increasing intensity of this fight leaves me and millions of other American parents simply confused about what to do, threatened by the

> possibility of millions of unvaccinated children, and unconvinced by the public health community's increasingly aggressive tactics.[2]

Yet, all parents make a choice about vaccination, whether by conscious decision about which path to take or by default when they fail to act because they become overwhelmed by the uncertainty.

The rhetorical 'what if?' that rhetors like Wakefield and McCarthy introduced seems to override reassurances from scientific and medical experts and the accumulation of empirical evidence attesting to vaccine safety, a troubling trend that has impacts for both individual wellness and public health. As political scientist Geoboo Song noted, "the general public's perceptions translate into individuals' opinions on existing vaccine policies (i.e., mandatory vaccination policy and various exemption policies), which, in turn, construct institutional constraints that may have direct bearings on parents' behavioral decisions as to whether they ultimately vaccinate their child (ren)."[3] Although vaccination may initially seem like a decision about personal medical treatment, given the ways in which vaccination uptake influences community health, the stakes extend beyond personal liberties.

With recent outbreaks of once nearly eradicated diseases (namely measles and whooping cough), media attention and public commentary discuss the impact of vaccine exemptions on public health and suggest a need for a mandatory vaccine policy.[4] Pro-vaccination individuals and organizations, seeing the rise of such diseases, grow more vocal in critiquing anti-vaccine attitudes.[5] However, a recent study demonstrated that messages correcting misinformation about vaccines (such as the idea of a link between vaccines and autism) can actually further cement resistance to having children vaccinated.[6] In other words, attempting to debunk vaccine

concerns—the intuitive response to expressions of vaccine hesitancy—may actually do more harm than good in terms of encouraging vaccine uptake.

In order to improve communication between the medical enterprise and the public so that parents can make informed decisions rather than deciding de facto through a failure to act, it is important to consider how parents' perceptions of vaccines influence their beliefs and ultimately their choices about this particular medical practice.[7] In this chapter, I analyze parental discourses about their decision-making process to develop a better understanding of how parents interpret public discourse and sort through the claims of competing experts to make decisions about vaccination in the personal sphere.

Studying how parents talk about vaccines moves beyond the assumptions about anti-vaccine attitudes often included in media coverage and allows for a more robust understanding of the reasons for resistance. In order to access parental discourse, I conducted semi-structured interviews with mothers who had young children. Treating these interviews as rhetorical artifacts, I identify the *topoi*—or common lines of argument—that emerge and reveal the discursive opportunities these *topoi* offer for responding to vaccine concerns. All parents, whether they vaccinated or not, weighed the risks and made the decision that they believed to be in the best interest of their children. I argue that for parents choosing to follow an alternative schedule, delaying or denying vaccines is not based on a lack of information, but rather a different assessment of the risks involved. It is not a decision made haphazardly, but the reasoning these parents rely on differs from that invoked by technical experts and medical practitioners. Additionally, I argue that despite the difference in behavior between parents that vaccinate and parents that hesitate, there is a commonality in discourse. Rhetorical analysis of parental discourse reveals three *topoi* within mothers' articulations of risk assessments regarding

vaccination: consideration of diseases, environmental threats, and perceptions of their child's vulnerability. Regardless of the ultimate decision made, most parents justified their decision by appealing to at least one of these *topoi*. Thus, a rhetorical approach proves useful for offering insight into parental concerns about vaccines in ways that suggest alternative responses for shifting vaccination discourse to more productive grounds.

In the next section, I situate vaccine discourses within the context of risk communication. I then provide some background on the interview process used for this study. Next, I turn to analysis of the interviews themselves, treating them as a reception discourse of the AVC to understand the influence of concerns about vaccine-induced autism on parental decision-making. I examine articulations of vaccine decisions as a risk assessment, tracing the emergence of *topoi* that ground these decisions. Exploring the different perceptions of disease likelihood, environmental threats or safety, and the vulnerability of their children, I offer suggestions for turning these differences into common ground to foster dialogue and deliberation about vaccines that bypass the entrenched positions of the current debate. I conclude by considering alternative approaches to public health messaging aimed at encouraging vaccine uptake.

Vaccine Communication as Risk Communication

Vaccine hesitancy is not a new phenomenon.[8] In fact, vaccine resistance traces back to the origins of this medical practice, and many of the apprehensions parents express today echo the fears parents initially raised, from concerns over the artificial aspect of vaccines as compared to natural immunity to protests that mandatory vaccines violate civil liberties.[9] Despite the similarities in voiced objections, some claim the modern exhibition of vaccine hesitancy to be distinct from earlier articulations, given the drastic change in social context and the scope of

risks encountered in everyday life.[10] Within the confines of the Internet, stories about negative vaccine experiences and misinformation quickly circulate, amplifying perception of risks and creating echo chambers of like-minded parents who confirm one another's suspicions.[11] Thus, communication about vaccines, particularly in vernacular discourses, has become a practice of communicating risks.

Ongoing discussions about current cultural attitudes regarding vaccines point to a rupture between the risks of vaccines as assessed by scientific and medical experts and the perception of vaccine risks as expressed by parents. This framing repeats a common assumption in risk management and communication scholarship: experts and laypeople differ significantly in their interpretations of risk.[12] From this perspective, when publics fail to perceive risks according to expert recommendations, it is assumed that they are behaving irrationally[13] or that they lack the necessary knowledge to understand the situation; regardless, more education is promoted as the solution.[14] Kenneth C. Calman, former Chief Medical Officer of both Scotland and England, observed, "It is often assumed that as evidence for or against a specific hazard builds up, the public will make rational choices, and their actions will take the evidence into account. This is clearly not true."[15] Too often, people continue to engage in behaviors known to be risky, such as smoking. Conversely, people can continue to perceive something as high-risk, even if provided with evidence to the contrary.[16] This helps explains why, within the context of the AVC, parents continue to express concerns about vaccines causing autism despite scientific research invalidating such fears.

Recent critiques of the deficit model assumption have led to re-conceptualizing risk communication objectives. This includes approaching risk communication as an opportunity for deliberation as well as emphasizing the role of culture and context on risk perception.[17] In

particular, scholars have drawn attention to the ways in which public audiences contextualize risk from the abstract to their own unique circumstances. For example, one review of risk communication research argued that "C*ultural worldviews* permeate all of the mechanisms through which individuals apprehend risk, including their emotional appraisals of putatively dangerous activities, their comprehension and retention of empirical information, and their disposition to trust competing sources of risk information. As a result, individuals effectively conform their beliefs about risk to their vision of an ideal society."[18] This suggests that individuals understand risk in uniquely individual ways, often interpreting the information they receive in ways that allow that information to align with their particular ideological stance. As folklorist Andrea Kitta put it, in the context of vaccination decisions, "Understanding health choices is dependent on exploring the variety of cultural concerns and influences that constitute risk for the communities and individuals in question. Risk categories and risk perception are multifaceted, culture-bound, personal, and political."[19] By rhetorically examining the ways in which parents talk about their vaccination decisions, a sense of the unique risk constructions parents engage in around this issue emerges.

Accessing Parental Discourses

Scholars have argued that qualitative and ethnographic studies can more effective gauge parental attitudes toward vaccination than survey methods.[20] In order to access parental discourses about vaccination, I conducted qualitative, semi-structured interviews with 20 mothers who had given birth since 2005. Half of the interviews were conducted with mothers who had chosen to delay or decline one or more vaccine, while the other half were conducted with mothers who followed the recommended CDC schedule for children from birth to age 6.[21]

Mothers were recruited initially through interpersonal connections and then via a snowball sample, with half the participants coming from the Northwest area (an area known for high vaccine exemption rates) and half coming from various other regions in the US (see Respondents List, Appendix A).

I chose to interview respondents who were already parents since it has been found that having children often causes people to change their perspective on vaccines.[22] I elected to only speak to mothers given that they often bear the largest responsibility for taking children to doctor's appointments and because mothers have been some of the most vocal participants in vaccine advocacy discourses. Additionally, it has been shown that women tend to express more sensitivity to vaccine risks.[23] I talked with mothers who had children born after 2005 since they had to make vaccine decisions in the midst of increasing discourses in the US that questioned vaccination, fueled by McCarthy's rise to prominence (starting with her appearance on *Oprah* in 2007, see chapter 4). Interviews centered on actual experience with vaccination decisions, rather than posing hypothetical situations, allowing mothers to express their perceptive in their own words.[24]

Interviews were semi-structured in that I asked each interviewee a similar set of questions, but could change the ordering of questions to match the flow of conversation. Additionally, if an interviewee introduced a new issue not covered by the scope of the planned questions, I could incorporate follow up questions unique to that topic. Interviews lasted anywhere from 30-60 minutes and questions asked participants about their media consumption habits, their knowledge of the AVC, and their decision regarding vaccination for their children (see Interview Guide, Appendix B). Informed consent was collected from all interview participants, and each interviewee was given a small compensation for her time. Interviews were

audio recorded and then transcribed by an independent transcriptionist. All quotes included in this paper are pulled from these transcripts verbatim. Quotes are coded parenthetically by vaccination decision. A list of codes designating vaccine decisions and brief descriptions of their meaning is included below:

V	vaccinates, meaning the mother elects to vaccinate her child(ren) according to the CDC recommended schedule
VR	vaccinates with reservations, meaning the mother elects to vaccinate her child(ren) according to the CDC schedule but also expresses reservations about her decision
DV	delayed vaccine, meaning the mother elects to vaccinate her child(ren) with all recommended vaccines but to adjust the timing for administering those vaccines, typically to lower the maximum number of vaccines received during any one visit
VE	vaccine exemption, meaning the mother elects to claim an exemption for her child(ren) for all, or nearly all, recommended vaccines
SV	selective vaccination, meaning the mother elects to vaccinate her child(ren) with some vaccines and claim an exemption for others
D/SV	delayed and selective vaccination, meaning the mother exempts out of certain vaccines and follows an alternative schedule for the vaccines she elects to give her child(ren)

I treat the interviews with these mothers as rhetorical artifacts, analyzing them for the *topoi,* or rhetorical commonplaces, that emerge. Given that these interviews rely on mothers' self-reporting, it is important to remember that such reports are suspect. As Kitta reminds us, "There is a distinction between what is believed and what people will admit they believe; someone could be either for or against vaccination, but may not acknowledge these beliefs."[25] A rhetorical perspective allows me to look beyond what respondents explicitly acknowledge or consciously understand about their attitudes toward vaccines to scrutinize the hermeneutical depth of their discourse. Through examining their expression of ideas and language choices for the terministic screens they create, I can analyze the beliefs that 'leak' out of the language they use.[26] Although the analysis starts by identifying influences on vaccination decisions, similar to

the work other scholars have done,[27] it moves beyond this to understand how the expression of those influences allows additional insight into how parents perceive vaccines. Ultimately, I examine the ways in which parents talk about vaccination decisions to identify opportunities for shifting the discourse away from the current discursive stalemate and opening up spaces for more productive discussion of vaccine policies and practices.

Two overarching observations emerged from my interviews. First, for all the focus in public discourse about the autism vaccine link, most respondents explicitly denied being concerned about that possibility. However, while most mothers felt they accepted that science had shown that no link existed, their language often indicated some lingering concern about the issue. Second, almost all the mothers I talked with, regardless of their vaccination decision, framed their decision making process as a calculation or weighing of options. In deciding whether to vaccinate or not, mothers considered the risks; however, they differed in their perception and prioritization of those risks, which led to very different actions. Despite differing risk perceptions and vaccination decisions, mothers exhibited similar means for finding information about parenting issues and centralized the issue of risk. These overlaps point to common ground that might operate as a productive starting point for deliberation about vaccination that moves beyond the issue of autism.

Deconstructing the Strawman

The vaccine-autism link is the most publicized and frequently discussed vaccine concern, and the one most easily recalled by parents.[28] However, the issue of vaccine-induced autism has become the strawman of the vaccine debate in modern America, operating as a simplistic stand in for a variety of parental concerns.[29] Continuing to fight vaccine hesitancy on the grounds that a

link has been disproven fails to acknowledge the ways in which such attitudes have expanded beyond a concern over vaccine-induced autism. More importantly, discourses that refute the idea of a link between vaccines and autism, while effective at correcting misinformation, fail to increase vaccine acceptance, as a recent study in *Pediatrics* demonstrated.[30] Researchers are not entirely sure why such messaging not only fails to persuade, but also has a kickback effect. Examining the discourse of mothers gives some insight into the specific ways in which they respond to such messages.

The mothers interviewed, by and large, explicitly claimed that the autism vaccine link was not a major influence on their vaccination decision. Among most interviewees who recalled something about the AVC, they also recalled media coverage refuting both the existence of a link and the reliability of the study supporting the vaccine-induced autism claim. Mothers electing to vaccinate in accordance with the CDC schedule dismissed the AVC as in any way relevant to their vaccination decision. More interestingly, most of the parents electing to follow a delayed vaccination schedule or exempt out of vaccines similarly dismissed the AVC as an influencing factor. These mothers referred to the idea of a link as an "antiquated notion" (D/SV_3), "pretty sketchy" (DV_4), and "hubabaloo" (DV_3). One mother claimed, "I think all the vaccination hype is phooey," even though she has a sister who believes vaccines were at least partly responsible for her son's autism diagnosis (DV_2). One mother, whose daughters had only received the diphtheria and tetanus vaccines, adamantly denied the autism issue having any influence on her decision to exempt out of most recommended vaccines (VE_1).

Only a few mothers explicitly acknowledged letting concerns about autism influence their thinking about vaccines. One mother, who believes her twin daughters had a reaction to their MMR shots, admitted she was nervous about autism specifically, but also nervous about the

potential side effects of the vaccines more generally (SV_1). Another mother recalled raising her concerns with her pediatrician: "She listened and, um, you know, she, she acknowledged that there, you know, there were studies that have been, um, that have been done and published there was a link that had now apparently been refuted" (V_2). Ultimately this mother's pediatrician reassured her by claiming she would vaccinate her own children. Nonetheless, the mother admits still feeling apprehension about the decision; her word choice similarly reveals her misgivings. Adding the qualifier "apparently" when talking about the study's refutation implies that this mother was not completely convinced by this claim, perhaps because the information came to her second-hand from the pediatrician.

Despite all the protests against being influenced by the AVC or claims of accepting that no link existed, as mothers continued to talk, their position on the issue would become more complex. Some mothers, who earlier in the interview claimed the AVC did not influence their decision, would later admit they are still unsure about the issue. One respondent claimed concern about vaccination was never a significant issue for her; while she opted to follow a delayed schedule, she considered herself to be very pro-vaccine. She clearly knew the current scientific stance on the AVC issue, but at the same time was not fully convinced. She stated, "All of my reading has, has led me to believe that there's no, no particular scientific evidence that's demonstrated an association, and that like a vast majority of the studies have disproved that association. But I also think that it's a topic that's very difficult to study scientifically. So I wouldn't say that I'm necessarily convinced that there isn't a link" (V/DV_1).[31] Despite knowing what the scientific record reflects, this mother remains uncertain, creating a conundrum. Further research likely would fail to persuade this individual (and others of similar thinking) to state with

100% certainty that there is no link, because for her the complexity of the question makes it difficult to answer scientifically.

One mother claimed she was not convinced that there was a link between vaccines and autism, but she "probably erred more on the side of caution" (D/SV_1). Here she frames her decision as a matter of operating under the precautionary principle, electing to be safe, *just in case*. Feeling the need to be cautious implies a lack of conviction regarding vaccine safety. The doubt subtly embedded within this comment gets confirmed later in the interview when this mother admitted that a concern about vaccines causing autism was a significant influence on her thinking about the issue: "It was really hard to choose, like, 'Oh my gosh, do I delay and possibly, like, get them sick, or do I shoot them full of potential poison and then they have, like, this issue the rest of their life?'" (D/SV_1). The earlier framing of her vaccination decision as being overly cautious gets re-framed here as a decision based on genuine concern about the effects the vaccines could have. Given that this mother has older children, she would have been making vaccine decisions when there was less publicity regarding the problems with the 1998 Wakefield et al. study, so it may have seemed like there was more uncertainty around the issue at that time. However, additional evidence has not been sufficient to fully persuade this mother. She admitted, "I'm glad I'm not having more babies . . . I guess I feel like lucky that I escaped it if—if that's actually the cause" (D/SV_1). Here the mother reveals her true feelings about the issue; by describing the situation as "escaping," her language betrays that despite her earlier claims, she does believe in the possibility of a link. Interestingly, while her children were the ones actually receiving the vaccinations and in her mind potentially at risk for developing autism, she is the one who escapes. The language reflects the responsibility mothers feel to not only make the 'right' decision for their children but also for bearing the burden of the outcomes

of those decisions. This mother 'escaped' being to blame for her children developing autism. This echoes research that argues parents are more willing to accepting harm from an act of omission rather than an act of commission.[32] After confessing how she really feels about this issue, the mother goes on to correct herself, qualifying her claim by adding, "if that's actually the cause." Here she returns to what she believes is the more socially accepted position on the issue. At the same time this mother still frames the issue as unsettled through her qualifier, "if," leaving open the possibility of vaccines as a cause of autism. This helps explain why her earlier comments denied being influenced by AVC discourse; it is likely she felt this was the right or expected response and thus filtered her response to align with this perspective even is she personally felt like the issue was not completely settled.

Other interviews contained similar moments when a mother's language revealed a deeper insight into her perspective on this issue. These flashes offer a peek behind the explicit position mothers took, revealing beliefs of which they themselves may not have been entirely aware. In several interviews these moments came from mothers admitting they decided the risk of autism was not as bad as the risk of vaccine preventable diseases (DV_4; V_7) or that they could deal with an autistic child, but not a deceased one (V_5). By framing the decision as a choice between contracting diseases or dying and getting autism, these mothers reveal embedded concerns about the possibility of a link between autism and vaccines, despite earlier protestations of not being influenced by such thoughts.

Some mothers revealed previously unacknowledged concerns about vaccine-induced autism when recounting moments of doubt that they felt. One mother, who saw herself as not influenced by arguments about a link between autism and vaccines, discussed how she felt pressured to get the flu vaccine when she was pregnant, explaining that eventually her caregiver

wore her down and she got the shot, despite her initial resistance. She admits, "I was feeling a little guilty afterwards of like, [in a concerned voice] '*If my child comes out and he's … autistic*,' [LAUGHING]— " (D/SV_2). In contrast to her earlier dismissal of claims that vaccines could cause autism, in this anecdote, this mother reveals she did have concerns about this association being possible. The mother ends by laughing off the idea, perhaps as an attempt to convey that she now thinks her fear was silly or to show that she understands that the official position is that there is not a link. Another mother recalls having a moment's pause at her daughter's 18-month visit (when they administer the MMR vaccine), worrying that perhaps she was "offering her up . . . for something that God, I hope it's the right thing to do" (V_1). The term "offering" not only reveals the sense of risk this mother perceived, but also invokes a sense of sacrifice. Given the word choice, this mother may have felt that she was vaccinating against her better judgment or that she was powerless in the scenario, being ruled by the medical establishment to make the sacrifice for the good of the community.

