

The Gendered Ethos of Pseudoscience: Feminized Discourse on Food Safety in the Blogosphere

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ABSTRACT:

In this paper, we explore the gendered aspects of scientific controversy in the digital age. This project makes use of Leah Ceccarelli's seminal work on manufactured scientific controversy by considering its implications for the discourse on GMOs and food additives published on digital food and lifestyle blogs. We perform a discourse analysis of several blogs to look at the ways that gendered online discourse and performance influences modern anti-science rhetoric, particularly that which emanates from the sphere colloquially known as crunchy living. We look at the ways the intimate and personal feminine style of digital platforms offer experiential knowledge as a substitute for science. In the current political climate of alternative facts and fake news, this study leads to broader implications about the impact of gendered discourse on the assessment of credibility in online sources.

KEYWORDS: manufactured scientific controversy; food blogs; feminine style; food discourse; pseudo-science

Leah Ceccarelli's (2011) articulation of manufactured scientific controversy asks the question of why some pseudo-scientific theories thrive in the public sphere despite being debunked within the scientific community. This approach is rooted in rhetoric of science and argumentation theory, contributing to larger bodies of research looking at how and why messages work across argument spheres. The current project builds on this discussion by exploring the ways that scientific controversy in the contemporary context is informed by two factors: First, the platforms and types of discourse present in new media, and in particular blogs. Second, the gendered discourse that is encouraged

by blogs and online performances of femininity. We approach the digital and gendered aspects of scientific controversy through the theme of food and health and crunchy discourse, colloquially used to signal a lifestyle practice centered around environmentalism and the 'natural' that often takes its form as a binary opposition to institutions, particularly the state, medical and scientific bodies, and corporations. These discourses are rejected in favor of individual experience and research, leading to an opposition to science that is rooted in suspicion of and distrust in the scientific process of peer reviewed research overseen by government agencies as well as private institutions, which in turn carves out a space for privatized pseudoscience – which incorrectly claims to be factual and rooted in science – to flourish. Specifically, we examine the discussion of GMO foods and food additives as presented on a select sample of lifestyle blogs.

We begin by exploring ways that the topic of scientific controversy is expanded by the dissemination of knowledge on new media, citing the example of *The Food Babe* blog as one instance of how anti-science discourse can be popularized through feminized performances on digital platforms. We then elaborate on the cultural context that has given rise to the crunchy lifestyle as a gendered ideology and analyze the feminized discourse surrounding anti-GMO sentiments on three lifestyle blogs, *Hip Organic Mama*, *Mama Natural* and *Crunchy Hot Mama* chosen on account of their gendered representations. Finally, we discuss the proliferation of pseudoscience in the blogosphere as a product of the failures of scientific discourse.

Ultimately, we find that scientific controversy around GMOs is enabled by the affordances of digital media platforms, particularly user-generated content and the democratic ethos it perpetuates by affirming citizenship through holding authorities and

official institutions accountable. Additionally, the blog format thrives on sharing intimate details about personal experience, which have effectively allowed popular anti-scientific opinions to propagate. These two main factors have allowed crunchy discourse and the anti-scientific models of health with which it is aligned to be amplified in the personal sphere by digital technologies and gendered online performances.

Manufactured Scientific Controversy in the Digital Sphere

Leah Ceccarelli (2011) coined the term manufactured controversy in her research examining how issues on which there is a scientific consensus become controversial in the public sphere. Reversing longstanding skepticism, Ceccarelli defended scientific orthodoxy in three case studies concerning the link between HIV and AIDS, the theory of evolution, and global warming. In these cases, Ceccarelli examined the process by which the issues are rendered controversial in public. First, controversy is generated by misrepresenting the status of the question in the scientific community—issues that were settled are dishonestly portrayed as being part of ongoing scientific debate. Rather than simply asserting that the consensus of the scientific community is in error, those aligned against the consensus position claim no such consensus exists. This is part of a deliberate argumentative strategy to render the issues as live public controversies rather than questions to be decided in the technical sphere. The manufactured controversies examined were done so cynically by e.g. the fossil fuel industry and President Thabo Mbeki for political and commercial purposes. Second, advocates for the manufactured controversy adeptly exploit existing balancing norms within the public sphere, notably the notion that both sides of a debate should be heard and have an equal voice and that the failure to include a voice on behalf of one side of a debate amounts to censorship.

