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## Sound Reason: Radiolab and the Micropolitics of Podcasting

### Abstract

Over the past 10 years, the practice of podcasting has migrated from the margins of technological conferences to a central role in popular culture. Podcasting is an Internet-based broadcast medium that relies on Real Simple Syndication (RSS) feeds—a peer subscription service—to automatically retrieve and upload content to a portable MP3 player. In light of its growth and popularity, I ask, "what is the podcast's political potential?" In this project, I argue that the podcast has the potential to serve as an instrument of liberal and neurological reasoning. My project will pursue this line of inquiry by asking three research questions: first, what is the cultural history of the podcast? Second, what are podcasts' political potential? And finally, what are the ethics of critical podcast argumentation? To answer these questions, I will attend to the popular and critically acclaimed podcast, *Radiolab*.

In contrast to technological histories that revolve around the figure of the inventor, I will write a history of the "podcast present." This method requires attention to the localized moments that become inscribed into podcasting and dictate its use. First, I explore the Duke iPod experiment, which is largely viewed as a watershed moment for podcast pedagogy, enabling podcasting to become educational. Second, I locate the podcast within a historical conjuncture. Additionally, this section theorizes *Radiolab* acts as a "listening technology" that entrains neurological and liberal sensibilities. Finally, I attend to *Radiolab*'s "yellow rain" controversy, which problematizes neurological and liberal dispositions by demonstrating how they can court epistemological injustice.

On the theoretical level, this project registers the recursive relationship between new media and argumentation to clear a space for new tactics to engage this shifting political terrain. I extend argumentation scholarship by updating traditional argumentative concepts and by inventing new heuristics to accommodate emerging digital practices. This dissertation also intervenes in digital media studies by exploring how political projects and programs recruit new media. On a practical level, this project advocates that podcasts are beneficial instruments that provide citizens with new procedures to adjust their habits and dispositions.

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SOUND REASON: *RADIOLAB* AND THE MICROPOLITICS OF PODCASTING

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A Dissertation

Presented to

the Faculty of Arts and Humanities

University of Denver

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In Partial Fulfillment

of the Requirements for the Degree

Doctor of Philosophy

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by

Justin M. Eckstein

August 2013

Advisor: Darrin K. Hicks, PhD

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PODCASTING  
Advisor: Darrin K. Hicks, PhD  
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## ABSTRACT

Over the past 10 years, the practice of podcasting has migrated from the margins of technological conferences to a central role in popular culture. Podcasting is an Internet-based broadcast medium that relies on Real Simple Syndication (RSS) feeds—a peer subscription service—to automatically retrieve and upload content to a portable MP3 player. In light of its growth and popularity, I ask, “what is the podcast’s political potential?” In this project, I argue that the podcast has the potential to serve as an instrument of liberal and neurological reasoning. My project will pursue this line of inquiry by asking three research questions: first, what is the cultural history of the podcast? Second, what are podcasts’ political potential? And finally, what are the ethics of critical podcast argumentation? To answer these questions, I will attend to the popular and critically acclaimed podcast, *Radiolab*.

In contrast to technological histories that revolve around the figure of the inventor, I will write a history of the “podcast present.” This method requires attention to the localized moments that become inscribed into podcasting and dictate its use. First, I explore the Duke iPod experiment, which is largely viewed as a watershed moment for podcast pedagogy, enabling podcasting to become educational. Second, I locate the podcast within a historical conjuncture. Additionally, this section theorizes *Radiolab* acts as a “listening technology” that entrains neurological and liberal sensibilities. Finally, I

attend to *Radiolab*'s "yellow rain" controversy, which problematizes neurological and liberal dispositions by demonstrating how they can court epistemological injustice.

On the theoretical level, this project registers the recursive relationship between new media and argumentation to clear a space for new tactics to engage this shifting political terrain. I extend argumentation scholarship by updating traditional argumentative concepts and by inventing new heuristics to accommodate emerging digital practices. This dissertation also intervenes in digital media studies by exploring how political projects and programs recruit new media. On a practical level, this project advocates that podcasts are beneficial instruments that provide citizens with new procedures to adjust their habits and dispositions.

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## CHAPTER ONE: INTRODUCTION

Over the past 10 years, the practice of podcasting has migrated from the margins of technological conferences to a central role in popular culture. Podcasting is an Internet-based broadcast medium that relies on Real Simple Syndication (RSS) feeds—a peer subscription service—to automatically retrieve and upload content to a portable MP3 player. Unlike other digital media, the podcast mechanizes finding new content and uploading it on to portable devices. The term “podcast” is a portmanteau of “broadcasting” and Apple’s “iPod.” Despite its obvious linkages to Apple, it is not an Apple product. “Podcast” entered into the cultural lexicon in 2004 when Ben Hammersley tried to describe the recent boom in portable, online radio. He asked “But what to call it? . . . Audioblogging? Podcasting? GuerillaMedia?”<sup>1</sup> From this selection of neologisms, “podcast” stuck and became *New Oxford American Dictionary’s* 2005 Word of the Year.<sup>2</sup> In the contemporary moment, podcasts cover a breadth of topics, from humor and politics to car repair and the karma sutra. Equally broad are the different types of producers, such as institutions like the British Broadcast Company (BBC), National

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<sup>1</sup> Ben Hammersley, “Audible Revolution,” *The Guardian*, February 11, 2004.  
<http://www.guardian.co.uk/media/2004/feb/12/broadcasting.digitalmedia>.

<sup>2</sup> According to the *New Oxford American Dictionary* (NOAD) a podcast is “a digital recording of a radio broadcast or similar program, made available on the Internet for downloading to a personal audio player.” Interestingly, podcast beat out “bird flu” and “ICE” to claim the prize of word of the year. For more information see, “‘Podcast’ is Word of the Year,” accessed September 5, 2012  
[http://www.us.oup.com/us/brochure/NOAD\\_podcast/](http://www.us.oup.com/us/brochure/NOAD_podcast/).