For other mothers, their comfort with their decision to vaccinate was qualified by the fact that nothing "happened" (D/SV_1; DV_1; V_1; VR_1). As one mother put it, "I, cringingly, am thankful that nothing went wrong" (VR_1). The addition of "cringingly" to her statement reveals the level of discomfort this mother feels about the decision, long after the decision was made and her children experienced no reaction.

Interestingly such moments occur across various vaccination decisions. Even mothers who consider themselves pro-vaccine and believe that the AVC had no influence on their decision-making process disclose, through their language, that their perspective is not so unequivocal. Although on a conscious level parents may believe that they do not buy into a link between vaccines and autism, on a subconscious level, the doubt introduced by Wakefield

promoting the 1998 *Lancet* article or McCarthy sharing her narrative about her mommy instinct may be influencing them in subtle ways. This conflict between what parents think they believe and what their language reflects about what they actually believe may be explained by "probability neglect," a risk perception error that leads to a tendency to fixate on worse case scenarios, even when the probability of those scenarios occurring is low.[33] Thus, for the same reason that individuals often express more fear over flying (with a lower probability of a crash) than driving a car, parents may fear the possibility of autism, even as they acknowledge that scientific research has shown the probability to be non-existent. The probability neglect perception error can be amplified with an issue like autism, given the current uncertainty around causes for the condition, since, as psychology of risk researcher Paul Slovic explained, "responses to uncertain situations appear to have an all or none characteristic that is sensitive to the possibility rather than the probability of strong positive or negative consequences, causing very small probabilities to carry great weight."[34] This helps explain, in part, why correcting vaccine misinformation does not necessarily result in increased commitment to vaccination.[35] Although the correct information may lead parents to acknowledge the unlikelihood of an adverse reaction to vaccination, the introduction of it as a possibility can entrench itself and influence the decision-making process.

Based on these interviews, many of the mothers who expressed concerns about vaccination do not connect those concerns to a fear of vaccine-induced autism. In fact many of them insist that the AVC issue did not influence them, whatsoever. Most of these mothers also knew that Wakefield's original study had been retracted because his data was unreliable or knew that no other study had been able to confirm a link. However, their language reveals that their feelings toward vaccination are more complex. Examination of parental discourse implies that

while expressing rejection of the AVC on a conscious level, at a deeper level, the doubt introduced by the controversy may still have a hold. Additionally, those mothers who admitted to being influenced at all by a concern about autism demonstrated through their comments that additional scientific evidence will not readily ameliorate those concerns. Focusing public health communication efforts on convincing people that vaccines do not cause autism fails to address the issues parents perceive as influencing their vaccination choices. Because any influence the AVC may have on parents seems to be operating implicitly, more scientific studies disproving the existence of a link and more media coverage of this research will likely fail to reduce expression of vaccine hesitancy since parents who acknowledge that they are concerned about the risks of vaccines do not think that they are concerned about the risk of vaccines causing autism.

Risk Assessment: Calculating the Lesser of Two Evils

While addressing anti-vaccination attitudes through disproving a link between vaccines and autism can be tempting because it is an issue nested squarely in the technical sphere, such campaigns fail to comprehend the grounds on which parents base their decisions. Outlooks on vaccines incorporate perception of both risks and benefits.[36] As Kitta noted in her research on vaccine attitudes, "Every vaccination decision is based not only on the information found in the decision making process, but also on the variety of risks the parents perceive. These risks vary and are often culturally based."[37] An individual's context and experiences can also influence vaccine perspectives, particularly in regards to assessing the risks associated with vaccination.[38] Thus, an important part of understanding parental decision-making processes regarding vaccination involves understanding their method for assessing the risks.

Risk assessments incorporate one's perception of both the likelihood of something happening and the severity of an event if it did occur.[39] In making a decision about vaccines, parents must weigh the likelihood of getting a disease if they do not vaccinate alongside the likelihood of their child having an adverse reaction if they do vaccinate. Additionally, parents must consider the severity of those events if they were to occur. However, Largent claims that among American parents there is a decreasing level of tolerance for accepting risks for their children.[40] Coupled with a decreasing tolerance for risk exposure, in the context of the ongoing vaccine debate, the likelihood and potential severity of an adverse reaction may seem much more prevalent than the diseases being vaccinated against. This activates what has been termed the "availability heuristic," or the inclination to determine risks based on how easily one can envision the proposed problematic outcomes.[41] Given contemporary public discourses about vaccination, many parents have no exposure to the diseases being vaccinated against but plenty of exposure to the anecdotal evidence of adverse vaccine reactions circulated by parents online and in interpersonal settings.[42] Thus, as Kitta stated, "it only stands to reason that parents are more afraid of what they see on an everyday basis. Childhood illnesses now seem exotic to parents, whereas the threat of conditions which have been linked to vaccination seem very real."[43] Additionally, since the benefits of vaccine are intangible and often delayed, [44] it can be difficult for parents to fairly assess them alongside the more visible and highly emotional testimonies proclaiming the risks.

Regardless of their ultimate decision, almost all interview participants explained their decision in terms of making a calculation or weighing the options, particularly of the risks involved. The language mothers often used to describe making choices about vaccination reveal both the uncertainty they felt and the lack of agency they experienced. Mothers referred to the

process as "weighing the options" (V_7), "going back and forth" (DV_2), "a numbers game" or "a gamble" (DV_4) and "chance." (SV_1). The word choice seems more appropriate for describing a trip to the roulette table in a casino rather than making a health decision, which reflects the futility these mothers felt around trying to make this choice. One mother explained, "I was doing a bunch of research on whether or not to vaccinate my child and, um, I remember feel—feeling a lot of fear . . . looking for information to help me make what I thought was the right decision" (VR_1). However for this mother, and others, their "research" did not neatly clarify the "right" decision. Rather it presented a dissonance of voices and perspectives, each with their own claims about the risks and benefits of immunization. As this mother further explained,

> There was a lot of information out there saying that the other compounds and chemicals and things included in vaccinations caused—could cause all these horrible reactions, autism included, or ADHD, or up to and including death, kind of information. And you, you know, when you have this perfect child and you're going to go subject him to something that not only, you know, in the moment makes them scream and cry because they're having a needle poked in them, but also, might have all of these other risks, you know, you have to make that decision to voluntarily subject them to something that, you don't know. And I'm completely trusting … in what? So I was looking for the what—what do I trust, who do I trust? (VR_1)

Perhaps as a result of all the conflicting information or perhaps because they felt like they were taking a gamble in making this choice, many mothers explained that ultimately making a decision came down to doing what they felt comfortable with (SV_1; V_8; DV_1; D/SV_2) or what their instinct or gut feeling told them to do (D/SV1; D/SV3).[45] As one mother told me, "It's obviously dumb to ignore science, but at the same time, you know, you have to do what's right

for you" (DV_1). Similar to this mother, others expressed a sense of not wanting to vaccinate just because their doctors told them too; instead, they wanted to research the issue themselves and make a decision for their family (V_2; DV_2; DV_4; VE_1; VE_2). While mothers expressed hesitation to embrace vaccination on their doctor's recommendation alone, that does not mean they approached the decision blindly. Even if mothers felt their decision ultimately came down to what they felt comfortable with instinctually, that instinct was still based on a calculation. Based on the *topoi* that emerged across the interviews, these calculations typically centered on consideration of diseases, environmental threats, and perceptions of their child's vulnerability.

Disease Prevalence

Mothers frequently contrasted the risk of their children becoming infected with vaccine-preventable diseases if they did not inoculate them with their perception of the risks associated with the vaccines themselves. Among mothers electing to follow the recommended vaccination schedule, the severity of the diseases being vaccinated against weighed heavily in their decision. As one mother noted, "the risk was almost worth the reward because otherwise you have stuff like polio, some of the horrible things coming back that we really don't want to see back . . . If there is a lesser of two evils, then the vaccination is it" (V_5). Several mothers specifically noted concerns about how easily diseases could remerge and spread, whether through travel or under-vaccination (V_4; V_5; V_8). For mothers electing to vaccinate, it was important to protect their children from unnecessarily experiencing these illnesses (V_1; V_2; V_3; V_7; SV_1; V/DV_1; VR_2). Concerns about these diseases outweighed any concerns about potential risks associated with vaccination.

Generally parents who supported vaccinating on schedule spoke of the risks posed by diseases generally, lumping all vaccine-preventable diseases together. Occasionally, however,

specific diseases were discussed. The individual diseases referenced most often by pro-vaccine parents were smallpox and polio. Since these diseases are often pointed to by technical experts as proving the success of vaccines in improving public health, it is not surprising that parents would offer them as examples as well in when explaining their position on the issue. These diseases would also be listed as reasons for why all parents should be getting their children vaccinated. As one mother explained, "I don't know how to prevent autism, but I know how to prevent my kid from getting smallpox" (V_7). However, smallpox is not among the diseases children are currently vaccinated for since smallpox is considered eradicated and few parents, if any, complain about vaccinating their child against polio. This disconnect between the diseases pro-vaccine parents point to as justifying immunization compliance and the diseases vaccine hesitant parents point to as raising questions about the need to immunize is explored in further detail below.

Articulations of the threat posed by diseases were especially prevalent among those with some type of public health or medicine background—whether in their own profession or through someone in their interpersonal network—or those with some type of experience with these diseases. For example, one mother explained that her commitment to vaccination came from having seen, through various travel experiences, what a lack of protection can do in communities (VR_2). This aligns with the availability heuristic; since these mothers could easily envision what it would be like if diseases like measles remerged as a serious threat to community health, it was easier to perceive that choosing to vaccinate their children offered more benefits than risks.

In contrast, mothers electing to delay or skip certain vaccines perceived more potential risks than benefits to vaccination. Several of these mothers revealed personal experiences that influenced this perception. One interviewee had a nephew with autism, which his mother linked to vaccination (DV_2). Other mothers had family members who had experienced reactions after

receiving certain vaccines, and one interviewee firmly believed that the flu vaccine killed her grandmother (D/SV_2; SV_1; VE_1). These experiences primed these mothers to envision the possibility of their children having adverse reactions to vaccines, creating hesitancy. Additionally experiential evidence of children who were fully vaccinated but often sick influenced skepticism about the effectiveness of vaccines, particularly if these parents knew children who received very few, if any, vaccines but seemed quite healthy (VE_1; VE_2). Despite their expressed concerns over the risks associated with vaccines, very few of these parents dismissed vaccine-preventable diseases as a non-concern. One mother, who elected to follow a delayed schedule and exempted out of a few vaccines, admitted that not vaccinating at all seemed crazy to her (D/SV_2). Thus, it was not that these parents ignored the risks posed by these diseases, but rather that they perceived more significant risks from vaccines.

While the mothers I interviewed did not dismiss the risk of diseases wholesale, they would dismiss or downplay the risks of certain diseases. In determining whether to administer individual vaccines, a parent considers the likelihood of exposure for her child as well as the severity of the disease. While strongly pro-vaccine parents would most frequently point to polio or smallpox as specific diseases providing justification for vaccination, parents expressing vaccine hesitancy tended to invoke different individual diseases to make their case. Hepatitis B, chicken pox, and the flu were most often discussed by parents trying to explain why they saw certain diseases as posing less of a threat than the possibility of a side effect from a vaccine. Often such claims focused on possibility for exposure to a disease. One mother explained her decision to exempt out of the Hepatitis B vaccine at birth by explaining, “I thought that was ridiculous, I’m like obviously no baby is having sex or getting shot up with drugs” (D/SV_1). For

this mother, the low likelihood of contracting the disease made receiving the vaccine seem like the higher risk at the time.

When mothers dismissed the necessity for certain vaccines, sometimes it was because the vaccines prevented an illness they themselves had previously experienced. Mothers questioning the necessity of the varicella (chickenpox) vaccine and the flu vaccine most often voiced this position, because they saw those illnesses as relatively mild and easily handled. Their first-hand experiences with these illnesses led them to see these diseases as a nuisance perhaps, but ultimately treatable. One mother explained why she as well as two of her friends exempted out of the varicella vaccine: "Everybody had chicken pox when they were kids, and we didn't feel like it was the end of the world, and none of us would be that put out if we had to miss a week of work" (D/SV_3). Another mother explained she felt comfortable skipping the rotavirus vaccine since it could be treated with antibiotics (D/SV_2). Additionally some mothers felt that some exposure to germs was beneficial for their children and could actually strengthen their immune system more than the artificially-induced immunity created by vaccines. As one mother said, "What's wrong with having the flu once a year?" (DV_2). For these mothers the severity of the diseases (and their associated risks) seemed mild and easily addressed by the current medical system. Additionally these mothers acknowledged the importance of developing immunity, but perceived naturally-acquired immunity through exposure to diseases as more robust than immunity induced artificially.

Based on these mothers' comments, one's assessment of the risk associated with vaccination depended on one's perception of the diseases themselves as well as the possibility for an adverse reaction to the vaccine. Both the likelihood of occurrence (either getting a particular disease or having an adverse reaction) and severity of an occurrence (ranging from

mild to debilitating for both diseases and vaccination reactions) influenced one's decision about whether to have a child vaccinated or not. Personal experience and exposure often influenced the ultimate decision mothers made.

Regardless of the final decision made, mothers made disease a central focus of their deliberation. When mothers granted greater credence to the risks of diseases than the risks of vaccination, they chose to immunize their children. As one mother noted "Some of those diseases, um, are so much more terrible than some of the potential risks . . . . I was afraid to get him vaccinated. In the end, I ended up being more afraid not to get him vaccinated" (VR_1). Rather than arguing that vaccines do not cause autism, a more productive response to vaccine hesitancy may be to highlight the risks that vaccine-preventable diseases entail. If parents' assessments of risks operate via the availability heuristic, raising awareness of the potential harm that could come from contracting these diseases as well as the speed with which they can spread across a community is necessary to make parents more fully aware of the risks associated with these diseases that are no longer a prevalent feature in contemporary life. However, these perspectives draw attention to the fact that vaccination may not be an across-the-board decision for all mothers; thus, to talk about vaccination wholesale ignores the rhetorical situation one faces. While polio may prove the success of vaccines, not all diseases are equivalent, nor are their risks. Using polio as a synecdoche for all vaccine-preventable diseases creates a message that can seem disingenuous to parents who perceive some vaccines as less essential since the diseases they prevent are ones these parents survived or perceive as relatively mild.

Additionally, perceptions that contracting certain diseases would be a nuisance at worst reflects a high level of confidence in the medical system to treat these illnesses when they do occur. Therefore, any messaging that aims to underscore the dangers of these diseases should

also address treatment limitations. In particular, communication should mention the potential for doctors to misdiagnose certain diseases because they have become less prevalent (thanks in large part to high vaccination rates). As a result, certain illnesses may not be identified as quickly by young medical practitioners who have never encountered them outside of a textbook.[46]

Environmental Influences

One's environment also played a significant role in assessments of risk related to vaccination, but environment could persuade parents of a need to vaccinate or be used as a reason for viewing vaccines as non-essential. When parents perceived their children's environment to be relatively healthy or low risk, this might push them toward being less committed to vaccination. Several mothers justified their comfort in following a delayed schedule with explanations that their child was breastfed or not in day care (D/SV_2; DV_4). One mother explained her decision to follow a delayed schedule as such:

> I guess logically at that time I thought, well, there haven't really been that many cases of that [measles, mumps, or rubella], so logically it probably, you know, wouldn't hurt—and I mean we weren't traveling to any third world countries or anything that had that, so um, that's how I—I mean I would say that I probably like logically weighed out the pros and cons . . . as a parent now, like if I had a baby, I probably would say, 'Oh, we should probably definitely vaccinate for that [pertussis],' like, on time, just because it's more prevalent (D/SV_1).

For this mother, the perceived lower risk of disease when she was making vaccination choices allowed her to feel comfortable vaccinating at a slower pace; however, a change in the environment that made exposure to certain diseases more likely would have resulted in a different decision. Similarly, one mother who planned to not get any vaccines for her son

acknowledged that she would have them administered if needed for school or travelling (VE_2). Thus, for some mothers, perceiving little threat in their local environment provided justification for following an alternative vaccination schedule, but like the mother above, a calculation was made (and remade) rather than a choice being blindly followed.

More contagious environments might influence one to lean toward vaccination though. One mother I interviewed was required to vaccinate her children because they were adopted through Social Services; however, during the interview she made several comments that hinted at her feeling some reservations. When asked if she would vaccinate if she were not required to do so, this mother ultimately decided that she would, mainly because her family lived in an area with higher vaccine exemptions rates, and thus higher risks for contracting vaccine-preventable diseases (DV_2). Other mothers similarly named high exemption rates or outbreaks of contagious diseases in their area as influencing their decision to vaccinate (V_2; V_3; V_4; V_7). Another mother living in a major city in the Midwest explained that her decision to vaccinate was based on the risks posed by her surroundings. Since her family often used public transit and they were exposed to people who may not have been vaccinated for various reasons, she felt it was important to protect her children from whatever diseases she could (V_8). However, this same mother confessed that if she moved away from the city, she would likely follow a delayed schedule for any future children; thus, a change in environment meant a change in her risk assessment and ultimately a change in her vaccination decision.

Given the influence environment has on risk assessments, tailoring messaging to address the specific risks in one's immediate context might prove effective in increasing vaccination uptake, particularly in areas experiencing disease outbreaks. However, of those who recognized a heightened risk for infection in their environment, some still selected a delayed schedule. While

their environment led them to feel vaccination was important, this was balanced by concern for protecting their baby.