Consequently, public intellectuals who represent scientific consensus and who refuse to engage with frivolous anti-scientific arguments are in effect seen as proposing censorship by saying the public argument should not even take place.

Third, the ideological stakes in this debate are unusual. Both rhetorical criticism and cultural studies have traditionally been suspicious of the world-defining hegemony of science and scientism. For this reason, a skeptical approach to scientists attempting to shut down public argument has been deployed across various humanistic fields, perhaps most notably by Bruno Latour (2004). However, the controversies covered by Ceccarelli and others reveal that these same conceptual tools have been deployed to great effect by the political right as well as the fossil fuel industry. For this reason, Latour (2004, p. 227) has ultimately expressed regret for a claim that he himself has been accused of circulating:

entire Ph.D. programs are still running to make sure that good American kids are learning the hard way that facts are made up...while dangerous extremists are using the very same arguments of social construction to destroy hard-won evidence that could save our lives and that our critical spirit has sent us down the wrong path, encouraging us to fight the wrong enemies and, worst of all, be considered friends by the wrong sort of allies (Latour, 2004, p. 227).

In her seminal article, Ceccarelli not only addresses the norms and structure of arguments concerning public controversies, but also considers the general distrust of science and scientists and proffers advice for public intellectuals arguing on behalf of the scientific consensus to remedy this issue.

We want to extend this approach and analyze the *ethos* of mainstream scientists and the rhetors they engage on issues of scientific controversy by paying particular attention to food-related health information that is spread through the blog format.

Digital culture offers a new perspective on the issue of scientific controversy, as new media heralds both the unprecedented creation and circulation of user-generated content (Andrejevic, 2013; Jenkins, 2006). Particularly within the blogosphere, alternative lifestyle choices are being readily disseminated and are bolstered by the existence of a plethora of individual voices whose personal experiences are digitally networked to appear as collective evidence of the anti-scientific stance. The accessibility and intimacy of digital exchanges, particularly in digital spaces such as the lifestyle blogosphere, has had the effect of building a knowledge community where shared firsthand experiences are considered more trustworthy than information emanating from social institutions and the private sector (Matchar, 2013; Pham, 2015; Duffy, 2017).

The “feminine style”, which Karlyn Kohrs Campbell describes as based on personal disclosures that facilitate a feeling of familiarity and which we suggest is widely used on blogs and social media platforms, strengthens the anti-scientific appeal of this media. Additionally, social media fosters what Nancy Baym calls “relational labor,” which is defined as “regular, ongoing communication with audiences over time to build social relationships that foster paid work” (Baym, 2014, p. 16). Relational labor is an inherently feminized digital communication strategy, entailing “*listening* to others, being *conversational*, and being *genuine*” (p. 5, italics in original). Additionally, women are considered to dominate digital spaces such as the lifestyle blogosphere, and engage in digital self-branding, which Sarah Banet-Weiser describes as a form of compulsory feminine labor for women in a culture where: “‘putting oneself out there,’ and the ensuing quest for visibility, is an ever more normative practice” (Banet-Weiser, 2012, p. 55).

Analysis of Feminized Discourse on *The Food Babe*

The link between feminine digital discourse and pseudoscience and its effectiveness in producing anti-science rhetoric can be seen most acutely through an analysis of the blog *The Food Babe*, authored by Vani Hari. Hari's *Food Babe* brand is built upon circulating anti-science and anti-corporate food discourse through public campaigns including fights against the use of GMO crops in Monsanto food products (Hari, 2014a); artificial coloring in Starbucks' Pumpkin Spice Latte (Hari, 2014b); and, the preservatives in Subway breads and ingredients (Hari, 2012). Hari targets large food corporations, pointing to the use of chemicals in processing their products and leveraging the public's triple mistrust of scientific jargon, agribusiness, and industrialized foods. For example, Hari's (2014b) post on Starbucks's Pumpkin Spice Lattes focuses on mystifying caramel coloring through scientific terminology to justify her anti-science food stance. She writes:

You've probably heard me talk about caramel coloring before, and that's because I think it's one of the most hazardous chemicals being added to our food...There are four different types (classes) of caramel coloring and two of those types contain the dangerous substance 4-methylimidazole (4-Mel). Starbucks uses Class IV Caramel Color, considered the most harmful type that contains 4-Mel, in many of their drink syrups and sauces. It's even in their whipped cream! (Hari, 2014b, para. 13).