Vulnerability

Largent pointed out that concerns about the number of vaccines represent a prevalent issue in the current vaccine debate.[47] This was a consistent theme within mothers' discussions of their risk assessments; however, their concern about the vaccine schedule was not regarding the absolute number of vaccines but the number of vaccines in relation to the perceived vulnerability of their children. Thus, it was not the overall number of vaccines that children received that induced hesitancy, but the number of vaccines administered at any one visit that gave parents pause. Perceptions of vulnerability were frequently expressed through comments about the size of the child. One mother stated, "I just looked at these tiny little infants and their little bodies. I'm like how can you give them like, you know, four to six shots at one time? Like it just seemed like the chance for like, you know, a reaction" (D/SV_2). Another claimed, "some visits your kid was scheduled to get like five shots, and that just seems like a lot of poison to shoot into a little tiny baby at one time" (DV_1). Other mothers questioned the wisdom of giving so many shots in one visit. One explained, "I'm just not necessarily like up for shooting up, you know, a three month old baby full of stuff." (D/SV_1). Sometimes this logic was invoked as an explanation for the schedule used. For example, one mother noted that she "tried to only do one poke per visit so that there wasn't a flood" (DV_4). Another commented "I don't want to overload them with seven vaccinations in one . . . sitting. Cause they're tiny. They're little bitty people and we're putting all these chemicals in them, and I don't know that they do or don't do anything" (DV_2).

Such comments relay the protective stance mothers bring to this decision-making process. While scientists may hope for such decisions to be made based on technical information,

these decisions inevitably involve emotional components. Expressions about the small size of their babies' bodies relate to a larger issue of perceived vulnerability. References to vaccinations as flooding or overwhelming their children's bodies reveal that these mothers perceive a saturation point after which the immune system becomes ineffective. As one mother noted, while there may not be scientific evidence to back up such a position, this conclusion seemed like common sense. Attempts to convince mothers that their child's immune system is stronger than they think might have limited effect because of the force of this common sense appeal. However, it may be possible to use the perception of vulnerability to move mothers to support vaccination. One mother I interviewed relied on the same logic of needing to protect her vulnerable, tiny baby but saw vaccines as a means of providing that protection rather than a threat to it: "I understand the, the fear, but the kids are at their most vulnerable when they're young. Um, and they're tiny and they can't fight off anything and, I just think if we're, if we're gonna try and instill a line of defense in them, we need to do it when they're most at risk and most unable to be helped if they end up in the hospital with something dangerous" (V_5). Those hoping to shift the debate in favor of vaccine acceptance might productively use perceptions of vulnerability to promote their position. Such a tactic may be most productive in conjunction with efforts to highlight the risks associated with those diseases being vaccinated against.

Attempts to reframe a baby's vulnerability as a reason to vaccinate must be accompanied by attempts to reframe vaccines. The language parents use to refer to vaccines reflects another level of concern about how they work. Referring to administering vaccines as "shooting up" invokes a drug use connotation that is highly problematic in the context of discussing a health practice for children. Through the comparison, the parent presents vaccination as problematic without having to explicitly make that argument. Using the terms "poison" or "chemicals" as if

synonymous with vaccines conveys that parents see this treatment as far from benign. While not as inherently negative as poison or chemicals, using the term "stuff" to refer to vaccines still carries a negative connotation, since the term conveys the mother's uncertainty about what, exactly, vaccines contain or how they work. While such language might be expected from parents expressing vaccine hesitancy, even mothers who consider themselves pro-vaccine occasionally resort to terminology that exposes some misgivings about this product. The language used by parents demonstrates the negative framing that gets activated when thinking about vaccination. Poison is seen as a foreign substance that harms health. Chemicals, while not inherently toxic, often carry a connotation of inducing harmful effects. This language reveals that parents think about vaccines as an assault. This understanding of vaccines likely results from explanations offered regarding how vaccines work. Such explanations typically relay that vaccines work by introducing weakened disease germs in order to elicit an attack by the immune system.[48] While the "invasion" created by the vaccines ultimately works to strengthen one's immune defenses, talking about vaccines in this way may have aided in creating overtones of aggression around vaccines. In contrast, the mother who views vaccines as a means of protecting her vulnerable child frames them as a treatment that works with her son rather than against him, becoming a part of his "line of defense," and operating as a means of enforcement rather than as an agent of attack. Vaccine discourses must attend to the frames activated not only in advocacy discourse promoting vaccination but also in educational discourses explaining how they work.

Changing the "Debate"

Responses to anti-vaccine and vaccine hesitant positions have to move beyond strawman arguments. When critics portray anti-vaxxers as a unified group and claim that their resistance is

based on nothing more than a misinformed belief that vaccines cause autism,[49] they are as much to blame for the stalemate in public discourse around this issue as those expressing anti-vaccine sentiments. Continuing to respond to vaccine resistance by repeatedly and emphatically declaring that vaccines do not cause autism has become an exercise in futility if one's goal is to increase vaccine uptake.[50] The reasons for this are two fold. First, based on the mothers I interviewed, while a concern about autism may influence one's feelings about vaccines, it probably does so on a subconscious level that parents may not recognize. This could be because with the ongoing publicity denouncing the possibility of a link, parents believe that they accept the science (or at least may think that saying they do is the more socially acceptable answer), but on a more fundamental level, doubt remains. Parents hearing further debunking claims may ignore such appeals, thinking they do not apply to them, since they already 'know' that vaccines are not linked to autism. Secondly, responses focusing solely on the autism issue fail to address the myriad of other concerns parents voice, such as the number of shots administered in one visit.

Public commentary on the vaccine issue tends to frame parents who express concern about or resistance to vaccination as misinformed, irrational, or overly emotional.[51] Additionally, trends in risk communication lean toward treating rejection of technical risk analysis as an effect of an information deficit.[52] However, as evidenced by the above analysis, mothers are not making vaccination decisions haphazardly. Rather, most approach the decision as a risk assessment, considering the possibilities of their child experiencing an adverse reaction alongside the likelihood of their child contracting the diseases vaccines prevent. Other research has confirmed that parents understand the risks surrounding vaccination choices.[53] In fact, one study found that on a series of questions meant to gauge knowledge about vaccines and the diseases they prevent, mothers following a delayed schedule gave the highest number of correct responses while

mothers accepting vaccination had the fewest number of correct responses.[54] Such findings demonstrate something similar to what I discovered over the course of these interviews, that mothers are making decisions to delay or skip vaccines purposefully, taking the time to research their choices and educate themselves, perhaps more so than those parents who just go along with their pediatrician's recommendation. Addressing vaccine hesitancy with more information will have limited efficacy in inducing compliance with the CDC-recommended schedule since vaccine-hesitant parents already have a fair amount of accurate knowledge on this topic. Additionally, it may be the case that more information may lead to increased uncertainty. The issue, then, is not providing more information, but rather providing parents with the right information that addresses their concerns and helps them understand the consequences of their choices. Although parents choosing to vaccinate as recommended and parents choosing to follow an alternative schedule articulated different reasoning for their vaccination decision, common ground existed. *Topoi* that emerged from their discourse reveal that mothers focused their risk assessments on perceptions of diseases, environmental threats, and the vulnerability of their children. These common themes point to discursive openings for moving the discussion beyond disproving a link between vaccines and autism.

Shift the frame

Based on the ways in which these mothers talked about vaccines, this medical technology activates a negative framing. Anti-vaccine discourses that focus on listing all the harmful ingredients contained in vaccines, no matter how small the amount, encourage perceptions of vaccines as unnatural, a concoction of chemicals, or at the extreme, as poison. Health education messages that describe vaccines as injections of weakened viruses that activate an attack by the immune system further frame vaccines as invasive and aggressive. When mothers refer to

vaccination as "shooting up," invoking language more commonly used in describing drug use practices, it becomes clear that these negative framings have become embedded with how parents understand this health practice. In conjunction with perceptions of their children as vulnerable and needing protection from potentially harmful substances (like those contained in vaccines), it is not surprising that vaccine hesitancy seems to be spreading. However, if discourses shifted from framing vaccines as invasive injections of germs to medical aids or supplements that helps compensate for a child's vulnerability, a shift from vaccine hesitancy to vaccine acceptance might be possible.

Localize the issue

Given the attention mothers paid to the likelihood of their children contracting diseases and the environmental threats their children faced, one means for better addressing vaccine hesitancy concerns is to localize vaccine promotion messaging. As McMurray et al. noted, "The vaccination message is failing to get through, not because it is not being said often enough or clearly enough (although this is an issue at second dose [of MMR]), but because the information provided is not being integrated into parents' pre-existing experience and understanding."[55] Public health operates at the population level, but parents must make vaccine decisions for their individual child. Messages that speak about the benefits of vaccination universally miss opportunities to adapt the message to the audience and the rhetorical situation faced. In particular, attention to the risks faced in one's immediate environment offers a means of adjusting appeals to maximize persuasiveness. As several of the mothers I interviewed discussed, a change in environment would impact their vaccination decision, and as a disease became more prevalent in their local community, they perceived an increase in the benefit of vaccinating. Thus, preventable disease outbreaks provide *kairotic* moments for effectively framing the

necessity of vaccination, but the general conditions of one's environment might also be effectively used. In highly populated areas, like major cities or popular travel destinations, messaging can highlight the increased likelihood of exposure to diseases that vaccines can prevent. In the U.S. at the national and state level, vaccination rates remain high,[56] but pockets within the larger population with higher rates of exemption create highly vulnerable communities. Rather than constructing broad messages to appeal to all parents, efforts could be focused on these specific areas, which will also help maximize resource efficiency. As other scholars have noted, risks are not abstract for citizens but rather very real components of their material existence.[57] Messages that reflect awareness of local conditions should be more effective at gaining attention and influencing behavior.

Highlight acceptance rather than hype exemption

Media coverage that continually features anti-vaxxers, particularly celebrities, or declares there are increasing numbers of vaccine exemptions may inadvertently encourage parents to question vaccines. Risk perception scholar Dan Kahan noted, "People tend to contribute voluntarily to public goods—such as herd immunity—when they believe that others are doing so but refrain when they perceive widespread free-riding. Thus, misleadingly implying that increasing numbers of parents are fearfully refusing vaccination could create exactly such fear and resistance."[58] Not only is such coverage problematic for the fact that it might create a self-fulfilling prophecy, it also misrepresents the reality. Although vaccine resistance attitudes have received frequent media coverage in recent years, overall vaccination rates remain high in the U.S.[59] Thus, public commentary would do better to focus more heavily on the vast number of parents choosing vaccination as opposed to emphasizing the choice of the minority. Coverage should also be careful to not imbue the anti-vaccine movement with more strength through

framing and word choice. For example, a recent article on a measles outbreak in California, declared, in the subtitle, "The campaign to have parents immunize their children has run up against a 'vigorous anti-vaccine movement' that has taken root across the country."[60] Referring to the movement as "vigorous" and claiming that it "has taken root" makes anti-vaccination sentiment seem more widespread and popular than it is in reality. While many of those with adamantly anti-vaccine attitudes are quite vociferous, particularly those with access to mainstream outlets in the public sphere, they are also limited in number. Rather than amplifying anti-vaccine voices, media coverage can help parents better assess the vaccine issue by more accurately portraying the popularity of vaccine acceptance.

Dialogue, not dictation

Several of the mothers I interviewed expressed resistance to vaccinating simply because they were told to do so; rather, mothers wanted to be involved in the decision-making process. In examining the ways in which these mothers talk about their decisions and their experiences, it is clear that the "one size fits all" approach is more off-putting than helpful. One mother explained, "You feel like your doctor should be customizing—customizing more toward your situation or your child's situation instead of saying all children at this age always have to have this. It just seems crazy to me" (D/SV_3). Other mothers expressed frustrations about being "funneled into this schedule," (DV_1) "pushed into getting vaccines" (D/SV_2), or feeling like they were on a factory line (SV_1). Many of them expressed recognition and appreciation for what vaccines have accomplished while simultaneously expressing concerns about the possible risks for their child. Frustration comes when medical practitioners refuse to recognize the reasons for those concerns. As one mother explained, "I want to vaccinate, but I want doctors to have that conversation with me . . . it would be fine if they say, 'We just don't know.' . . . or, 'Oh, you have concerns

because of this,' like acknowledge that I'm not some crazy psycho" (SV_1). Medical practitioners as technical experts can play an important role in influencing decisions about medical treatments, but only if they recognize the rhetorical situation they face.

Parents are not a passive audience waiting for a prescription to be handed down; rather they view themselves as active participants in their child's healthcare. In responding to expressions of vaccine hesitancy, the tendency to approach communication as a matter of sharing more information needs to be disrupted. If experts want their technical knowledge to be heard, it must be shared in the context of open dialogue that acknowledges the complex process of risk assessment that parents employ. As McMurray et al. argued, "Parents need to be seen as partners in a learning enterprise, rather than passive receptors or empty cognitive vessels waiting to be filled. Considered thus, the challenge becomes one of managing information exchanges so as to collaboratively transform, rather than coercively supplant, existing parent knowledge."[61] Changing traditional modes of communicating can help shift vaccine discourse out of the stalemate.[62] Rather than dictating to parents what they should do, attempts should be made to create dialogue and deliberation that legitimately addresses the range of concerns parents express around this issue.

The doctor's office offers one potential space for changing the course of communication from dictation to dialogue. In a study of qualitative interviews with new mothers, researchers found that trust of one's medical practitioner played a significant role in vaccine decisions, more so than whether their practitioner had accurate technical knowledge about vaccination.[63] A more recent study found that during office visits, when providers reiterated their recommendation for vaccination after initial resistance from a patient, about half the time the patient would elect to receive the recommended vaccine(s).[64] Clearly patient—provider interactions play a meaningful

role in shaping attitudes toward and decisions about vaccination, but too often these interactions leave mothers feeling dismissed or hurried along.

A critical rhetorical approach can help scholars develop a more robust understanding of reasons for vaccine hesitancy. However, scholars studying this issue should not be the only ones to consider a critical rhetoric approach. Medical providers must recognize that they are rhetors as much as they are practitioners of medicine. Rhetorical scholars Grabill and Simmons asserted, "By contextualizing risk, a critical rhetoric counters the tendency to develop 'scientific' and universal models of assessment and communication that treat risk algorithmically and audiences as universal, rational, and therefore silent."[65] In other words, such an approach contextualizes communication for a targeted audience, working within the opportunities and constraints of a given rhetorical situation. To be successful in addressing parental concerns about vaccination, medical practitioners must understand their audience and adapt to the particular case. Nowhere may this be more needed than in responding to parents expressing concerns about vaccines. Such a rhetorical approach may mean increasing the time practitioners spend with patients answering questions or for establishing positions dedicated to offering vaccine counseling. In making such changes, medical providers will be well served by collaborating with rhetorical scholars who can provide guidance and insight on the discursive opportunities that exist for connecting with parents and influencing their decision-making process in productive ways.

Conclusion

A rhetorical examination of how parents talk about vaccines reveals reasons for hesitancy that may not be readily ascertained from cursory examination of such statements. By looking beyond what parents say to how they say it, new insight is gained regarding the formation of

vaccine attitudes. Paying attention to features like language choice uncovers deeply rooted feelings and beliefs that parents might not be consciously aware of but that influence vaccination decisions nonetheless. Based on these interviews, mothers who admit having concerns about vaccines do not link those concerns to the AVC. In fact some of them insist that they were not concerned about that issue whatsoever or claim that they do not remember much about it. Despite that, their language implied that concerns about autism might be influencing them in subtle ways; however, since this influence goes unrecognized by parents, trying to continually and solely respond by dismissing the idea of vaccine-induced autism misses an opportunity to genuinely address parental concerns and encourage vaccine acceptance. A rhetorical reading of discourses about vaccine choices offers a way out of this conundrum. By revealing common themes or *topoi* that occurred in parental discourses about vaccine decisions, this analysis identified several discursive openings for constructing vaccine messages that better address how parents approach this decision.

The mother who admitted feeling a lot of fear when trying to make a decision about vaccines recalled a trusted friend influencing her decision to ultimately vaccinate. She remarked, "I respected her opinion, because I think that she accepted that it was a calculated risk, that um, there were some unknowns, um, but in the long run, um, it was better, the risks were, were probably less to go ahead and get them vaccinated than to not" (VR_1). Although not every mother referred to her decision explicitly as a "calculated risk," all mothers expressed some process of evaluating the risks of vaccinating versus not vaccinating. Discourses that acknowledge the vaccination decision as one of weighing options, rather than a foregone conclusion, may better appeal to parents faced with this choice.

While mothers made risk calculations a part of their decision-making process, they attended to individual risks rather than community risks. Highlighting the individual risks associated with under-vaccination (i.e. the risks of contracting preventable diseases) offers a new approach to the debate that moves away from the autism issue. Raising awareness of disease risk can also increase cognizance of how individual decisions about vaccination impact public health. However, if parents continue to view these diseases as a nonissue, either because they believe the probability of exposure is low or the severity of these diseases is mild, persuading parents to vaccinate for the sake of others will remain an ineffective tactic. As Kitta noted, "For a harm-to-others argument to be effective, one must accept that there is a risk involved. If there is not perceived risk, then there is no chance of harm."[66] Grounding discourses in the conditions of the local environment offers promise for increasing awareness of the risks and improving the persuasive force of an appeal to contribute to community protection since such discourses can more realistically address the specific risks faced by the target audience. However, the severity of diseases or likelihood of exposure should not be over exaggerated, as reliance on fear appeals can paralyze response or entrench resistance, rather than induce action.[67] Additionally, using a parent's awareness of his or her child's vulnerability as an argument for the necessity of vaccines may help increase vaccination uptake. Reframing vaccines as medicine or health aids that supplement a child's immune system and reduce vulnerability may help parents more readily recognize the benefits of this health practice rather than focus on the risks. Understanding the major influences on parents' risk perceptions, such as the severity of diseases, the risk of exposure in one's environment, or the concern about a child's vulnerability can allow for targeted messaging that addresses parents' fears and allows them to better assess the situation. Such discourses should help parents feel that they are making an informed decision that

minimizes potential harm to their child rather than taking a gamble and hoping their luck holds out.

---

[1] Andrea Kitta, *Vaccinations and Public Concern in History: Legend, Rumor, and Risk Perception*, Routledge Studies in the History of Science, Technology, and Medicine (New York: Routledge, 2012).
[2] Mark A. Largent, *Vaccine: The Debate in Modern America* (Baltimore: Johns Hopkins University Press, 2012), 156.
[3] Geoboo Song, "Understanding Public Perceptions of Benefits and Risks of Childhood Vaccinations in the United States," *Risk Analysis* 34, no. 3 (March 1, 2014): 542–543, doi:10.1111/risa.12114.
[4] See, for example, Yamiche Alcindor, "Anti-Vaccine Movement Is Giving Diseases a 2nd Life," *USA Today*, April 6, 2014, online edition, http://www.usatoday.com/story/news/nation/2014/04/06/anti-vaccine-movement-is-giving-diseases-a-2nd-life/7007955/; Dana Dovey, "Immunization Rates For NYC Private Schools Among Lowest In The World," *Medical Daily*, April 1, 2014, http://www.medicaldaily.com/immunization-rates-nyc-private-schools-continue-plummet-experts-concerned-possible-measles-outbreak; Jocelyn Elders, "Religious Beliefs Are the Only Valid Reason," *The New York Times*, March 23, 2014, online edition; David Elliman and Helen Bedford, "What We Do In Britain," *The New York Times*, March 23, 2014, online edition; Kristen A. Feemster, "Eliminate Vaccine Exemptions," *The New York Times*, March 23, 2014, online edition; Meghan Holohan, "More than 20 Cases of Measles in California Due to 'Unvaccinated Children,'" Video online, *TODAY*, March 31, 2014, http://www.today.com/health/more-20-cases-measles-california-due-unvaccinated-children-2D79455508; Jennifer Margulis, "Parents Deserve to Have a Choice," *The New York Times*, March 23, 2014, online edition.
[5] See, for example, Editorial Board, "California Can't Afford to Cater to the Anti-Vaccination Crowd," *Los Angeles Times*, February 27, 2014, http://www.latimes.com/opinion/editorials/la-ed-measles-vaccination-20140227,0,547431.story#axzz2vFeuQLub; *Jenny McCarthy Is a Public Health Hazard*, 2014, http://www.youtube.com/watch?v=4Z6De19zT3w&feature=youtube_gdata_player; Brian Gresko, "Vaccinate Your Children! There Is a New Outbreak of Measles in NYC," *Babble.com*, April 3, 2014, http://www.babble.com/dad/vaccinate-your-children-there-is-a-new-outbreak-of-measles-in-nyc/; Jeffrey Kluger, "Anti-Vaccine Crusaders Are, As Always, Wrong," *Time*, April 2, 2014; Tom McKay, "When This Anti-Vaccine Image Went Viral, a Medical Expert Responded — and It Was Amazing," *PolicyMic*, March 25, 2013, http://www.policymic.com/articles/86075/when-this-anti-vaccine-image-went-viral-a-medical-expert-responded-and-it-was-amazing; Bruce Maiman, "Bruce Maiman: Opposed to Vaccinations? Welcome to the New Dark Ages," *The Sacramento Bee*, March 25, 2014, online edition, sec. Opinion, http://www.sacbee.com/2014/03/25/6264711/bruce-maiman-opposed-to-vaccinations.html; Times News Editorial Board, "Our View: Anti-Vaccination Freeloaders Endanger Us All," *Twin Falls Times-News*, January 10, 2014, sec. Opinion, http://magicvalley.com/news/opinion/editorial/our-view-anti-vaccination-freeloaders-endanger-us-all/article_ab1cc51e-79b4-11e3-a968-0019bb2963f4.html.
[6] Brendan Nyhan et al., "Effective Messages in Vaccine Promotion: A Randomized Trial," *Pediatrics*, March 3, 2014, peds.2013–2365, doi:10.1542/peds.2013-2365.
[7] Song, "Understanding Public Perceptions"; Kitta, *Vaccinations and Public Concern*.
[8] For an excellent overview of the development of vaccines and resistance to them, see Arthur Allen, *Vaccine: The Controversial Story of Medicine's Greatest Lifesaver* (New York: W.W. Norton & Company, 2007); Kitta, *Vaccinations and Public Concern*.
[9] Kitta, *Vaccinations and Public Concern*, 10–20.
[10] Largent, *Vaccine: The Debate*, 31; Seth Mnookin, *The Panic Virus: The True Story Behind the Vaccine-Autism Controversy* (New York: Simon & Schuster, 2012), 35–36.
[11] Louis Z. Cooper, Heidi J. Larson, and Samuel L. Katz, "Protecting Public Trust in Immunization," *Pediatrics* 122, no. 1 (July 1, 2008): 149–53, doi:10.1542/peds.2008-0987; Kitta, *Vaccinations and Public Concern*.
[12] David C. Burgess, Margaret A. Burgess, and Julie Leask, "The MMR Vaccination and Autism Controversy in United Kingdom 1998–2005: Inevitable Community Outrage or a Failure of Risk Communication?" *Vaccine* 24, no. 18 (May 1, 2006): 3921–28, doi:10.1016/j.vaccine.2006.02.033; Emma Engdahl and Rolf Lidskog, "Risk, Communication and Trust: Towards an Emotional Understanding of Trust," *Public Understanding of Science*, October 19, 2012, published online, doi:10.1177/0963662512460953; Jeffrey T. Grabill and W. Michele Simmons, "Toward a Critical Rhetoric of Risk Communication: Producing Citizens and the Role of Technical Communicators," *Technical Communication Quarterly* 7, no. 4 (1998): 415–41, doi:10.1080/10572259809364640;

Karin Gustafsson and Rolf Lidskog, "Acknowledging Risk, Trusting Expertise, and Coping With Uncertainty: Citizens' Deliberations on Spraying an Insect Population," *Society & Natural Resources* 25, no. 6 (2012): 587–601, doi:10.1080/08941920.2011.620598; Kitta, *Vaccinations and Public Concern*; Largent, *Vaccine: The Debate*; William Leiss and Douglas Alan Powell, *Mad Cows and Mother's Milk: The Perils of Poor Risk Communication* (Montreal; Ithaca: McGill-Queen's University Press, 2004); Alonzo Plough and Sheldon Krimskey, "The Emergence of Risk Communication Studies: Social and Political Context," *Science, Technology, & Human Values* 12, no. 3/4 (1987): 4–10.

[13] Plough and Krimskey, "The Emergence of Risk Communication."

[14] Kenneth C. Calman, "Communication of Risk: Choice, Consent, and Trust," *The Lancet* 360, no. 9327 (July 2002): 166–68, doi:10.1016/S0140-6736(02)09421-7; Engdahl and Lidskog, "Risk, Communication and Trust"; Grabill and Simmons, "Toward a Critical Rhetoric."

[15] Calman, "Communication of Risk," 167.

[16] Calman, "Communication of Risk."

[17] Engdahl and Lidskog, "Risk, Communication and Trust"; Grabill and Simmons, "Toward a Critical Rhetoric"; Dan M. Kahan, "A Risky Science Communication Environment for Vaccines," *Science* 342 (October 4, 2013): 53–54, doi:10.1126/science.1245724.

[18] Dan Kahan et al., "Fear of Democracy: A Cultural Evaluation of Sunstein on Risk: A Review of Laws of Fear: Beyond the Precautionary Principle (2005) by Cass R. Sunstein," in *The Feeling of Risk: New Perspectives on Risk Perception*, by Paul Slovic (London: Earthscan, 2010), 184. Emphasis in original.

[19] Kitta, *Vaccinations and Public Concern*, 2.

[20] Andrea L. Benin et al., "Qualitative Analysis of Mothers' Decision-Making About Vaccines for Infants: The Importance of Trust," *Pediatrics* 117, no. 5 (May 1, 2006): 1532–41, doi:10.1542/peds.2005-1728; Kitta, *Vaccinations and Public Concern*.

[21] Centers for Disease Control and Prevention, "Vaccines - Immunization Schedules for Children in Easy-to-Read Formats," *Centers for Disease Control and Prevention*, January 31, 2014, http://www.cdc.gov/vaccines/schedules/easy-to-read/child.html The current CDC schedule for children from birth to age 6 recommends 36 total shots, including seven doses of the flu vaccine starting as young as 6 months (with two doses given at least four weeks apart for the initial dose). These 36 shots include boosters to ensure immunity against 13 different diseases: Chicken pox, Diphtheria, Hib, Hepatitis A, Hepatitis B, Flu, Measles, Mumps, Pertussis (whooping cough), Polio, Pneumococcal, Rotavirus, Rubella, Tetanus.

[22] Kitta, *Vaccinations and Public Concern*.

[23] Song, "Understanding Public Perceptions."

[24] Plough and Krimskey, "The Emergence of Risk Communication," 8.

[25] Kitta, *Vaccinations and Public Concern*, 58.

[26] Kenneth Burke, *Language as Symbolic Action: Essays on Life, Literature, and Method* (Berkeley: University of California Press, 1966).

[27] Benin et al., "Qualitative Analysis of Mothers' Decision-Making"; Kitta, *Vaccinations and Public Concern*.

[28] Kitta, *Vaccinations and Public Concern*, 69.

[29] Largent, *Vaccine: The Debate*, 1.

[30] Nyhan et al., "Effective Messages in Vaccine Promotion."

[31] This mother followed the CDC recommended schedule for her first child but then elected to follow a delayed schedule with her second. It is interesting that despite the fact that her first child experienced no complications from vaccination, this mother became more cautious with her second child.

[32] Benin et al., "Qualitative Analysis of Mothers' Decision-Making," 1533; Largent, *Vaccine: The Debate*, 27.

[33] Kahan et al., "Fear of Democracy," 188.

[34] Paul Slovic et al., "Risk as Analysis and Risk as Feelings: Some Thoughts About Affect, Reason, Risk and Rationality," in *The Feeling of Risk: New Perspectives on Risk Perception*, by Paul Slovic (London: Earthscan, 2010), 32.

[35] Nyhan et al., "Effective Messages in Vaccine Promotion."

[36] Song, "Understanding Public Perceptions."

[37] Kitta, *Vaccinations and Public Concern*, 114.

[38] Gustafsson and Lidskog, "Acknowledging Risk," 595; Kitta, *Vaccinations and Public Concern*, 110; Robert McMurray et al., "Managing Controversy Through Consultation: A Qualitative Study of Communication and Trust Around MMR Vaccination Decisions," *British Journal of General Practice* 54, no. 504 (July 1, 2004): 522.

[39] Cornelia Betsch et al., "Opportunities and Challenges of Web 2.0 for Vaccination Decisions," *Vaccine* 30, no. 25 (May 28, 2012): 3727–33, doi:10.1016/j.vaccine.2012.02.025.
[40] Largent, *Vaccine: The Debate*, 29.
[41] Kahan et al., "Fear of Democracy," 188.
[42] Betsch et al., "Opportunities and Challenges," 3728; Cooper, Larson, and Katz, "Protecting Public Trust," 150.
[43] Kitta, *Vaccinations and Public Concern*, 102.
[44] Betsch et al., "Opportunities and Challenges."
[45] It is worth noting that this echoes McCarthy's own narrative about relying on her mommy instinct in dealing with Evan's autism. This helps explain the appeal her discourse would have among mothers who experienced something similar in making decisions for their own children.
[46] See, for example, Dovey, "Immunization Rates."
[47] Largent, *Vaccine: The Debate*.
[48] Centers for Disease Control and Prevention, "How Vaccines Prevent Diseases," *Centers for Disease Control and Prevention*, March 8, 2012, http://www.cdc.gov/vaccines/parents/vaccine-decision/prevent-diseases.html.
[49] See, for example, Kluger, "Anti-Vaccine Crusaders"; Times News Editorial Board, "Our View"; Maiman, "Opposed to"; Chris Mooney, "Study: You Can't Change an Anti-Vaxxer's Mind," *Mother Jones*, March 3, 2014, http://www.motherjones.com/environment/2014/02/vaccine-denial-psychology-backfire-effect.
[50] Nyhan et al., "Effective Messages in Vaccine Promotion."
[51] See, for example, Kluger, "Anti-Vaccine Crusaders"; Mooney, "Study: You Can't Change"; Times News Editorial Board, "Our View."
[52] Burgess, Burgess, and Leask, "The MMR Vaccination"; Calman, "Communication of Risk"; Engdahl and Lidskog, "Risk, Communication and Trust"; Grabill and Simmons, "Toward a Critical Rhetoric"; Gustafsson and Lidskog, "Acknowledging Risk"; Kitta, *Vaccinations and Public Concern*; Largent, *Vaccine: The Debate*; Plough and Krimskey, "The Emergence of Risk Communication."
[53] Benin et al., "Qualitative Analysis of Mothers' Decision-Making"; Kitta, *Vaccinations and Public Concern*, 114.
[54] Benin et al., "Qualitative Analysis of Mothers' Decision-Making," 1538.
[55] McMurray et al., "Managing Controversy," 524.
[56] Ria Misra, "Despite Anti-Vaxxer Rhetoric, Vaccination Rates Are Higher Than Ever," *io9*, January 27, 2014, http://io9.com/despite-anti-vaxxer-rhetoric-vaccination-rates-are-hig-1510028898.
[57] Engdahl and Lidskog, "Risk, Communication and Trust," 5; Kitta, *Vaccinations and Public Concern*, 114.
[58] Kahan, "A Risky Science," 54.
[59] Misra, "Despite Anti-Vaxxer."
[60] Paloma Esquivel, "O.C. Measles Outbreak Spurs Officials to Call for Immunizations," *Los Angeles Times*, April 4, 2014, http://www.latimes.com/local/la-me-measles-20140405,0,1525436.story#axzz2y4iC7ggi.
[61] McMurray et al., "Managing Controversy," 524.
[62] Cooper, Larson, and Katz, "Protecting Public Trust," 151.
[63] Benin et al., "Qualitative Analysis of Mothers' Decision-Making."
[64] Douglas J. Opel et al., "The Architecture of Provider-Parent Vaccine Discussions at Health Supervision Visits," *Pediatrics*, November 4, 2013, peds.2013–2037, doi:10.1542/peds.2013-2037.
[65] Grabill and Simmons, "Toward a Critical Rhetoric," 429.
[66] Kitta, *Vaccinations and Public Concern*, 106.
[67] Laura Johnson, "(Environmental) Rhetorics of Tempered Apocalypticism in An Inconvenient Truth," *Rhetoric Review* 28, no. 1 (2009): 30, doi:10.1080/07350190802540708; Nyhan et al., "Effective Messages in Vaccine Promotion."

Chapter 7

Lessons Learned: Unweaving the Rhetorical Dynamics of Expertise Amid Controversy

Since first emerging in the late 1990s, the topic of vaccine-induced autism has been featured in media headlines, vigorously debated on parenting discussion boards, and disproven by scientific researchers. Just when it seems like science might win out and the issue might finally die down, some new media maelstrom occurs that brings it right back into the spotlight (such as hiring outspoken advocate Jenny McCarthy as a new anchor on a network daytime talk show). The tenacity of the issue and its effect on vaccination uptake rates have left public health officials pondering how to persuade parents to believe the science, but as historian of science Mark Largent points out in his book *Vaccine: The Debate in Modern America*, sometimes "science is not enough."[1]

It is not surprising that science alone could not single-handedly dispel the autism vaccine controversy. First, the thought that science alone could resolve this issue falls into the trap of assuming a deficit model of public understanding; believing that if only parents better understood the safety or efficacy or necessity of vaccines, then they would make the "right" choice fails to take seriously the concerns parents voice and ignores the complex and often highly informed means by which parents weigh the risks and make a choice about vaccination. Indeed, folklorist Andrea Kitta argued that the ongoing conversation about vaccines in the public domain reflects a deep investment in these issues. As she noted, "The persistence of these narratives does not demonstrate public ignorance, but rather shows that the public is interested and involved in their own health care."[2]

Second, it should be clear given the previous pages that there is much more involved in the vaccine issue than the science behind it. The AVC may have started with a technical question: do vaccines induce autism? However, the debate has long since moved past a question that might easily be answered with scientific studies and empirical evidence. The focus on vaccine-induced autism has created a discursive stalemate. Continuing to have the conversation on these grounds promises that the controversy will continue in perpetuity, likely breeding resentment on both sides of the issue. While science has a role to play in the resolution of this science-based manufactured controversy, it will only be successful if assisted by attention to the values at play as well.

In addressing the vaccine issue there exists a significant gap between technical and cultural perspectives regarding when values enter into the conversation and which values are privileged. Public health takes a utilitarian approach; operating at the population level, it aims for policies that offer the greatest good to the greatest number of people. Given the relatively low risk vaccines pose and the widespread protection they can offer when utilized by enough people in the community, this technology serves public health purposes well. However, at the individual level, where parents must make decisions for their individual child, the utilitarian argument holds less appeal and the sense of risk may be amplified. As Largent commented, "None of the explanations commonly offered by the medical community adequately addresses the anxiety I feel vaccinating my daughter."[3] Messages that rely on the logic of public health may not be effective at building support among citizens for policies that they feel put community needs above their own personal rights, particularly in regards to accepting a medical technology that gets administered when one is healthy, making it harder to comprehend the necessity of it.

Largent argued, "We have to admit that the debates over mandatory vaccines and parents' anxieties about them are only partially about science and medicine. Much like recent debates over global climate change, stem cell research and the teaching of evolution in public schools, the modern American vaccine controversy is a cultural and political debate."[4] It is telling that Largent classifies the AVC as one of several issues where a strong scientific consensus exists but a minority voice insists that the issue remains unsettled. Such issues have been termed science-based manufactured controversies, and represent key moments of discursive struggle.[5] Such issues and the ongoing disputes around them generate concern and consternation because if the science is settled, why does the public debate rage on? Whether recognized or not, a principal element of these science-based manufactured controversies is a contest over the relationship between both the products and practices of the technical domain and the broader citizenry. If science and the experts professing it cannot sufficiently dispel concerns that arise about science, technology, and medicine—as is the case with science-based manufactured controversies—it raises questions about the role of expertise in our contemporary society.

Examining Expertise: Lessons Learned from Analyzing Expert Discourses

Despite the ease with which experts are referenced and discussed in the vernacular, the reality of expertise, as it is practiced in the world, is quite different from the convenient shorthand we use to treat the idea of experts and their specialized knowledge. Expertise must be socially constructed and discursively leveraged. As such, expertise is multi-faceted, highly complex, and constantly in flux. Indeed to talk of "expertise" glosses over this complexity. Rather, it is more accurate to talk of "expertises." Such a term better acknowledges the intricate and often hard won boundaries between different arenas of knowledge that, particularly within

the sciences, grow increasingly specialized and nuanced as the body of knowledge continually expands.

Previous work on expertise in the rhetoric of science has largely looked at what might be termed legitimate experts, individuals with the necessary qualifications and specialized knowledge to speak as authorities about a particular subject. Rhetorical critic Johanna E. Hartelius's work took on the significant task of tracing rhetorical similarities across specific domains of knowledge, identifying common rhetorical features that all experts employ.[6] Rhetorical scholar John Lyne and biologist Henry Howe examined E. O. Wilson's attempts to popularize sociobiology, tracing the ways in which Wilson stretched beyond the scope of his expertise in biology, and offered assessments of the problematic nature of such transdisciplinary rhetorics. Rhetorical critic Carolyn Miller attended to conflicts over whether electromagnetic fields (EMFs) could damage human health, examining the rhetorical struggle between physicists and biologists to lay claim to assessing the impact of EMFs.[7] In these cases, the expertise of the parties involved is valid, and the interest is in how rhetoric gets used to represent that expertise.