Despite conceding that, "I was finally able to get the complete list [of ingredients]" after emailing the company, Hari nevertheless alleges a conspiracy to deceive consumers through a lack of transparency: "I see no reason for them to hold back from publishing [the ingredients] (in their entirety) online...the reason that they're dragging their feet is

because they don't want you to know about the harmful additives" (Hari, 2014b, para 12.) Hari (2014b) frames this as especially nefarious given its supposedly harmful impacts on children: "Starbucks doesn't even publish the ingredients in their 'Kid's Drinks' – keeping parents completely in the dark" (2014b, para. 5). She thus generates and specifies a demand for intensive mothering, an ideology that idealizes the increasing devotion of time, resources and labor to the performance of motherhood (Hays, 1996).

Moreover, given the standing unpopularity of food corporations, it is easy for Hari to garner favor by posing as an individual warrior taking on the fight against these corporate giants. Hari attributes the credibility of her information to her independent research. She writes, "I didn't go to nutrition school to learn this. I had to teach myself everything, spending thousands of hours researching... As I began to learn more I was no longer duped by big business marketing tactics" (Hari, n.d.a, para. 3). As she purposefully distances herself from institutional sources of credibility—such as education and professional credentials —she attaches the veracity of her writing to her body and personal experiences. Hari offers a version of the postfeminist makeover narrative – what Rosalind Gill describes as a neoliberal individualist sensibility that "requires people (predominantly women) to believe, first, that they or their life is lacking or flawed in some way; second, that it is amenable to reinvention or transformation by...practicing appropriately modified consumption habits" (2007, p. 156) – as she writes: "For most of my life, I ate anything I wanted. I was a candy addict, drank soda, never ate green vegetables, frequented fast-food restaurants and ate an abundance of processed food" (Hari, n.d.a., para. 2). She reinforces this story by sharing before-and-after photos that juxtapose a professional glamor portrait of her present-day self with an older photo where she is heavier and appears without make-up or styled

hair. Indeed, the Food Babe brand is centered on hegemonic femininity, evidenced by Hari's choice to rely on the term 'babe' for her personal brand, a gendered choice that has historically been used to sexualize and infantilize women, as well as to connote romantic intimacy (Doll, 2014). Moreover, Hari evokes the beauty ideals of conventional femininity (Baker-Sperry and Grauerholz, 2003; Budgeon, 2013) through the inclusion of several professional ¾ body shots on the website's header and sidebar, in which she models brightly colored clothing and poses that variously accentuate her chest and her waist.

Relational labor is evident on Hari's site in the way she fosters closeness with her audience, for instance, in sharing numerous presumably unflattering images of her before her clean food transformation, signing off her posts with 'Love' or 'xo', sharing personal anecdotes about her marriage and her mother, and by referring to her followers as the Food Babe Army and writing: "I'd love to know you on a first name basis – come on over and introduce yourself on Facebook, Instagram or Twitter. Hearing from readers is the best part of my day!" (Hari, n.d.a., para. 7).

These characteristics of Hari's language use conform to the feminine style of language (Campbell, 1986). Yet, in keeping with the ultimate profit-seeking motive of relational labor outlined by Nancy Baym, Hari's relational labor cannot be considered a benign sharing of research. Instead, the stance she posits as an organic and radical anti-corporate movement is in fact a sophisticated entrepreneurial venture for Hari, who uses her website to advertise and endorse multiple products (Baym, 2014). *The Food Babe* blog includes flashing advertisements on its sidebar, integrated product sponsorship in post content, and a shop where affiliated beauty and lifestyle products can be purchased by readers. Hari also receives speaking fees and has published a book

based on her website's information. As stated by Maria Godoy, "[T]hrough affiliated marketing partnerships [Hari] is...making money by referring her website readers to organic and non-GMO food brands...Indeed, the Food Babe brand, a registered LLC, has become a full-time job for Hari" (Godoy, 2014, para. 20).