In contrast, in examining the rhetorical dynamics of expertise within the AVC, my interest has been in those rhetorical situations where one's claims to expertise are contested. This includes individuals claiming expertise without the necessary (or sufficient) qualifications but who work rhetorically to create acceptance of their claims to authority, but it also includes individuals who have legitimately achieved expert status but then abuse it and face censure from their peers. Examining a case that involves contestation over who has the right to speak and whose experiences are valid draws attention to the complexity of expertise and the ways in which it is defined and constrained (or enabled) by the context within which it must operate. By studying such discourses in connection with their reception, my aim has been to understand how

individuals gain a hearing as well as to identify possibilities for responding to their claims without devolving into "he said, she said" dichotomies or ad hominem attacks and strawman arguments.

Grounding Claims of Expertise

Although we often speak of science as a stand-alone entity, science cannot speak for itself. Experts frame the interpretations made and possible responses to the knowledge that emerges from the practices of science. Within the scientific enterprise, the right to speak for science is typically gained through successfully maneuvering of the peer review process to have one's research published as part of the official scientific record. To contribute to the collective pool of technical knowledge marks one as a scientific expert. To be published is to be validated, to gain access to the scientific *mythos* and the credibility such credentials evoke.[8] However, technical expertise, once granted, can be stretched beyond the epistemological grounds on which it stands, as Wakefield demonstrated at the press conference to publicize his research. Lyne and Howe showed that this could happen as experts begin to cross disciplinary boundaries or move from the domain of science to the public.[9] As I have shown through my examination of the Wakefield et al. article, it can be achieved, often in subtle ways initially, by utilizing the very language practices that one must employ to be accepted as an expert. While peer review can assess whether one deserves acceptance into the ranks of scientific experts, it cannot always predict what one will do with that authority once granted. Reading research with a technical sphere orientation can result in too narrow of an interpretation regarding the suggestions being offered. Since science does not exist in a vacuum, a key lesson to be learned from an examination of the AVC is that data is not the only product or even the most important product

of science. Rather, expertise is, since it represents the means by which the technical practices of the scientific enterprise interface with the public it works to serve.[10]

Internal Demarcation

Recognizing expertise as one of the products of science highlights the importance of internal demarcation discourses. Rhetorical attention to issues of demarcation has traditionally focused on the boundary work done to delineate science from pseudo or non-science.[11] However, while experts must speak for science, the interpretations one offers or the scope of one's area of specialty are not always self-evident. Internal demarcation represents a struggle over meaning and authority within the scientific enterprise. Such disputes offer central sites for constructing boundaries between specialties, defining methodological standards, and creating community. As important as such disputes are for upholding rigorous standards of proof and establishing arenas of expertise, such discussions are ill-suited for the public domain, where the content of expert communication is taken as a given, presumed to be proven and correct. Indeed, as argumentation scholar Christopher Tindale pointed out, once experts begin presenting their specialized knowledge to the public, audiences "are not concerned here with the appraisal of whether experts are correct—that is the job for experts themselves. We are concerned with deciding how expert testimony should be evaluated."[12] When scientific or technical information jumps into the public sphere (through presentation by an expert) before the larger community of experts has had an opportunity to determine the accuracy or significance of that data, problems arise. Practices, such as science by press conference, that bypass the checks created by internal demarcation discourses can plant the seeds for science-based manufactured controversies. If the information presented turns out to be incorrect (i.e. Wakefield's theory that the MMR vaccine could cause autism), before experts can catch the error, the incorrect information becomes entrenched among the

public. As the longevity of the AVC demonstrates, such misinformation can remain vibrantly alive in the public imagination long after the science corrects the knowledge under question.

Rhetorically Enhancing Expertise

Misinformation can experience a long half-life in public discourse because non-specialists are typically ill equipped to make assessments of the accuracy and validity of expert communication. Science and technology scholars Harry Collins and Robert Evans have argued that evaluations of experts require "downward discrimination."[13] This means that judgments of knowledge accuracy can only be conducted by those possessing more expertise than the person(s) being assessed.[14] The downward discrimination of expertise that Collins and Evans point out means that when experts communicate beyond the bounds of their area of specialty to non-specialists, the audiences addressed must locate others means beyond the factual accuracy of their message or the legitimacy of the authority claimed for evaluating these expert discourses. This creates discursive gaps that one might fill rhetorically in order to enhance one's appeals to credibility. This case study has revealed two resources for doing just that: utilizing style and emphasizing ethos.

Recognizing the rhetorical aspects of expertise requires that more serious attention be paid to the role of style. For the rhetorically savvy, style presents opportunities for enhancing one's appeals and embedding more certainty into the knowledge one shares. Wakefield's stylistic choices allowed him to successfully maneuver the peer review process in order to be published. The stylistic ambiguity interwoven into his 1998 *Lancet* article created the necessary foundation for his much broader public claims about the MMR vaccine while also serving as the grounds for his defense against accusations of claiming to prove a link between the vaccine and autism. In McCarthy's discourse, a compelling narrative was used to present the power of mommy instinct.

Her use of incrementum allowed her to rhetorically expand the scope of evidence supporting her position without having to address technical standards of proof. This stylistic device enabled her to turn her narrative into the story of all parents with autistic children, amplifying her perceived expertise and her unfounded claims about vaccines. As demonstrated by these two figures, style operates as an important aspect of expert discourses, not as an aesthetic flourish but as a means for constituting the authority that one claims.

Additionally, appeals to one's ethos exert a powerful pull in discourses of expertise since ethos is often the means by which non-specialists can make evaluations of those claiming to speak as an expert. Ethos appeals shift attention from accuracy of knowledge to credibility. Assessing credibility involves determining whether the expert has the means to know what she claims to know as well as the likelihood that she is being truthful. Arguing for one's credibility based on character can, realistically, allow for one to compensate for inadequate credentials. Both Wakefield and McCarthy emphasize their credibility, employing frequent claims about their virtue and goodwill. Both claim to be following the harder path, sharing a message that is not popular and that will invite censure, because it is for the greater good. Both plead their case by claiming they are merely listening to parents and speaking up for them. Both frame their cause as not for personal gain but for community benefit. Such appeals not only help construct a sympathetic figure but also underscore trustworthiness. In the absence of means to assess technical credentials or sufficiently evaluate the accuracy of the knowledge being offered, values serve as a substitute for determining which experts to trust and whose advice to follow. Particularly if one lacks sufficient credentials, stressing an interest in the greater good or a commitment to discovering the truth can be used to build support in order to be recognized as an expert, even while standing on shaky epistemological ground. Understanding how such appeals

are constructed rhetorically—as substitutes for credibility rather than supplements to legitimate grounds of expertise—can aid citizens' discriminatory power.

The Expertise of the Living

While science offers a significant source of expertise, it is not the only source. The epistemological authority science tends to hold in contemporary society means that often questions of expertise default to privileging technical knowledge. However, other sources of knowledge may effectively disrupt the dominance of such technical discourses to stake a claim for expertise. Science and technology scholar Brian Wynne traced the gaps in technical expertise for assessing long-term influences of environmental risks after Chernobyl.[15] He argued that government scientists would have benefited from dialoguing with the farmers in the area who possessed a store of local knowledge, cultivated over years of working the land in that area. Hartelius argued more generally for the contribution of experiential expertise, noting the important role the witness has come to play in building accounts of what really happened.[16] Such perspectives present experience-based expertise as based on long-term exposure, repeated practices, or access to limited events as offering specialized knowledge, similar to the ways in which technical expertise claims authority due to the acquirement of advanced knowledge in a particular area. Such claims to knowledge remain open to assessment by others and can be evaluated on grounds of relevance, length of exposure, scope of access or other criteria. However, McCarthy's enactments of expertise challenge in new ways the traditional hierarchy of expertise that places technical training and scientific credentials at the apex. Discourses that claim expertise based on bodily experiences that cannot be validated by outside sources, such as McCarthy's internal experiences related to her mommy instinct, offer a particularly disconcerting disruption to traditional notions of expertise. With the source of one's proclaimed knowledge so

integrally intertwined with personhood, responding to such claims of expertise quickly devolve into ad hominem attacks (or can be framed as such). Lived experience as a source of expertise holds significant cultural force. Discourses about experience-based expertise tend to rely on non-technical forms of communication, taking advantage of the power of narratives and appeals to common sense, allowing them to spread quickly and persuade many. When the warrant for those claims to expertise rely on a bodily experience that remains inaccessible for others to evaluate, the power of such discourses gets enhanced even further while leaving little room for responses that might effectively disrupt the authority the sources claim.

Evaluating Expertise: Lessons Learned from Examining Reception Discourses

Examining the rhetorical elements of an individual's claims to expertise can offer openings for responding. If someone gained status an as expert without what might be considered the appropriate credentials, it is important to realize that the person likely achieved that status rhetorically. To challenge a person's enactments of expertise requires understanding that his previous discourse makes up part of the rhetorical situation being faced.

Responses grounded in epistemological and methodological criteria will likely have a limited effect on disrupting a person's claims of expertise, especially if directed to nonspecialists. Means of successfully managing internal demarcation issues in a technical context will fail in the public realm. Careful qualifications of the scope of another's expertise or critiques emphasizing the limitations of that person's knowledge may do little to limit the authority that personal claims. As shown by media coverage of the Wakefield press conference, experts are often treated as interchangeable. The equalization of experts into broad categories of recognized specialized knowledge (i.e., doctors, researchers) in these media discourses show an accommodation of expertise that further reduces the accuracy of popular discourses about

science. For non-technical audiences, expertise is expertise and such nuances may not carry enough significance to limit unauthorized claims of expertise.

A different challenge is created when responding to claims of experience-based expertise. Technical expertise tends to be based on technical rationality and specialist credentials. These two forms of expertise approach an issue at different levels of scale. Lived experience tends to be highly personal and individualized whereas the whole purpose of technical rationality is to remove that aspect and avoid the subjectivity it involves. Pitting technical and lived experience against one another ignores these fundamental differences, and in all likelihood, rather than resolving the issue, will only further entrench it. Claims grounded in one's bodily experience will be particularly difficult to challenge through appeals to disembodied data and abstractions.

Beyond responding to individual enactments of expertise, studying reception around a topic where it seems the advice of experts is being ignored can grant insight into the complex array of influences that shape how expert discourses are understood and then applied in individual scenarios. It can also reveal opportunities for using rhetoric to adapt information to the worldviews of the targeted audiences. As learned from the mothers interviewed for this study, approaching expertise as dictation does not work. Several mothers expressed an internal conflict; while they wanted to rely on experts, they did not want to give up their agency to do so. Perhaps the first step is to understand that a failure to follow expert advice does not mean that one is either behaving irrational or acting ignorantly. In these interviews mothers articulated often complex evaluations regarding their vaccination decisions that weighed a variety of information and responded to a number of social influences. As political scientist Frank Fischer insightfully observed, "It may be the case the kinds of decisions dealt with in the everyday world cannot be proven with the kind of rationality demanded by science, but to judge them then as irrational is to

misunderstand how social reason functions."[17] In the context of medical decisions, the personal stakes can feel particularly high and reluctance to blindly accept expert opinion may be even greater.

The Importance of Trust

A key concept underlying the entire issue of expertise that has not yet been explicitly addressed is trust. For non-specialists, to believe the information an expert offers or follow the advice a specialist gives requires trust. This fundamental aspect of the relationship between experts and their audience holds true whether relying on a car mechanic to diagnose engine trouble, a member of the Geek Squad to revive a nonresponsive computer, or a pediatrician to administer safe and effective treatment to a child. Whether people embrace vaccinations or express apprehension about them, they get there by the same means: by gauging their trust in the various sources they encounter. The difference lies in the results of their assessments. Those eschewing McCarthy's perspective do so because they do not trust her, in much the same way that parents expressing vaccine hesitancy express concerns about fully trusting the medical enterprise. As Kenneth C. Calman, former Chief Medical Officer of both Scotland and England, observed, "The public has rightly become more critical of those who make decisions on their behalf. The media and electronic communication networks bring difficulties to the attention of the public more rapidly than previously. The public is also more suspicious of science, and aware of its limitations. People want to be included in decision-making, not just told what to do, and the level of trust has fallen."[18] More vital than deciding if one trusts the knowledge being offered is determining if one trusts the person giving it. Thus, at the center of science-based manufactured controversies is not a cultural crisis of faith in science but a disconnect with the experts hoping to

direct the issue. Such disconnect can occur from discourses of expertise that insist on their epistemological superiority and validity while paying little attention to enhancing appeals of credibility and trust (unlike those who rely on such appeals to compensate for epistemological shortcomings).

While building trust with opposing perspectives may seem a difficult task around such highly contested issues, risk communication scholar Geoboo Song argued that affirming an individual's identity and highlighting commonalities in worldviews open up possibilities for acceptance of one's message. He noted, "individuals ignore experts' messages if those experts do not possess cultural values similar to their own, while automatically accepting information from experts whose values they share."[19] While the position one takes regarding some science-based manufactured controversies, such as climate change and the debate over teaching evolution in schools, may be dictated by ideological commitments, the vaccination issue does not map as neatly according to worldviews. Parents on the left and the right of the political spectrum express hesitancy and reservation about vaccination policy in the US. Thus, the AVC may offer better opportunities for applying Song's observations to construct messages that highlight common ground, such as those identified by talking to mothers about their vaccination choices, in order to cultivate trust and increase acceptance of expert discourses. The quality of public health may depend on it.

The Rhetorical Dynamics of Expertise Amid Manufactured Controversy

Expertise involves issues of power and access. For some, the peer review process can provide a powerful mode of gaining the authority one needs to promote a personal agenda. For others, reliance on claims of inaccessible experiences and appeals to goodwill create an opening

for one's voice. Being labeled as an expert involves validation and acceptance. Unfortunately, expertise does not inherently invoke an ethic and not everyone will use the access they gain for the greater good (even if they claim to be doing just that). Since experts must often speak for information that is evolving, the role of the expert is rhetorical not only in presenting one's own authority to speak but also in shaping understanding of the data one divulges. Internal demarcation discourses over the meaning of data or the appropriate interpretations to be made of that data are not readily recognized and re-circulated by public audiences. Thus, if Tindale is correct in his argument that audiences already assume the accuracy of information experts share and if attempts to clarify the validity of that information get ignored once experts begin speaking in public, it becomes clearer how easily the mantle of expertise can be used to introduce wedges into popular discourse and manufacture controversy around science-based issues that are settled for the broader scientific community. When the experts disagree—or at least appear to from the perspective of non-specialist audiences—decision-making becomes guided by the precautionary principle (in the case of the AVC, parents elected to delay or skip vaccines) while waiting for the issue to be resolved. Examining the discursive means by which individuals are able to enact expertise and be accepted as authoritative (and sometimes contrarian) voices highlights both the central role of trust—not in the content of the message, but in the source—as well as the highly rhetorical nature of expertise.

Science-based manufactured controversies such as the AVC can generate frustration and disbelief over their seemingly never-ending presence in public discourse long after the issue seems settled to many. While such debates can seem to center on whether or not people believe the science, as I have argued, such issues may be more about which experts people trust. Recognition of this should shift responses away from debates that can too easily become

entrenched in issues of internal demarcation that bear little meaning or influence on non-specialist audiences and instead focus on rhetorical opportunities for communicating common ground.

One aspect of that common ground is the historical commitment to the *demos*. Manufactured controversies, while constructed, offer valuable moments for reflection on the history of our development as a community. In moments when a small group of citizens denies the position of the majority, even when it contradicts scientific data or technical knowledge, it can seem foolish and discouraging. When that group actively works to undermine understanding of the issue and stir up controversy among the less informed, it can be infuriating. In the face of such stubborn resistance, the temptation may be to call for a technocratic society where experts decide or to limit who has access to speak. Nonetheless, despite the frustrations occurrences like the AVC produce, they are also invaluable because they ask for a recommitment to the ideals of democracy, representation, and freedom of expression. While McCarthy may make someone cringe every time she offers her opinion, she has the same rights as every other citizen to speak out, just like people have the right to respond, to point out the flaws in her reasoning, and to move past the stylistic flourishes and compelling narratives to get to the heart of the issue. Remaining committed to a democratic community means having to listen to those who have a message one may disagree with just as much as it means protecting one's own right to speak out. However, the findings of this study and continued rhetorical analysis of discourses of expertise can be used to ensure responses to messages that manufacture controversy are as effective as possible.

The AVC reminds us of both how precious and how challenging working towards that democratic ideal can be. And while in this moment, it may feel like the "anti-vaxxers" are

winning or at least not accepting their defeat, this moment is merely one battle in the larger war. Just like the struggle to overcome denials that cigarettes cause lung cancer or that DDT was more harmful than helpful, over the course of things, the message that vaccines are safe and effective and necessary will win out. We do not rely on the tools of public deliberation and argumentation because they provide a means for efficient decision-making. We do not laud them because the guarantee immediate consensus. We use them because they prove our commitment to representation and allow us to demonstrate faith in the belief that the best position, the truest knowledge, will eventually win out.

Scholars who have approached expertise rhetorically have already added a tremendous amount of knowledge and insight regarding this concept. However, given the complexity of the role of experts in our culture and the inherently rhetorical aspects of enacting expertise, much more work remains to be done. Building from rhetoric of science's history in controversy studies and focusing on how expertise operates rhetorically at such sites of discourse, as demonstrated by this study, can add a new level of complexity to our understanding of both the power and limitations of expert communication.

In my rhetorical analysis of the AVC, studying the evolution of this science-based manufactured controversy has allowed analytic depth in places, applying a rhetorical perspective to unweave the discursive fragments shaping the issue at particular moments in its history, while also surveying the scope of the controversy more broadly to understand how it took shape over time. Analyzing the original scientific article that served as the point of origin for this controversy revealed how language practices use to distinguish experts from non-experts in a technical setting introduce ambiguity that creates discursive openings for manufacturing scientific controversy. Examining conflicting claims by experts during a press conference to

promote that scientific article demonstrated that internal demarcation issues that rely on nuanced distinctions between forms of expertise to make claims about who has the highest authority to interpret technical data are best suited to technical sphere contexts rather than public sphere settings. Exploring the appeals in McCarthy's vaccine advocacy discourse granted insight into how invention and style can enhance one's epistemological grounds for claims to expertise while *ethos*, particularly *arête* and *eunoia*, can compensate for a lack of technical credentials. Additionally, McCarthy's reference to embodied moments as support for her claims to expertise demonstrates the unique challenge that experience-based expertise presents when based in first-hand experiences that cannot be accessed by others.

Interweaving reception discourses into this study further enhanced the insights gained. Consideration of how Wakefield's research was received by his technical colleagues revealed the discursive ambiguity of hedges and other expert language practices while examination of media coverage revealed the problematic nature of science by press conference practices that present research findings before they can be vetted by the technical community. Media coverage also indicated that subtle distinctions between types of expertise seem to be lost on news producers who presented experts in broad categories of professional identities, such as doctors or scientists, rather than by distinct areas of specialty. Responses to McCarthy demonstrated how her appeals effectively influence some while alienating others. However, critiques focusing on personal attacks remain limited in their effectiveness to disrupt McCarthy's discourse. Rather responses that acknowledge and address the rhetorical strategy behind McCarthy's discourse have a better chance of gaining a hearing among her supporters and sympathizers. Rhetorically analyzing the discourse of parents around vaccine decisions offers new understanding of how citizens make decisions in the face of conflicting expert advice. Creating space for dialogue between technical

expertise and parental expertise offers better opportunities for persuading parents to embrace vaccination.

Analyzing key discursive moments over the course of this science-based manufactured controversy allowed for a deeper understanding of the rhetorical dynamics of expertise around a contested issue while exploring reception granted insight into how the public perceives of a manufactured controversy and the expert voices taking part in the discussion. Examining the textual-intertextual dynamics offers possibilities for introducing discursive elements that might shift the "debate" to new grounds, allowing for novel understandings of the common ground shared by the various parties involved that might transcend the disagreement that has kept them in opposition for so long.

---

[1] Mark A. Largent, *Vaccine: The Debate in Modern America* (Baltimore: Johns Hopkins University Press, 2012), 173.
[2] Andrea Kitta, *Vaccinations and Public Concern in History: Legend, Rumor, and Risk Perception*, Routledge Studies in the History of Science, Technology, and Medicine (New York: Routledge, 2012), 137.
[3] Largent, *Vaccine: The Debate*, 25–26.
[4] Ibid., 173.
[5] Leah Ceccarelli, "Manufactured Scientific Controversy: Science, Rhetoric, and Public Debate," *Rhetoric & Public Affairs* 14, no. 2 (2011): 195–228, doi:10.1353/rap.2010.0222.
[6] E. Johanna Hartelius, *The Rhetoric of Expertise* (Lanham, MD: Lexington Books, 2010).
[7] Carolyn R. Miller, "Novelty and Heresy in the Debate on Nonthermal Effects of Electromagnetic Fields," in *Rhetoric and Incommensurability*, ed. Randy Allen Harris (West Lafayette, IN: Parlor Press, 2005), 464–505.
[8] Thomas M. Lessl, "The Priestly Voice," *Quarterly Journal of Speech* 75, no. 2 (1989): 183–97, doi:10.1080/00335638909383871.
[9] John Lyne and Henry F. Howe, "The Rhetoric of Expertise: E. O. Wilson and Sociobiology," *Quarterly Journal of Speech* 76, no. 2 (1990): 134–51, doi:10.1080/00335639009383910.
[10] This is not to say that science is the only source of expertise. As I will discuss later, other sources of knowledge offer other forms of expertise.
[11] Thomas F. Gieryn, "Boundary-Work and the Demarcation of Science from Non-Science: Strains and Interests in Professional Ideologies of Scientists," *American Sociological Review* 48, no. 6 (December 1983): 781, doi:10.2307/2095325; Anne Holmquest, "The Rhetorical Strategy of Boundary-Work," *Argumentation* 4, no. 3 (1990): 235–58; Lisa Keränen, "Mapping Misconduct: Demarcating Legitimate Science from 'Fraud' in the B-06 Lumpectomy Controversy," *Argumentation and Advocacy* 42, no. 2 (September 22, 2005): 94–113; Charles Alan Taylor, *Defining Science: A Rhetoric of Demarcation* (University of Wisconsin Press, 1996).
[12] Christopher W. Tindale, "Character and Knowledge: Learning from the Speech of Experts," *Argumentation* 25, no. 3 (August 1, 2011): 347, doi:10.1007/s10503-011-9224-9.
[13] Harry Collins and Robert Evans, *Rethinking Expertise* (University of Chicago Press, 2008), 62.
[14] Ibid., 61–63.
[15] Brian Wynne, "Sheepfarming After Chernobyl: A Case Study in Communicating Scientific Information," *Environment: Science and Policy for Sustainable Development* 31, no. 2 (1989): 10–39, doi:10.1080/00139157.1989.9928930.
[16] Hartelius, *The Rhetoric of Expertise*.

[17] Frank Fischer, "Citizens and Experts in Risk Assessment: Technical Knowledge in Practical Deliberation," *Technikfolgenabschätzung* 13, no. 2 (2004): 92.
[18] Kenneth C. Calman, "Communication of Risk: Choice, Consent, and Trust," *The Lancet* 360, no. 9327 (July 2002): 167, doi:10.1016/S0140-6736(02)09421-7.
[19] Geoboo Song, "Understanding Public Perceptions of Benefits and Risks of Childhood Vaccinations in the United States," *Risk Analysis* 34, no. 3 (March 1, 2014): 550, doi:10.1111/risa.12114.

Bibliography

Alcindor, Yamiche. “Anti-Vaccine Movement Is Giving Diseases a 2nd Life.” *USA Today*, April 6, 2014, Online edition. http://www.usatoday.com/story/news/nation/2014/04/06/anti-vaccine-movement-is-giving-diseases-a-2nd-life/7007955/.

Ali, Moshin, and Branavan Manoranjan. “On Vaccines and Irrationality: Leveraging Emotion for the Greater Good.” *The Meducator* 1, no. 23 (2013): 15–16.

Allen, Arthur. *Vaccine: The Controversial Story of Medicine’s Greatest Lifesaver*. New York: W.W. Norton & Company, 2007.

American Academy of Pediatrics. *Vaccine Safety: Examine the Evidence*. American Academy of Pediatrics, April 2013. http://www2.aap.org/immunization/families/faq/vaccinestudies.pdf.

Amsterdamska, Olga. “Demarcating Epidemiology.” *Science, Technology, & Human Values* 30, no. 1 (2005): 17–51. doi:10.1177/0162243904270719.

“Anti-Vaccine Body Count.” Accessed June 10, 2014. http://www.jennymccarthybodycount.com/Anti-Vaccine_Body_Count/Home.html.

Apple, Rima D. *Perfect Motherhood: Science and Childrearing in America*. New Brunswick, N.J.: Rutgers University Press, 2006.

Apple, Rima D. *Mothers and Medicine: A Social History of Infant Feeding, 1890-1950*. University of Wisconsin Press, 1987.

Aristotle. *On Rhetoric: A Theory of Civic Discourse*. Translated by George A. Kennedy. New York: Oxford University Press, USA, 2007.

“Autism Scare Over Child Jab.” *Belfast News Letter*. February 27, 1998, sec. News.

Bal, Roland. “How to Kill with a Ballpoint: Credibility in Dutch Forensic Science.” *Science, Technology, & Human Values* 30, no. 1 (2005): 52–75. doi:10.1177/0162243904270722.

Beale, A. J. “Autism, Inflammatory Bowel Disease, and MMR Vaccine.” *The Lancet* 351, no. 9106 (March 1998): 906. doi:10.1016/S0140-6736(05)70317-2.

Bedford, Helen, Robert Booy, David Dunn, Carolyn DiGuiseppi, Diana Gibb, Ruth Gilbert, Stuart Logan, Catherine Peckham, Ian Roberts, and Pat Tookey. “Autism, Inflammatory Bowel Disease, and MMR Vaccine.” *The Lancet* 351, no. 9106 (March 1998): 907. doi:10.1016/S0140-6736(05)70320-2.

Benin, Andrea L., Daryl J. Wisler-Scher, Eve Colson, Eugene D. Shapiro, and Eric S. Holmboe. “Qualitative Analysis of Mothers’ Decision-Making About Vaccines for Infants: The

Importance of Trust." *Pediatrics* 117, no. 5 (May 1, 2006): 1532–41. doi:10.1542/peds.2005-1728.

Bennett, Sue "Common Sense Mom." "Irresponsible, Offensive Infomercial." *Amazon.com Customer Reviews*, October 1, 2008. http://www.amazon.com/review/R3NOBOYGFGPSAD/ref=cm_cr_pr_perm?ie=UTF8&ASIN=0525950699.

Betsch, Cornelia, Noel T. Brewer, Pauline Brocard, Patrick Davies, Wolfgang Gaissmaier, Niels Haase, Julie Leask, et al. "Opportunities and Challenges of Web 2.0 for Vaccination Decisions." *Vaccine* 30, no. 25 (May 28, 2012): 3727–33. doi:10.1016/j.vaccine.2012.02.025.

Black, David, Henry Prempeh, and Tony Baxter. "Autism, Inflammatory Bowel Disease, and MMR Vaccine." *The Lancet* 351, no. 9106 (March 1998): 905–6. doi:10.1016/S0140-6736(05)70316-0.

Boseley, Sarah. "Alert Over Child Jabs." *The Guardian*. February 27, 1998.

———. "Doctors' Dilemma: Damned If They Publish, Damned If They Don't; Scientists Go Public With Doubts Over MMR Vaccine: Sarah Boseley on Fears of a Backlash Against Inoculation." *The Guardian*. February 27, 1998.

Boyce, Tammy. *Health, Risk and News: The MMR Vaccine and the Media*. New York: Peter Lang International Academic Publishers, 2007.

———. "Journalism and Expertise." *Journalism Studies* 7, no. 6 (2006): 889–906. doi:10.1080/14616700600980652.

Burgess, David C., Margaret A. Burgess, and Julie Leask. "The MMR Vaccination and Autism Controversy in United Kingdom 1998–2005: Inevitable Community Outrage or a Failure of Risk Communication?" *Vaccine* 24, no. 18 (May 1, 2006): 3921–28. doi:10.1016/j.vaccine.2006.02.033.

Burke, Kenneth. *Language as Symbolic Action: Essays on Life, Literature, and Method*. Berkeley: University of California Press, 1966.

Calandrelli, Emily. "5 Reasons Jenny McCarthy Is Even More Dangerous Than You Thought." *PolicyMic*, September 23, 2013. http://www.policymic.com/articles/64549/5-reasons-jenny-mccarthy-is-even-more-dangerous-than-you-thought.

Calman, Kenneth C. "Communication of Risk: Choice, Consent, and Trust." *The Lancet* 360, no. 9327 (July 2002): 166–68. doi:10.1016/S0140-6736(02)09421-7.

"Can Autism Be Prevented? Star's Controversial New Claim." *Good Morning America*. New York, NY: ABC, April 1, 2009.

Carr, E. Summerson. “Enactments of Expertise.” *Annual Review of Anthropology* 39, no. 1 (2010): 17–32. doi:10.1146/annurev.anthro.012809.104948.

Ceccarelli, Leah. “Let Us (Not) Theorize the Spaces of Contention.” *Argumentation and Advocacy* 42, no. 1 (June 22, 2005): 30–33.

———. “Manufactured Scientific Controversy: Science, Rhetoric, and Public Debate.” *Rhetoric & Public Affairs* 14, no. 2 (2011): 195–228. doi:10.1353/rap.2010.0222.

———. *Shaping Science with Rhetoric: The Cases of Dobzhansky, Schrodinger, and Wilson*. Chicago: University Of Chicago Press, 2001.

Centers for Disease Control and Prevention. “How Vaccines Prevent Diseases.” *Centers for Disease Control and Prevention*, March 8, 2012. http://www.cdc.gov/vaccines/parents/vaccine-decision/prevent-diseases.html.

———. “Measles — United States, 2011.” *Morbidity and Mortality Weekly Report* 61, no. 15 (April 20, 2012): 253–57.

———. “Measles — United States, January 1–August 24, 2013.” *Morbidity and Mortality Weekly Report* 62, no. 36 (September 13, 2013): 741–43.

———. “Pertussis Epidemic — Washington, 2012.” *Morbidity and Mortality Weekly Report* 61, no. 28 (July 20, 2012): 517–22.

———. “Vaccines - Immunization Schedules for Children in Easy-to-Read Formats.” *Centers for Disease Control and Prevention*, January 31, 2014. http://www.cdc.gov/vaccines/schedules/easy-to-read/child.html.

Chambers, David Wade. “Stereotypic Images of the Scientist: The Draw-a-Scientist Test.” *Science Education* 67, no. 2 (1983): 255–65. doi:10.1002/sce.3730670213.

Chen, R. T., and F. DeStefano. “Vaccine Adverse Events: Causal or Coincidental?” *Lancet* 351, no. 9103 (February 28, 1998): 611–12. doi:10.1016/S0140-6736(05)78423-3.

“Child Jabs Feared to Trigger Autism; Doctors Call for Caution Over ‘MMR Vaccine Link.’” *The Bristol Post*, February 27, 1998.

“Child Vaccine Alert Rejected; Parents Urged to Ignore Immunisation Scare.” *The Mirror*, February 28, 1998, sec. News.

“Child Vaccine Linked to Autism.” *BBC*, February 27, 1998, sec. UK. http://news.bbc.co.uk/2/hi/uk/60510.stm.

Choosy. “Great Book for Treatment.” *Amazon.com Customer Reviews*, April 8, 2009. http://www.amazon.com/review/R20QJUZOUKOJ7/ref=cm_cr_pr_viewpnt#R20QJUZOUKOJ7.

Clarke, Christopher E. “A Question of Balance: The Autism-Vaccine Controversy in the British and American Elite Press.” *Science Communication* 30, no. 1 (June 24, 2008): 77–107. doi:10.1177/1075547008320262.

Collins, Harry, and Robert Evans. *Rethinking Expertise*. University of Chicago Press, 2008.

Cooper, Louis Z., Heidi J. Larson, and Samuel L. Katz. “Protecting Public Trust in Immunization.” *Pediatrics* 122, no. 1 (July 1, 2008): 149–53. doi:10.1542/peds.2008-0987.

Council on Foreign Relations. “Map: Vaccine-Preventable Outbreaks.” *Council on Foreign Relations*, 2014. http://www.cfr.org/interactives/GH_Vaccine_Map/index.html.

Crismore, Avon, and William J. Vande Kopple. “Rhetorical Contexts and Hedges.” *Rhetoric Society Quarterly* 20, no. 1 (1990): 49–59.

“Customer Reviews Healing and Preventing Autism: A Complete Guide.” *Amazon.com*. Accessed April 3, 2014. http://www.amazon.com/Healing-Preventing-Autism-Complete-Guide/product-reviews/B0040RMEI0/ref=dp_top_cm_cr_acr_txt?showViewpoints=1.

“Customer Reviews Louder Than Words: A Mother’s Journey in Healing Autism.” *Amazon.com*. Accessed April 3, 2014. http://www.amazon.com/Louder-Than-Words-Mothers-Journey/product-reviews/B003F76DPG/ref=dp_top_cm_cr_acr_txt?showViewpoints=1.

“Customer Reviews Mother Warriors: A Nation of Parents Healing Autism Against All Odds.” *Amazon.com*. Accessed April 3, 2014. http://www.amazon.com/Mother-Warriors-Parents-Healing-Against-ebook/product-reviews/B001AO0FZA/ref=dp_top_cm_cr_acr_txt?ie=UTF8&showViewpoints=1.

Darian, Steven. *Understanding the Language of Science*. Austin: University of Texas Press, 2003.

Deer, Brian. “Brian Deer: The Wakefield Factor.” *Briandeer.com*, n.d. http://briandeer.com/wakefield-deer.htm.

———. “How the Case Against the MMR Vaccine Was Fixed.” *BMJ* 342 (January 5, 2011): c5347–c5347. doi:10.1136/bmj.c5347.

———. “How the Vaccine Crisis Was Meant to Make Money.” *BMJ* 342 (January 14, 2011): c5258–c5258. doi:10.1136/bmj.c5258.

———. “Revealed: MMR Research Scandal.” *The Times (London)*. February 22, 2004, sec. Health. http://www.thetimes.co.uk/tto/health/article1879347.ece.

———. “Secrets of the MMR Scare. The Lancet’s Two Days to Bury Bad News.” *BMJ* 342 (January 22, 2011): c7001.

"Department of Health Tries to Allay Fears over MMR Vaccine." *Birmingham Post*, February 28, 1998.

Dovey, Dana. "Immunization Rates For NYC Private Schools Among Lowest In The World." *Medical Daily*, April 1, 2014. http://www.medicaldaily.com/immunization-rates-nyc-private-schools-continue-plummet-experts-concerned-possible-measles-outbreak.

Dresback, M. "UGH!" *Amazon.com Customer Reviews*, October 11, 2008. http://www.amazon.com/review/R3EM68EA80F0UU/ref=cm_cr_pr_perm?ie=UTF8&ASIN=0525950699.

Editorial Board. "California Can't Afford to Cater to the Anti-Vaccination Crowd." *Los Angeles Times*, February 27, 2014. http://www.latimes.com/opinion/editorials/la-ed-measles-vaccination-20140227,0,547431.story#axzz2vFeuQLub.

Editorials. "There Isn't Enough Science in the World to Debunk Anti-Vaccine Quackery for Some People." *NY Daily News*, January 17, 2011. http://www.nydailynews.com/opinion/isn-science-world-debunk-anti-vaccine-quackery-people-article-1.154665.

Elders, Jocelyn. "Religious Beliefs Are the Only Valid Reason." *The New York Times*, March 23, 2014, Online edition.

Elliman, David, and Helen Bedford. "What We Do In Britain." *The New York Times*, March 23, 2014, Online edition.

Ellis, Rachel. "Medics Linking Jab to Autism - Bowel Disease Develops After Vaccination Team Says." *Evening Chronicle*. February 27, 1998, sec. Britain Tonight.

Engdahl, Emma, and Rolf Lidskog. "Risk, Communication and Trust: Towards an Emotional Understanding of Trust." *Public Understanding of Science*, October 19, 2012, published online. doi:10.1177/0963662512460953.

Esquivel, Paloma. "O.C. Measles Outbreak Spurs Officials to Call for Immunizations." *Los Angeles Times*, April 4, 2014. http://www.latimes.com/local/la-me-measles-20140405,0,1525436.story#axzz2y4iC7ggi.

"Experts Play Down Fear Over Child Jabs." *The Bristol Post*, February 27, 1998.