Hari can be considered the public face of the feminocentric, digital anti-science movement, with the reach of her online presence extended through mainstream media attention. She represents a high-profile example of the strength of pseudoscientific discourse that is attached to the performance and discourse of digital femininity.

Discussion of GMOs on Crunchy Blogs

Food and nutrition discourse is problematized in the current moment with the release of mainstream media that have sought to highlight the devastating environmental and health impacts of factory farming, processed foods, conventional nutrition advice and fast food—essentially, the cornerstones of the industrialized U.S. food system¹. In these

¹ Examples of such media include *Supersize Me* (Spurlock, 2004), *Food Inc.* (Kenner & Pearlstein, 2008), *Forks Over Knives* (Corry & Wendel, 2011) and *Fed Up* (David, et al., 2014); television programs such as UK celebrity chef Jamie Oliver's *Jamie's Fowl Dinners* (Beddoes et al., 2008) and Hugh Fearnley-Whittingstall's *Hugh's Chicken Run* (Cameron et al., 2008); and, books including Michael Pollan's *The Omnivore's Dilemma* (2006) and *Food Rules* (2009), Jonathan Safran Foer's *Eating Animals* (2009) and Eric Schlosser's *Fast Food Nation* (2001).

narratives, the state, regulatory agencies, and ‘big food’ such as McDonalds, Monsanto and soda companies are presented as villains, requiring individual consumers to take a stance in opposition by rejecting these food giants and replacing them with alternative food products and practices. This climate gives rise to the viability and popularity of a public figure such as Hari and, more broadly, the crunchy movement which we explore through the analysis of three lifestyle blogs: *Mama Natural*, *Crunchy Hot Mama*, and *Hip Organic Mama*. These lesser-known blogs are offered as a counterpoint to Hari’s high-profile public work; while Hari is an outlier in the blogosphere in the amount of visibility she has gained from her work, these lifestyle blogs are more representative of the way feminized pseudoscience is disseminated and amplified through digital technologies.

The use of the term crunchy is openly explored by the bloggers in our sample. Blogger Jess, writing on *Crunchy Hot Mama*, explains crunchy as “alternative” child rearing and lifestyle practices with the goal of being: “as clean/green as I can in our daily life with a strong focus on incorporating healthy foods into our ‘diet’” (Jess, n.d., para. 2). Crunchy living advocates also emphasize the role of independent research, for example, Annie, the author of *Hip Organic Mama*, writes: “An avid researcher, I found the information out there overwhelming and contradictory with no real solutions. I made it my goal to learn about controversies that impact our health, our food, and our planet and decipher that information” (Annie, n.d., para 1.). This demonstrates the expansion of maternal labor to incorporate individual responsibility for obtaining food production and nutrition knowledge in the face of mistrust that the state, corporations and scientific experts will accurately provide such information.

Furthermore, in popular discourse, crunchy advocates are often identified through practices that can be classified as rejecting scientifically-based interventions in favor of traditional hands-on practices such as natural and home birthing in place of medicalized hospital birthing; the curative powers of food and other biological products such as coconut oil, placenta, and raw milk over pharmaceuticals; homeschooling in favor of state educational systems; and, food, beauty and household products created from scratch using commonly sourced raw materials. Emily Matchar has contextualized the crunchy lifestyle as emerging within an anti-institutional, anti-vaccine, anti-science framework that has gendered implications, as she argues: “women are still very much considered the gatekeepers of family health and safety. When the government, schools, and the medical system aren’t trusted, the responsibility is handed back to Mom” (Matchar, 2015, p. 18). Accordingly, crunchy discourse is often gendered by appealing to tropes of motherhood.