Fabj, Valeria, and Matthew J. Sobnosky. "AIDS Activism and the Rejuvenation of the Public Sphere." *Argumentation and Advocacy* 31, no. 4 (March 22, 1995): 163.

Fahnestock, Jeanne. "Accommodating Science: The Rhetorical Life of Scientific Facts." *Written Communication* 3, no. 3 (July 1, 1986): 275–96. doi:10.1177/0741088386003003001.

———. "Incrementum and Gradatio." In *Rhetorical Figures in Science*, 86–121. New York: Oxford University Press, USA, 1999.

———. “The Rhetoric of the Natural Sciences.” Edited by Andrea A. Lunsford, Kirt H. Wilson, and Rosa A. Eberly. *The SAGE Handbook of Rhetorical Studies*. Thousand Oaks, CA: SAGE Publications, Inc., 2009. http://dx.doi.org/10.4135/9781412982795.

Faulkner, Wendy, James Fleck, and Robin Williams. “Exploring Expertise: Issues and Perspectives.” In *Exploring Expertise: Issues and Perspectives*, edited by Robin Williams, Wendy Faulkner, and James Fleck, 1–27. Basingstoke: Palgrave MacMillan, 1998.

“Fears of Vaccine Link to Autism.” *Western Daily Press*. February 27, 1998.

Feemster, Kristen A. “Eliminate Vaccine Exemptions.” *The New York Times*, March 23, 2014, Online edition.

Feinberg, David. “Foreword.” In *Louder Than Words: A Mother’s Journey in Healing Autism*, ix–xiii. New York: Penguin, 2007.

Fischer, Frank. “Citizens and Experts in Risk Assessment: Technical Knowledge in Practical Deliberation.” *Technikfolgenabschätzung* 13, no. 2 (2004): 90–98.

———. *Democracy and Expertise: Reorienting Policy Inquiry*. New York, NY: Oxford University Press, 2009.

Fitzpatrick, Michael. *MMR and Autism: What Parents Need to Know*. London ; New York: Routledge, 2004.

Freed, Gary L., Sarah J. Clark, Amy T. Butchart, Dianne C. Singer, and Matthew M. Davis. “Parental Vaccine Safety Concerns in 2009.” *Pediatrics*, March 1, 2010, peds.2009–1962. doi:10.1542/peds.2009-1962.

Fumento, Michael. “Anti-Vaccine Fanatics Are Free Riders.” In *Vaccines*, edited by Sylvia Engdahl, 68–73. Current Controversies. Greenhaven Press, 2009.

General Medical Council. *Andrew Wakefield: Determination on Serious Professional Misconduct (SPM) and Sanction*. General Medical Council, May 24, 2010. Retrieved from http://www.gmc-uk.org/Wakefield_SPM_and_SANCTION.pdf_32595267.pdf.

Gieryn, Thomas F. “Boundary-Work and the Demarcation of Science from Non-Science: Strains and Interests in Professional Ideologies of Scientists.” *American Sociological Review* 48, no. 6 (December 1983): 781. doi:10.2307/2095325.

Goodnight, G. Thomas. “Science and Technology Controversy: A Rationale for Inquiry.” *Argumentation and Advocacy* 42, no. 1 (2005): 26.

———. “The Personal, Technical, and Public Spheres of Argument: A Speculative Inquiry into the Art of Public Deliberation.” *Journal of the American Forensic Association* 18 (1982): 214–27.

Goodwin, Jean, and Lee Honeycutt. "When Science Goes Public: From Technical Arguments to Appeals to Authority." *Studies in Communication Sciences* 9 (2009): 19–30.

Gordon, Jay N. "Foreword." In *Mother Warriors: A Nation of Parents Healing Autism Against All Odds*, xiii–xviii. New York: Pen, 2008.

"Government Reassurance on MMR Vaccine." *BBC*, February 27, 1998. http://news.bbc.co.uk/2/hi/uk/60721.stm.

Grabill, Jeffrey T., and W. Michele Simmons. "Toward a Critical Rhetoric of Risk Communication: Producing Citizens and the Role of Technical Communicators." *Technical Communication Quarterly* 7, no. 4 (1998): 415–41. doi:10.1080/10572259809364640.

Grant, Julia. *Raising Baby by the Book: The Education of American Mothers*. New Haven: Yale University Press, 1998.

Greenfeld, Karl Taro. "The Autism Debate: Who's Afraid of Jenny McCarthy?" *Time*, February 25, 2010. http://content.time.com/time/magazine/article/0,9171,1968100,00.html.

Gresko, Brian. "Vaccinate Your Children! There Is a New Outbreak of Measles in NYC." *Babble.com*, April 3, 2014. http://www.babble.com/dad/vaccinate-your-children-there-is-a-new-outbreak-of-measles-in-nyc/.

Gross, Alan G., Joseph E. Harmon, and Michael S. Reidy. *Communicating Science: The Scientific Article from the 17th Century to the Present*. New York; Oxford; West Lafayette: Parlor Press, 2009.

Gustafsson, Karin, and Rolf Lidskog. "Acknowledging Risk, Trusting Expertise, and Coping With Uncertainty: Citizens' Deliberations on Spraying an Insect Population." *Society & Natural Resources* 25, no. 6 (2012): 587–601. doi:10.1080/08941920.2011.620598.

Haas, Peter. "When Does Power Listen to Truth? A Constructivist Approach to the Policy Process." *Journal of European Public Policy* 11, no. 4 (2004): 569–92. doi:10.1080/1350176042000248034.

Halloran, S. Michael. "The Birth of Molecular Biology: An Essay in the Rhetorical Criticism of Scientific Discourse." *Rhetoric Review* 3, no. 1 (1984): 70–83. doi:10.1080/07350198409359083.

Haran, Joan, and Jenny Kitzinger. "Modest Witnessing and Managing the Boundaries Between Science and the Media: A Case Study of Breakthrough and Scandal." *Public Understanding of Science* 18, no. 6 (November 1, 2009): 634–52. doi:10.1177/0963662509338324.

Hartelius, E. Johanna. *The Rhetoric of Expertise*. Lanham, MD: Lexington Books, 2010.

"Health Chiefs in Plea After Measles Jab Scare; Department of Health Continues to Recommend MMR Vaccine." *Daily Record*, February 28, 1998.

Healy, Melissa. "Jenny McCarthy on 'View': A New Forum for Discredited Autism Theories." *Los Angeles Times*, July 15, 2013. http://www.latimes.com/news/science/sciencenow/la-sci-jenny-mccarthy--view-autism-20130715,0,6008429.story#axzz2jjHD1i9s.

Holmquest, Anne. "The Rhetorical Strategy of Boundary-Work." *Argumentation* 4, no. 3 (1990): 235–58.

Holohan, Meghan. "More than 20 Cases of Measles in California Due to 'Unvaccinated Children.'" Video online. *TODAY*, March 31, 2014. http://www.today.com/health/more-20-cases-measles-california-due-unvaccinated-children-2D79455508.

Hope, Jenny. "Ban Three-in-One Jab Urge Doctors After New Fears." *The Daily Mail*. February 27, 1998.

Horn, Kelly. "The Consequences of Citing Hedged Statements in Scientific Research Articles." *BioScience* 51, no. 12 (December 1, 2001): 1086–93. doi:10.1641/0006-3568(2001)051[1086:TCOCHS]2.0.CO;2.

Horton, Richard. "A Statement by the Editors of The Lancet." *The Lancet* 363, no. 9411 (March 2004): 820–21. doi:10.1016/S0140-6736(04)15699-7.

———. "Autism, Inflammatory Bowel Disease, and MMR Vaccine." *The Lancet* 351, no. 9106 (March 1998): 908–9. doi:10.1016/S0140-6736(05)70324-X.

Hulbert, Ann. *Raising America: Experts, Parents, and a Century of Advice about Children*. New York: Vintage Books, 2004.

Hyland, Ken. *Hedging in Scientific Research Articles*. John Benjamins Publishing, 1998.

———. "Talking to the Academy: Forms of Hedging in Science Research Articles." *Written Communication* 13, no. 2 (1996): 251–81. doi:10.1177/0741088396013002004.

———. "Writing Without Conviction? Hedging in Science Research Articles." *Applied Linguistics* 17, no. 4 (December 1, 1996): 433–54. doi:10.1093/applin/17.4.433.

"Interview with Jenny McCarthy." *Larry King Live*. CNN, September 26, 2007.

"Jenny McCarthy." *HarperCollins Speakers Bureau*. Accessed April 5, 2014. http://www.harpercollinsspeakersbureau.com/speaker/jenny-mccarthy/.

"Jenny McCarthy Biography." *The Biography Channel*. Accessed April 5, 2014. http://www.biography.com/people/jenny-mccarthy-20872229.

Jenny McCarthy Is a Public Health Hazard, 2014. http://www.youtube.com/watch?v=4Z6De19zT3w&feature=youtube_gdata_player.

"Jenny McCarthy Playboy Cover: Actress Poses Nude At 39." *Huffington Post*, June 25, 2012. http://www.huffingtonpost.com/2012/06/25/jenny-mccarthy-playboy-cover-nude-age-39_n_1624283.html.

"Jenny McCarthy Speaks about Autism." *Fox On the Record with Greta van Susteren*. Fox News Network, June 6, 2008.

"Jenny McCarthy's Autism Fight." *Larry King Live*. CNN, April 2, 2008.

Jensen, Jakob D. "Scientific Uncertainty in News Coverage of Cancer Research: Effects of Hedging on Scientists' and Journalists' Credibility." *Human Communication Research* 34, no. 3 (July 2008): 347–69. doi:10.1111/j.1468-2958.2008.00324.x.

Johnson, Laura. "(Environmental) Rhetorics of Tempered Apocalypticism in An Inconvenient Truth." *Rhetoric Review* 28, no. 1 (2009): 29–46. doi:10.1080/07350190802540708.

Kahan, Dan M. "A Risky Science Communication Environment for Vaccines." *Science* 342 (October 4, 2013): 53–54. doi:10.1126/science.1245724.

Kahan, Dan, Paul Slovic, Donald Braman, and John Gastil. "Fear of Democracy: A Cultural Evaluation of Sunstein on Risk: A Review of Laws of Fear: Beyond the Precautionary Principle (2005) by Cass R. Sunstein." In *The Feeling of Risk: New Perspectives on Risk Perception*, by Paul Slovic, 183–213. London: Earthscan, 2010.

Keane, Christopher R. "Managerial Hegemony, Cultural Change, and the Transformation of Infant Care Advice in the United States in the Twentieth Century." *International Journal of Health Services* 31, no. 1 (January 1, 2001): 167–86. doi:10.2190/9350-27KH-83CN-033A.

Keränen, Lisa. "Mapping Misconduct: Demarcating Legitimate Science from 'Fraud' in the B-06 Lumpectomy Controversy." *Argumentation and Advocacy* 42, no. 2 (September 22, 2005): 94–113.

Kirby, David. *Evidence of Harm: Mercury in Vaccines and the Autism Epidemic: A Medical Controversy*. Princeton, N.J.: St. Martin's Griffin, 2006.

Kitta, Andrea. *Vaccinations and Public Concern in History: Legend, Rumor, and Risk Perception*. Routledge Studies in the History of Science, Technology, and Medicine. New York: Routledge, 2012.

Kluger, Jeffrey. "Anti-Vaccine Crusaders Are, As Always, Wrong." *Time*, April 2, 2014.

Knudson, Laura. "Cindy Sheehan and the Rhetoric of Motherhood: A Textual Analysis." *Peace & Change* 34, no. 2 (April 1, 2009): 164–83. doi:10.1111/j.1468-0130.2009.00548.x.

Kopman, Jeffrey. "The Dangerous History of Anti-Vaccine Conspiracies." *The Weather Channel*, March 6, 2013. http://www.cfr.org/interactives/GH_Vaccine_Map/index.html.

Lallanilla, Marc. “Why Some Rich, Educated Parents Avoid Vaccines.” *LiveScience.com*, February 21, 2014. http://www.livescience.com/43577-why-rich-educated-parents-avoid-vaccinations.html.

Langan, Mary. “Parental Voices and Controversies in Autism.” *Disability & Society* 26, no. 2 (2011): 193–205. doi:10.1080/09687599.2011.544059.

Largent, Mark A. *Vaccine: The Debate in Modern America*. Baltimore: Johns Hopkins University Press, 2012.

Laurance, Jeremy. “Child-Vaccine Setback for Worried Parents.” *The Independent*. March 5, 1998, sec. News.

———. “Doctors Link Autism to MMR Vaccine.” *The Independent*. February 27, 1998.

———. “Doctors Warn of a New Child Vaccine Danger.” *The Independent*. February 27, 1998, sec. News.

———. “I Was There When Wakefield Dropped His Bombshell.” *The Independent*, January 29, 2010. http://www.independent.co.uk/life-style/health-and-families/health-news/i-was-there-when-wakefield-dropped-his-bombshell-1882548.html.

Lee, J. W., B. Melgaard, C. J. Clements, M. Kane, E. K. Mulholland, and J-M. Olivé. “Autism, Inflammatory Bowel Disease, and MMR Vaccine.” *The Lancet* 351, no. 9106 (March 1998): 905. doi:10.1016/S0140-6736(98)26012-0.

Leff, Michael. “Textual Criticism: The Legacy of G. P. Mohrmann.” *Quarterly Journal of Speech* 72, no. 4 (1986): 377–89. doi:10.1080/00335638609383783.

Leff, Michael, and Andrew Sachs. “Words the Most Like Things: Iconicity and the Rhetorical Text.” *Western Journal of Speech Communication* 54, no. 3 (1990): 252–73. doi:10.1080/10570319009374342.

Leiss, William, and Douglas Alan Powell. *Mad Cows and Mother’s Milk: The Perils of Poor Risk Communication*. Montreal; Ithaca: McGill-Queen’s University Press, 2004.

Lessl, Thomas M. “The Priestly Voice.” *Quarterly Journal of Speech* 75, no. 2 (1989): 183–97. doi:10.1080/00335638909383871.

Lindley, Keith J., and Peter J. Milla. “Autism, Inflammatory Bowel Disease, and MMR Vaccine.” *The Lancet* 351, no. 9106 (March 1998): 907–8. doi:10.1016/S0140-6736(05)70321-4.

Lucaites, John, and Celeste M. Condit. “Introduction.” In *Contemporary Rhetorical Theory: A Reader*, edited by John Lucaites, Celeste M. Condit, and Susan Caudill, 1–18. New York: Guilford Press, 1999.

Lynch, John. “Stem Cells and the Embryo: Biorhetoric and Scientism in Congressional Debate.” *Public Understanding of Science* 18, no. 3 (2009): 309–24. doi:10.1177/0963662507085164.

Lyne, John. “Bio-Rhetorics: Moralizing the Life Sciences.” In *The Rhetorical Turn: Invention and Persuasion in the Conduct of Inquiry*, edited by Herbert Simons, 35–57. Chicago: The University of Chicago Press, 1990.

Lyne, John, and Henry F. Howe. “The Rhetoric of Expertise: E. O. Wilson and Sociobiology.” *Quarterly Journal of Speech* 76, no. 2 (1990): 134–51. doi:10.1080/00335639009383910.

———. “The Rhetoric of Expertise: E. O. Wilson and Sociobiology.” *Quarterly Journal of Speech* 76, no. 2 (1990): 134–51. doi:10.1080/00335639009383910.

Maiman, Bruce. “Bruce Maiman: Opposed to Vaccinations? Welcome to the New Dark Ages.” *The Sacramento Bee*, March 25, 2014, Online edition, sec. Opinion. http://www.sacbee.com/2014/03/25/6264711/bruce-maiman-opposed-to-vaccinations.html.

Marcus, Gyorgy. “Why Is There No Hermeneutics of Natural Sciences: Some Preliminary Theses.” *Science in Context* 1, no. 1 (1987): 5–51.

Margulis, Jennifer. “Parents Deserve to Have a Choice.” *The New York Times*, March 23, 2014, Online edition.

Mason, B., and P. Donnelly. “Impact of a Local Newspaper Campaign on the Uptake of the Measles Mumps and Rubella Vaccine.” *Journal of Epidemiology and Community Health* 54, no. 6 (June 2000): 473–74. doi:10.1136/jech.54.6.473.

McCarthy, Jenny. “In the Vaccine-Autism Debate, What Can Parents Believe?” *Huffington Post*, January 10, 2011. http://www.huffingtonpost.com/jenny-mccarthy/vaccine-autism-debate_b_806857.html.

———. *Louder Than Words: A Mother’s Journey in Healing Autism*. New York: Dutton Penguin, 2007.

———. *Mother Warriors: A Nation of Parents Healing Autism Against All Odds*. New York: Dutton Penguin, 2008.

McCarthy, Jenny, and Jerry Kartzinel. *Healing and Preventing Autism: A Complete Guide*. New York: Dutton Penguin, 2009.

McKay, Tom. “When This Anti-Vaccine Image Went Viral, a Medical Expert Responded — and It Was Amazing.” *PolicyMic*, March 25, 2013. http://www.policymic.com/articles/86075/when-this-anti-vaccine-image-went-viral-a-medical-expert-responded-and-it-was-amazing.

McMurray, Robert, Francine M. Cheater, Anna Weighall, Carolyn Nelson, Martin Schweiger, and Suzanne Mukherjee. “Managing Controversy Through Consultation: A Qualitative Study of Communication and Trust Around MMR Vaccination Decisions.” *British Journal of General Practice* 54, no. 504 (July 1, 2004): 520–25.

“Measles Jabs Safe, Parents Are Told.” *Belfast News Letter*. February 28, 1998, sec. News.

“Measles Vaccine Linked to Autism.” *Birmingham Evening Mail*, February 27, 1998.

Michaelsen, H. “There Are Better Books from a Parents’ Perspective.” *Amazon.com Customer Reviews*, November 23, 2007. http://www.amazon.com/review/RGI2V54EU6VD1/ref=cm_cr_pr_viewpnt#RGI2V54EU6VD1.

Midwest Mom “Honeybee’s Mommy.” “Very One-Sided and Not as Compassionate as Expected.” *Amazon.com Customer Reviews*, November 13, 2008. http://www.amazon.com/review/R27LZA8JV0P1TK/ref=cm_cr_rdp_perm.

Miller, Carolyn R. “Novelty and Heresy in the Debate on Nonthermal Effects of Electromagnetic Fields.” In *Rhetoric and Incommensurability*, edited by Randy Allen Harris, 464–505. West Lafayette, IN: Parlor Press, 2005.

———. “The Presumptions of Expertise: The Role of Ethos in Risk Analysis.” *Configurations* 11, no. 2 (2003): 163–202. doi:10.1353/con.2004.0022.

Misra, Ria. “Despite Anti-Vaxxer Rhetoric, Vaccination Rates Are Higher Than Ever.” *io9*, January 27, 2014. http://io9.com/despite-anti-vaxxer-rhetoric-vaccination-rates-are-hig-1510028898.

“MMR Research Timeline.” *BBC*, February 4, 2008, sec. Health. http://news.bbc.co.uk/2/hi/health/1808956.stm.

“MMR Timeline.” *The Guardian*, January 28, 2010, sec. Society. http://www.theguardian.com/society/2010/jan/28/mmr-doctor-timeline.

“MMR Vaccination Comes Under Renewed Fire in UK.” *The Pharma Letter*, October 3, 1998. http://www.thepharmaletter.com/article/mmr-vaccination-comes-under-renewed-fire-in-uk.

Mnookin, Seth. *The Panic Virus: The True Story Behind the Vaccine-Autism Controversy*. New York: Simon & Schuster, 2012.

Mooney, Chris. “Study: You Can’t Change an Anti-Vaxxer’s Mind.” *Mother Jones*, March 3, 2014. http://www.motherjones.com/environment/2014/02/vaccine-denial-psychology-backfire-effect.

Moore, Andrew. “Bad Science in the Headlines.” *EMBO Reports* 7, no. 12 (December 1, 2006): 1193–96. doi:10.1038/sj.embor.7400862.

"Mothers Battle Autism." *The Oprah Winfrey Show*. NBC, September 18, 2007.

Murch, Simon H., Andrew Anthony, David H. Casson, Mohsin Malik, Mark Berelowitz, Amar P. Dhillon, Michael A. Thomson, Alan Valentine, Susan E. Davies, and John A. Walker-Smith. "Retraction of an Interpretation." *The Lancet* 363, no. 9411 (March 2004): 750. doi:10.1016/S0140-6736(04)15715-2.

Murch, Simon, Mike Thomson, and John Walker-Smith. "Autism, Inflammatory Bowel Disease, and MMR Vaccine." *The Lancet* 351, no. 9106 (March 1998): 908. doi:10.1016/S0140-6736(05)70323-8.

Murray, Ian. "Measles Vaccine's Link with Autism Studied." *The Times*. February 27, 1998, sec. Home.

Myers, Greg. *Writing Biology: Texts in the Social Construction of Scientific Knowledge Science and Literature Series*. Madison, WI: University of Wisconsin Press, 1990.

National Institute of Mental Health. "A Parent's Guide to Autism Spectrum Disorder." *National Institute of Mental Health*, 2011. http://www.nimh.nih.gov/health/publications/a-parents-guide-to-autism-spectrum-disorder/index.shtml#pub1.

Nicoll, Angus, David Elliman, and Euan Ross. "MMR Vaccination and Autism 1998." *BMJ* 316, no. 7133 (March 7, 1998): 715–16. doi:10.1136/bmj.316.7133.715.

"Not the Time to Panic on Vaccine." *Birmingham Evening Mail*, February 27, 1998.

Nyhan, Brendan, Jason Reifler, Sean Richey, and Gary L. Freed. "Effective Messages in Vaccine Promotion: A Randomized Trial." *Pediatrics*, March 3, 2014, peds.2013–2365. doi:10.1542/peds.2013-2365.

Opel, Douglas J., John Heritage, James A. Taylor, Rita Mangione-Smith, Halle Showalter Salas, Victoria DeVere, Chuan Zhou, and Jeffrey D. Robinson. "The Architecture of Provider-Parent Vaccine Discussions at Health Supervision Visits." *Pediatrics*, November 4, 2013, peds.2013–2037. doi:10.1542/peds.2013-2037.

Overington, Michael A. "The Scientific Community as Audience: Toward a Rhetorical Analysis of Science." *Philosophy & Rhetoric* 10, no. 3 (July 1, 1977): 143–64.

Oxley, Ken. "Measles Jab Turned My Son Into An Autistic Child." *Daily Record*, March 4, 1998.

Park, Madison. "Medical Journal Retracts Study Linking Autism to Vaccine." *CNN*, February 2, 2010, Online edition. http://www.cnn.com/2010/HEALTH/02/02/lancet.retraction.autism/.

Perry, David M. "Destabilizing the Jenny McCarthy Public-Health Industrial Complex." *The Atlantic*, July 11, 2013. http://www.theatlantic.com/health/archive/2013/07/destabilizing-the-jenny-mccarthy-public-health-industrial-complex/277695/.

Plait, Phil. "...But How Do We Recover From Jenny McCarthy?" *Bad Astronomy, Discover Magazine*, October 20, 2008. http://blogs.discovermagazine.com/badastronomy/2008/10/20/but-how-do-we-recover-from-jenny-mccarthy/.

———. "Jenny McCarthy Asks; the Internet Slam Dunks." *Bad Astronomy, Slate*, March 17, 2014. http://www.slate.com/blogs/bad_astronomy/2014/03/17/jenny_mccarthy_antivaxxer_gets_remedied_on_twitter.html.

Plough, Alonzo, and Sheldon Krimskey. "The Emergence of Risk Communication Studies: Social and Political Context." *Science, Technology, & Human Values* 12, no. 3/4 (1987): 4–10.

Poland, Gregory A., and Robert M. Jacobson. "The Age-Old Struggle Against the Antivaccinationists." *New England Journal of Medicine* 364, no. 2 (2011): 97–99. doi:10.1056/NEJMp1010594.

Quigley, Anita. "Autism 'Linked' to Baby Vaccines." *The Advertiser*, February 28, 1998.

Rachel "Niko's Mommy." "A Fellow Mother Warrior." *Amazon.com Customer Reviews*, September 23, 2008. http://www.amazon.com/review/R2AHZJ5ZILVL29/ref=cm_cr_rdp_perm.

Reeves, Carol. "'I Knew There Was Something Wrong with That Paper': Scientific Rhetorical Styles and Scientific Misunderstandings." *Technical Communication Quarterly* 14, no. 3 (2005): 267–75. doi:10.1207/s15427625tcq1403_4.

Revill, Jo. "Measles Jab Fear Grows Amid Drug Shortage." *The Evening Standard*. March 4, 1998.

Rope, Kate. "The End of the Autism-Vaccine Debate?" *Parenting*, 2011. http://www.parenting.com/article/the-end-of-the-autismvaccine-debate.

Ropeik, David. "Wakefield Debunked, But Vaccine Fear Lives." *The Huffington Post*, January 10, 2011, Online edition. http://www.huffingtonpost.com/david-ropeik/wakefield-debunked-but-va_b_805826.html.

Royal Free Hampstead NHS TRUST. *Broadcast News Release*. London: Campaign Productions, 1998.

Rundblad, Gabriella, Paul A. Chilton, and Paul R. Hunter. "An Enquiry Into Scientific and Media Discourse in the MMR Controversy: Authority and Factuality." *Communication & Medicine* 3, no. 1 (2006): 69–80. doi:10.1515/CAM.2006.007.

Salager-Meyer, Françoise. "Hedges and Textual Communicative Function in Medical English Written Discourse." *English for Specific Purposes*, no. 2 (1994): 149–70. doi:10.1016/0889-4906(94)90013-2.

Sarangi, Srikant, and Angus Clarke. "Zones of Expertise and the Management of Uncertainty in Genetics Risk Communication." *Research on Language & Social Interaction* 35, no. 2 (2002): 139–71. doi:10.1207/S15327973RLSI3502_2.

Seidel, Frank, and Nicole Seidel. "Compelling & Hopeful! . . . But Lacking a Variety of Teaching Options, Example: No Mention of the Son-Rise Program." *Amazon.com Customer Reviews*, October 3, 2007. http://www.amazon.com/review/RBPFPTTZJZJ38/ref=cm_cr_pr_viewpnt#RBPFPTTZJZJ38.

Shapiro, Nina. "The Anti-Vaccine Epidemic." *Seattle Weekly*, June 15, 2011, Online edition. http://www.seattleweekly.com/2011-06-15/news/the-anti-vaccine-epidemic/.

Shea, Lorel. "Mixed Feelings." *Amazon.com Customer Reviews*, June 30, 2009. http://www.amazon.com/review/R23QLSCEKW2KJ0/ref=cm_cr_pr_viewpnt#R23QLSCEKW2KJ0.

Slovic, Paul, Melissa L. Finucane, Ellen Peters, and Donald G. MacGregor. "Risk as Analysis and Risk as Feelings: Some Thoughts About Affect, Reason, Risk and Rationality." In *The Feeling of Risk: New Perspectives on Risk Perception*, by Paul Slovic, 21–36. London: Earthscan, 2010.

Song, Geoboo. "Understanding Public Perceptions of Benefits and Risks of Childhood Vaccinations in the United States." *Risk Analysis* 34, no. 3 (March 1, 2014): 541–55. doi:10.1111/risa.12114.

Specter, Michael. "Jenny McCarthy's Dangerous Views." *The New Yorker Blogs*, July 16, 2013. http://www.newyorker.com/online/blogs/elements/2013/07/jenny-mccarthys-dangerous-views.html?printable=true&currentPage=all.

Speers, Tammy, and Justin Lewis. "Journalists and Jabs: Media Coverage of the MMR Vaccine." *Communication & Medicine* 1, no. 2 (2004): 171–81. doi:10.1515/come.2004.1.2.171.

Swanson, Wendy Sue. "Jenny McCarthy on The View: Trading Experience for Expertise." *KevinMD.com*, August 5, 2013. http://www.kevinmd.com/blog/2013/08/jenny-mccarthy-view-trading-experience-expertise.html.

Taylor, Charles Alan. *Defining Science: A Rhetoric of Demarcation*. University of Wisconsin Press, 1996.

The Editors of The Lancet. "Retraction—Ileal-Lymphoid-Nodular Hyperplasia, Non-Specific Colitis, and Pervasive Developmental Disorder in Children." *The Lancet* 375, no. 9713 (February 2010): 445. doi:10.1016/S0140-6736(10)60175-4.

Times News Editorial Board. "Our View: Anti-Vaccination Freeloaders Endanger Us All." *Twin Falls Times-News*, January 10, 2014, sec. Opinion.

http://magicvalley.com/news/opinion/editorial/our-view-anti-vaccination-freeloaders-endanger-us-all/article_ab1cc51e-79b4-11e3-a968-0019bb2963f4.html.

Tindale, Christopher W. "Character and Knowledge: Learning from the Speech of Experts." *Argumentation* 25, no. 3 (August 1, 2011): 341–53. doi:10.1007/s10503-011-9224-9.

Tutton, Richard, Anne Kerr, and Sarah Cunningham-Burley. "Myriad Stories: Constructing Expertise and Citizenship in Discussions of the New Genetics." In *Science and Citizens: Globalization and the Challenge of Engagement*, edited by Melissa Leach, Ian Scoones, and Brian Wynne, 101–12. Claiming Citizenship: Rights, Participation and Accountability. London: Zed Books, 2005.

V, Lisa. "Hopeless to Hopeful." *Amazon.com Customer Reviews*, March 10, 2011. http://www.amazon.com/review/RXJFODOSN7C8W/ref=cm_cr_pr_perm?ie=UTF8&ASIN=B0040RMEI0.

"Vaccine Link to Autism-Shock." *Western Daily Press*, February 28, 1998.

vanden Heuvel, Katrina. "Jenny McCarthy's Vaccination Fear-Mongering and the Cult of False Equivalence." *The Nation*, July 22, 2013. http://www.thenation.com/blog/175388/jenny-mccarthys-vaccination-fear-mongering-and-cult-false-equivalence#.

Wakefield, A. J. "Autism, Inflammatory Bowel Disease, and MMR Vaccine." *The Lancet* 351, no. 9106 (March 1998): 908. doi:10.1016/S0140-6736(05)70322-6.

Wakefield, A. J., S. H. Murch, A. Anthony, J. Linnell, D. M. Casson, M. Malik, M. Berelowitz, et al. "RETRACTED: Ileal-Lymphoid-Nodular Hyperplasia, Non-Specific Colitis, and Pervasive Developmental Disorder in Children." *The Lancet* 351, no. 9103 (February 1998): 637–41. doi:10.1016/S0140-6736(97)11096-0.

Wakefield, Andrew J., Peter Harvey, and John Linnell. "MMR—Responding to Retraction." *The Lancet* 363, no. 9417 (April 2004): 1327–28. doi:10.1016/S0140-6736(04)16017-0.

Wander, Philip C. "The Rhetoric of Science." *Western Speech Communication* 40, no. 4 (1976): 226–35. doi:10.1080/10570317609373907.

"We'll Not Let Our Second Son Have This Jab--Autistic Boy's Parents Fear Vaccination Could Put Brother At Risk." *Evening Chronicle*. February 28, 1998, sec. Local News.

Welford, Joanne. "'Don't Worry' Advice Over Vaccine Scare." *The Journal*. February 28, 1998, sec. National News.

Whidden, Rachel Avon. "Maternal Expertise, Vaccination Recommendations, and the Complexity of Argument Spheres." *Argumentation and Advocacy* 48, no. 4 (March 22, 2012): 243–57.

Woolcock, Nicola, and Nigel Hawkes. “Decline in MMR Uptake Blamed for Measles Death.” *The Times (London)*. April 3, 2006, sec. Health. http://www.thetimes.co.uk/tto/health/article1884070.ece.

Wynne, Brian. “Sheepfarming After Chernobyl: A Case Study in Communicating Scientific Information.” *Environment: Science and Policy for Sustainable Development* 31, no. 2 (1989): 10–39. doi:10.1080/00139157.1989.9928930.

Yochim, Emily Chivers, and Vesta T. Silva. “Everyday Expertise, Autism and ‘Good’ Mothering in the Media Discourse of Jenny McCarthy.” *Communication and Critical/Cultural Studies* 10, no. 4 (2013): 406–26. doi:10.1080/14791420.2013.841320.

Zuckerman, Arie, Andrew Wakefield, Mark Berelowitz, Ray Pounder, and Simon Murch. “Press Briefing.” Press Conference, Royal Free Hospital, February 27, 1998.

Appendix A

Respondents Information: For each respondent, I have listed the age and sex of children as well as the region where they live.

Respondents vaccinating as recommended (V)
V_1: 4 year old female, Northwest region
V_2: 3.5 year old female, 5 month old female, Northwest region
V_3: 8 week old male, Northwest region
V_5: 2 year old male, West region
V_6: 1 year old female, Northeast region
V_7: 4 year old male, 5 month old male, West region
V_8: 4 year old female, 2 year old male, 2 month old male, Midwest region

Respondents vaccinating as recommended but expressing reservations (VR)
VR_1: 10 year old male, 3 year old male, Northwest region
VR_2: 4 year old female, Northwest region

Respondents vaccinating as recommended for one child but delaying vaccines for others (V/DV)
V/DV_1: 4-year-old female, 1 year old female, Northwest (vaccinated as recommended for her first child, but followed a delayed schedule for her second child)

Respondents vaccinating as recommended but selecting some vaccines to skip (SV)
SV_1: 4 year old twin females, Northwest region

Respondents vaccinating on a delayed schedule (DV)
DV_1: 5 year old female, 3.5 year old female, Northwest region
DV_2: 4 year old female, 3 year old male, 7 month old, female, 2 week old male, West region
DV_3: 5 month old female, West region
DV_4: 6 year old female, Midwest region

Respondents vaccinating on a delayed schedule and skipping some select vaccines (D/SV)
D/SV_1: 9 year old male, 7 year old male, 5 year old female, Northwest (exempted out of Hepatitis B, Flu, and varicella/chicken pox)
D/SV_2: 1.5 year old male, West (exempted out of Hepatitis B and Rotavirus; will only get varicella if child does not contract naturally)
D/SV_3: 2.5 year old female, West (varicella/chicken pox)

Respondents vaccinating out of all or nearly all recommended vaccines (VE)
VE_1: 8-year-old female, 5 year old female, Northwest (did receive Diphtheria and tetanus vaccine)
VE_2: 8-month-old male, Midwest

Appendix B

Interview Guide:

SEGMENT 1: DEMOGRAPHICS:

- Where are you from?
- Highest level of education?
- How many children? Ages? Gender?
- How many times per week do you watch the news or read a newspaper (either in print or online)?
- What is your typical source for news?
    - If you were going to watch the news on TV, which source would you be most likely to tune into (local cannel, MSNBC, CNN, FOX, etc.)?
    - Are there any news sources that you view as biased? If so, why?
    - How often do you learn about news via a social media source (i.e. Facebook, Twitter, etc.)
- What 2-3 Internet sites do you visit most frequently?
- What is your typical source for parenting advice?
- How many times per week do you consume media that primarily focuses on providing parenting advice?
- What parenting advice sources do you use most frequently?
- Do you ever participate in parenting discussion boards?
    - If so, which ones?
    - In what ways do you participate on these boards (reading others' comments, making posts, etc.)?
    - How often do you participate?

SEMENT 2: CONTROVERSY AWARENESS & COMMUNICATION:

- Were you aware that some people have proposed that there is a link between autism and vaccines?
- If yes, how and when did you first learn about this issue?
    - What were your first impressions upon hearing about this issue?
    - Do you recall what specific sources you first heard about this issue from?
    - How did they present the issue?
- What knowledge did you have about the autism vaccine issue at the time of deciding about vaccination for your child(ren)?
- What knowledge do you have about this issue currently?
- What sources have you used to learn more about this issue?
- Who would you consider to be an expert or an authority on this issue?
- Are there any particular individuals that you associate with this issue?
    - What do you know about Andrew Wakefield and his connection to this issue?
    - What do you know about Jenny McCarthy and her connection to this issue?
- To what extent have you discussed this issue with others?
    - With whom?
    - In what settings?

    - How often?
    - What, if anything, do you typically say about the issue?

SEGMENT 3: DECISION-MAKING PROCESS:

- Did you elect to vaccinate your children?
    - What vaccinations, if any, did you allow your child to receive?
    - What vaccinations, if any, did you skip or delay?
- How did you come to that decision?
    - What information did you base your decision on?
    - Are there any people in particular who may have influenced your decision?
- What is the most persuasive argument you have heard about this issue?
- Who is the most convincing or trustworthy person you have heard on this issue?
- What is the least persuasive argument you have heard about this issue?
- Who is the least convincing or trustworthy person you have heard on this issue?
- Is there anyone in the media whose opinion on this issue you would be most likely to trust? Why?
- How confident were you in your decision about vaccination at the time of making it?
- How confident are you in your decision today?
- How comfortable/satisfied do you feel with your decision today? Why?