As women have generally assumed the increased time- and labor-intensive practices required to live a crunchy lifestyle, food and lifestyle blogs are predominantly authored by women (Dejmanee, 2016) and are key spaces for feminized knowledge exchange. Women use the blogosphere to seek information and express support in the wake of cultural food anxieties. The format of food blogs is derived from the online diary format (Siles, 2011) and generally features women disclosing intimate details of their personal lives and thoughts in order to foster familiarity with their audiences. These feminized conventions support the deployment of experiential knowledge, harking back to the historical practice of passing food pedagogies down through female genealogies. Cumulatively, these gendered performances instill a sense of digital intimacy and shared

values that provides a backdrop for pseudoscience to flourish as evidenced by the discussion of GMOs.

These tendencies are evidence by how Genetically Modified Organisms (GMOs) are treated. GMOs are organisms that have been altered through genetic engineering, a “process by which humans introduce or change DNA, RNA, or proteins in an organism to express a new trait or change the expression of an existing trait” (The National Academies of Science, Engineering and Medicine, 2016, p. 5), which has been practiced on crop plants since the 1980s (The National Academies of Science, Engineering and Medicine, 2016). There is consensus within the scientific community that the consumption of GMO crops is not harmful to human health. As the National Academies of Science, Engineering and Medicine committee charged with looking into GMOs concludes after extensive review of scientific studies on animals and humans and long-term epidemiological data in their landmark 2016 report on Genetic Engineering: “No differences have been found that implicate a higher risk to human health safety from these GE foods than from their non-GE counterparts” (2016, p. 19). However, GMO foods continue to be regarded warily by the crunchy community, which is concerned with the potential health and environmental impacts of these products. The arguments used to support this opinion typically reference and exaggerate a binary between science and nature, with the former associated with negative effects and the latter idealized. The alleged dichotomy between science and nature is evident through the explanation of genetic engineering on the blog *Hip Organic Mama*:

Selective [plant] breeding has been done since the dawn of agriculture. Genetic engineering (GE) however, is quite different, a recent and scientific process that alters the very genetic make-up of a plant by introducing new DNA into the nucleus. Genes from humans, bacteria, viruses, other plants, and even animals are spliced into the seed. This is

the first time that science has been able to cross the species barrier (Annie, 2009, para. 1)

The description of gene-splicing between bacteria, viruses and animals evokes the imagery of disease and the Frankenstein-ian dangers of interfering with natural processes (“Frankenfoods”). Moreover, this negative violation of natural processes is intensified as the blogger draws on gendered tropes of motherhood, writing: “Many of us don’t realize it, but we are eating and feeding our children foods that have been genetically engineered” (Annie, 2009) She also writes: “Especially when feeding babies with immature immune systems do not subject them to GMO, it’s worth the price to choose organic” (Annie, 2009).

The specter cast by scientific practices within crunchy discourse is deepened by drawing selective associations between GMOs and dangerous chemicals, as evidenced by the inflammatory description of canola on the Mama Natural blog: “Canola is a modified ‘food’ derived from the rapeseed. Ever heard of mustard gas? Yeah, it’s part of the same family” (Genevieve, n.d., para. 31). Selectively isolating chemical compounds and emphasizing their proximity to harmful or dangerous chemicals is a tactic often employed by Hari on *The Food Babe*. For instance, Hari has claimed that beer brewers used propylene glycol, a chemical in antifreeze, as an ingredient, which is incorrect as the product that some beers use is propylene glycol alginate, which is derived from kelp (Hari 2013, but see Swerdloff, 2016). Nevertheless, Hari’s reference to poisonous antifreeze and her emphasis on industrial-sounding ingredients contained in food items has the effect of exaggerating the imagined gulf between what are distinguished as natural and industrial food products and of falsely overstating the potential harm of ingesting processed food products. Moreover, this use of unfamiliar scientific jargon is

contrasted with the familiar assurances of experiential knowledge on crunchy blogs. Blogger Annie at *Hip Organic Mama* underlines her credibility by writing: “[A]s a mom of four, I speak from experience that it is possible and it does get easier” (Annie, 2009, para. 24). Annie also fosters closeness with her readers with warm and casual language when she states: “I will share our family faves with you” (Annie, 2009, para. 5).

The fear inspired by scientific language within the crunchy blogosphere is a reminder of the individual’s obligation to undertake extensive research in pursuit of ideal health goals for themselves and their families, invoking the contemporary gendered ideal of food work mothers are required to: “strive towards, and... position themselves as individually responsible for producing” (Cairns, Johnston, & MacKendrick, 2013, p. 99). This responsibility is framed positively. Genevieve’s extensive post titled “How to Avoid GMOs” justifies the labor of food research as a way for crunchy consumers to “empower [them]selves with knowledge and then make the best decisions for [them]selves and family” (Genevieve, n.d., para. 55). The importance of individual responsibility is also underlined through reminders to be wary of big food and regulatory bodies. In this same post on “How to Avoid GMOs,” doubt is cast upon the agency that manages the symbol that identifies organic food:

You know that USDA Certified Organic symbol? Sorry, it’s not fail-proof. The National Organic Standards Board (NOSB) that’s responsible for organic certification allows up to 5% by weight of remaining ingredients to be part of their USDA’s National List, which gives some wiggle room for GMO contamination. They can make exceptions due to pressure from powerful pro-GMO lobbyist groups. (Genevieve, n.d. para. 7).

This skepticism bordering on paranoia reinforces the concerns of the contemporary crunchy consumer: that any organization that claims to make things easier is liable to

mislead the public and submit to corruption through collusion with other profit-seeking organizations. In this context, the more elaborate the individual research process, the better the outcome. The first subheading under Mama Natural's post reads "Going non-GMO Ain't Easy." This subheading is followed by nine other subheadings that each lay out several dot points with tips for avoiding GMO products in the U.S. foodscape. As Genevieve admits at the end of the post, "Avoiding all GMOs could lead you to the brink of insanity," due to the rejection of mainstream food cultural practices and the necessity of maintaining a vigilant stance while eating out, shopping, and preparing food (Genevieve, n.d. para. 55).

However, the difficulties of avoiding all GMOs in a middle-class, U.S. diet is also correlated with the tenacity and moral purity of the crunchy mama (Cairns, Johnston & MacKendrick, 2013; Parsons, 2015; Brenton, 2017). Therefore, it is a stance that is encouraged as an indicator of one's dedication to supposed morals including healthism and the welfare of one's family and children. The appeal by *Crunchy Hot Mama*, who seeks to encourage her readers to take on the responsibility for self-education and then changing lifestyle habits to avoid GMOs, reads: "We need to take back our food and our children's health" (Jess, 2012, para. 15). Interrogating who the imagined reader she refers to as "we" might be reveals the privilege inherent to the crunchy stance. While the crunchy blogger's anti-GMO stance is presented as an uphill battle undertaken by the morally virtuous, both the current and potential benefits of GMO crops to the hundreds of millions in economically developing countries suffering food insecurity are not discussed (Borlaug, 2007; Juana, 2011).

In fact, the majority of the benefits of GMO crops go to farmers in developing countries resulting from increased annual crop yield of more than 600 million tons of

maize and soybeans alone that benefit both farmers and consumers (Brooks & Barfoot, 2018b). Moreover, the environmental benefits of GMO crops, which are touted as not requiring as much fuel usage and tillage, has been the equivalent of removing 16.7 million cars from the roads in addition to the reduction of pesticides and herbicides reducing the environmental impact quotient by 18% (Brooks & Barfoot, 2018a). Of course, as Herrera-Estrella and Alvarez-Morales note: “The opposition to GM crops is in part due to the fact that most consumers in the First World have not yet seen any direct advantages” (Herrera-Estrella and Alvarez-Morales, 2001, p. 256). Nevertheless, this nuanced global perspective on the potential impacts and benefits of GMOs is obfuscated by the emotion-driven, Western nuclear family-delimited crunchy discourse around supposedly natural lifestyles and diets.

The consideration of different perspectives is also applicable to the circulation of information in the digital age. As information sources in the current political climate are automatically assumed to reflect pre-existing biases, the crunchy and scientific factions are increasingly divided by the epistemologies to which they turn to as reflective of credible sources of knowledge. These prejudices are exacerbated by the individual customization of digital technologies, which tend to confirm the preferences of the individual by anticipating their beliefs through auto-filling, auto-correcting, and stacked search engine results. With these tools used to filter the excessive amounts of information online, knowledge is increasingly a product of confirming suspicions, and facts are simply the outcomes of pre-approved knowledge sources. Credibility is difficult to ascertain in the open-source culture of digital technology but is gauged through alliances with spokespeople and experiences that resonate with existing ideas. Yet, while the intimate experiential knowledge shared in the blogosphere is a feminized response

to the systemic failures of the U.S. foodscape, it also reveals the privilege of crunchy consumers whose rejection of mainstream food practices tends to take the guise of moral superiority. As Julie Guthman argues:

by exalting a set of food choices, the alternative-food movement tends to give rise to a missionary impulse, so those who are attracted to this food and movement want to spread the gospel. Seeing their food choices as signs of heightened ethicality, they see social change as making people become like them (Guthman, 2011, p. 141).

That is, when experiential knowledge is conflated with scientific fact, individual privileges are often mistaken for universal social justice outcomes.

In summary, crunchy blogs are the public presentation of continuous research efforts to weed out toxins – for instance, in the diet, the environment or supposedly in vaccines – which not only proves the virtue of the crunchy mama but also *eunoia*, by sharing this purportedly life-saving information with readers free of charge. These digital narratives are built around a communal quest for natural living that affirm the assumptions that women want what is best for their physical health, and mothers want what is best for their children, which in turn becomes a form of credible knowledge. Furthermore, the feminized discourse of these blogs is framed as suggesting ways of avoiding dangers or dangerous substances, and the better-safe-than-sorry logic of the precautionary principle applies, exhibiting *phronesis*. As Hari writes, “My message is that it’s far better to err on the side of caution...Maybe in the end some of these chemicals are ok to ingest – but I’d rather not take the chance” (Hari, n.d.b., para. 3). Hari’s discourse is oppositional and superior to that taken by scientific interlocutors who are positioned as functionally saying “take a chance, trust us.” For these reasons, trust and credibility on contemporary issues of food and health are aided through the

feminized discourse of blogging platforms and digital performances of conventional femininity, which offer a counterpoint to the masculinized, impersonal discourse of the scientific community. While one of the characteristics of user-generated media is to give voice to a collective of individual experiences, the networked and searchable properties of such knowledge are used to conflate such individual, experiential knowledge with the notion of mother's intuition—a truth akin or superior to scientific facts—which strengthens digital anti-science discourse around GMOs.

Why the Scientific Consensus Fails

In the previous section, we outlined ways in which the issue of GMOs and food additives demonstrates the hold of pseudoscience on the digital sphere and the way it fosters the sharing of intimate feminized experiences as fact. To be sure, the scientific consensus can be wrong; however, in this project we are focused on how information is perceived as credible based on differences in gendered digital discourse. We argue that the prevalence of the anti-GMO stance as a pseudoscientific controversy does not just reveal the popularity of crunchy discourse as a contemporary lifestyle practice, but also the continuing failures of scientific communication in the digital age.

The intimacy expressed on food blogs can be compared to the cautious and detached language of the scientific community. The National Academies of Science, Engineering and Medicine's 2016 report on Genetic Engineering reaches 600 pages. Its task was to examine "evidence regarding potential negative effects and benefits of currently commercialized genetically engineered (GE) crops and the potential benefits and negative effects of future GE crops" (2016, p. xiii). The length of the document is a

product of the scope of the study and of its authors' prioritization of thorough and sound scientific process designed to withstand the rigors of peer review, but it is also so long that it effectively makes its findings inaccessible to lay readers. In contrast to the certainty with which individual crunchy bloggers condemn GMO food, the language contained within this report seeks to maintain scientific impartiality, leading to multiple qualifiers and uncertain language. For example, the paragraph in which the committee determines that GE crops pose no health risks to the population is immediately followed by the disclaimer in which the committee: "states this finding very carefully, acknowledging that any new food—GE or non-GE—may have some subtle favorable or adverse health effects that are not detected even with careful scrutiny and that health effects can develop over time" (The National Academies for Science, Engineering and Medicine, 2016, p. 19). Such caution can be used by the anti-science community to entirely negate the validity of the report's health findings.

In addition, the high bar set for scientific method becomes a way for the scientific community to cannibalize scientific knowledge, pointing to the limitations of each study as a way of discrediting the findings within. Moreover, the deliberately anonymized peer-review process of scientific research to guard against illegitimate bias and the bifurcation of normative and positive questions also means that as public intellectuals move into the public sphere they cannot demonstrate their *arête* or *eunoia*. At the core of the scientific method is that the motives and identities of scientists are irrelevant. Only scientific findings are relevant.

In terms of the structure of public argument, the combination of intensive mothering and declining trust in institutions has created a perpetual demand for scientific controversy. Correspondingly, a new digital industry in producing scientific

controversy has emerged to meet and renew this demand. Dismissals of crunchy mamas as being scientifically illiterate are ineffective because *ethos* is a gateway issue to engage the controversy – that is *ethos* is the gateway under which advocates must pass in order for their arguments to even be evaluated. If scientists’ motives are suspect and not trusted, nothing following will matter. Additionally, rebukes of female anti-science spokespeople have tended to devolve into vicious ad hominem attacks that further alienate the feminocentric crunchy community. For example, the most prominent public critique of Hari came from female food scientist Yvette D’Entremont, who penned a widely circulated *Gawker* article with the inflammatory title ‘The Food Babe Blogger is Full of Shit’ where she argued that: “Between [Hari’s] egregious abuse of the word ‘toxin’ anytime there’s a chemical she can’t pronounce and asserting that everyone who disagrees with her is a paid shill, it’s hard to pinpoint her biggest sin” (D’Entremont, 2015, para. 3). As of November 2016, this article had received over five million page views. D’Entremont’s own use of a digital feminine persona—her online brand is The Sci Babe, whose tagline asks readers to “come for the science, stay for the dirty jokes” (n.d.)—lends this public discussion the tenor of a spectacle in which the clash between different performances of femininity is implicitly debated alongside facts about food science. Hari opens her response to D’Entremont’s article with the saccharine subheading, “I’m full of heart, love and hope for a better future” (Hari, n.d.b., para. 2).

The Sci Babe vs Food Babe debate reveals the extent to which public knowledge in the digital age can be influenced by digital presentations of femininity, as readers side either with the edgy, sexy performance of D’Entremont or the maternal and sweet femininity practiced by Hari. Whichever feminine side is chosen, this debate underlines

the current importance of intertwining knowledge with digital personal credibility, to the detriment of scientific process in the information age.

Conclusion

This essay takes the somewhat unpopular position of recuperating the contingent legitimacy of scientific orthodoxy. This is not to say we need automatic deference to scientific consensus, nor that questions of fact should dictate deliberative questions of public policy, nor that feminized digital performances are not useful, but that we might want to reorient our critical faculties towards social production of digital *ethos*. What is at stake in this research is the contemporary assessment of veracity in an era of alternative facts, and in the information age where enough resources exist to confirm and perpetuate any prejudice. As Yale historian Timothy Snyder writes: “[t]o abandon facts is to abandon freedom. If nothing is true, then no one can criticize power, because there is no basis upon which to do so. If nothing is true, then all is spectacle. The biggest wallet pays for the most blinding lights” (Snyder, 2017, p. 65).

What we suggest is that in an argument between science and personal experience the individual’s experience tends to be more prominently positioned on digital platforms and that the visibility of networked individual experiences has an amplifying effect. We do not wish to dismiss the validity of the individual experience nor the support and material benefits that arise through lifestyle and mommy blogging communities. However, the determination that arises from user-generated content—that every opinion is valid—can be dangerous and detrimental to the public good.

Our analysis offers avenues for consideration for science communicators in the digital age. Feminized experiential discourse is well-aligned with the digital platform of

blogging, and has proved to foster community, lively discussion and knowledge exchange. Although scientific research will not and should not adopt the manner of personal experience, communicators should look to ways to reduce the chasm between crunchy and scientific knowledge in order to defend against the continuing bifurcation of truths that are based on ideological predispositions.

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