Public Radio (NPR), and Clear Channel Communication (CCC,) as well as professional amateurs (unaffiliated profitable podcast producers), and amateurs.

Podcasts are growing in popularity. A 2010 *Pew Research* report calculated the existence of around 90,000 podcasts, a 28 percent increase from the year prior.<sup>3</sup> A recent Edison Research Study released in May 2012 found that “the percentage of Americans who have listened to podcasts is nearly 30 percent. With the proliferation of smartphones in recent years the number of listeners has been climbing.”<sup>4</sup> An early 2012 branding and digital marketing report put the number around 150,000 listeners.<sup>5</sup> Tom Martin observes that podcasting listening has increased 163 percent from 2006-2012.<sup>6</sup> These studies underestimate the quantity of programs, considering the *Pew* study only evaluates English language podcasts in the United States and the branding study only indexes podcasts available on iTunes. The above studies thus bracket the smaller, though significant aggregators/publishers such as *Podcast News*, *Podcast Ally*, *Oedo*, *iPodder*, and *Podcast Pickle*.<sup>7</sup> Another *Pew* report found that people who listen to podcasts on their phones almost doubled between 2011 and 2012.<sup>8</sup> The new Apple iPhone operating

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<sup>3</sup> Kenny Olmstead, Amy Mitchell, and Tom Rosenstiel, “Audio: By the Numbers,” *The State of the News Media 2011* (2011): <http://stateofthemedias.org/2011/audio-essay/data-page/>.

<sup>4</sup> Mathew Baker, “Amateur Broadcasters Spread Message on Digital Podcast,” *The News Tribune*, July 30, 2012. <http://newstrib.com/main.asp?SectionID=2&SubSectionID=27&ArticleID=21229>.

<sup>5</sup> Mintel Dial, “How Many Podcasts are There? What’s the Future of the Podcast?,” *The Myndset*, last modified January 15, 2012. <http://themyndset.com/2012/01/how-many-podcasts-are-there-whats-the-future-of-the-podcast/>.

<sup>6</sup> Tom Martin, “Marketing at the Speed of Sound,” *Converse Digital*, last modified December 20, 2012, <http://www.conversedigital.com/digital-strategy/podcasting-statistics-trends-future>.

<sup>7</sup> According to Podcast 411’s most recent calculations from January 14, 2012, there are over 173 different podcast directories. For more information accessed September 5, 2012 <http://www.podcast411.com/page2.html>.

<sup>8</sup> Martin, “Marketing at the Speed of Sound.”

system is expected to accelerate this trend by providing an application that gives users instant access to a universe of podcasts.<sup>9</sup> Also, Chevy and Ford's newest cars will come standard with the Stitcher Mobile Application, which allows listeners to stream podcasts in their cars, records their tastes, and uses algorithms that suggest similar podcasts.<sup>10</sup>

In light of its growth and popularity, I am inclined to ask, what is the podcast's political potential? One answer is that podcasts open "up cultural production to a whole group of people who might otherwise have a great difficulty being heard."<sup>11</sup> The confluence of open source and inexpensive sound editing software, the availability of free podcast production guides, and a gentle learning curve enables anyone with a microphone and a little bit of time to reach a vast potential audience. Martin argues that podcast production software like Apple's Garage Band "make podcast production so easy a 4-year old can do it."<sup>12</sup> The Internet provides these producers with a limitless space to upload their content. The shift to digital circulation allows listeners to decentralize syndication, which enables the proliferation of niche tastes. As a result, podcasts foster a robust public sphere by giving citizens a cheap and effective way to broadcast their voices.

Yet, the most popular podcasts are affiliated large media entities. Of the "iTunes Top Ten Podcasts" in the United States as of April 2013, nine of them emerge from what

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<sup>9</sup> Ibid.

<sup>10</sup> Damon Lavrinc, "Stitcher Smart Radio Coming to Chevy Spark, Sonic," *Wired*, July 30, 2012. <http://www.wired.com/autopia/2012/07/stitcher-my-link-chevy/>.

<sup>11</sup> Jonathan Sterne, Jeremy Morris, Michael Brendan Baker, Ariana Moscote Freier, "The Politics of Podcasting," *The Fibreculture Journal* 13 (2008): <http://thirteen.fibreculturejournal.org/fcj-087-the-politics-of-podcasting/>.

<sup>12</sup> Martin, "Marketing at the Speed of Sound."

would traditionally be considered corporate media.<sup>13</sup> National Public Radio (NPR) dominates the top ten lists with seven spots. This is not to dismiss the importance of amateur podcasts; as Kris Markman reminds us, the number of amateur podcasts still outnumber those produced by traditional media outlets.<sup>14</sup> But, NPR's dominance in this arena is significant and under theorized. NPR provides

cultural resources for citizenship: informal education, civic training, cultural enlightenment, [and] opportunities for self-improvement in tandem with the expanding social and educational services provided by the US government.<sup>15</sup>

That is, NPR points to another political potential for podcasts: securing the conditions for liberalism. Indeed, the proper modes of reasoning that underwrite a robust public sphere require a democratic *paideia*. More than the particular *content* of each episode, podcasts entrain liberal sensibilities into listeners.

My project will pursue this line of inquiry by asking three research questions: first, what is the cultural history of the podcast? Second, what are podcasts' political potential? Lastly, what are the ethics of critical podcast argumentation?

To answer these questions, I will attend to the popular and critically acclaimed podcast, *Radiolab*. *Radiolab* is produced by NPR's New York affiliate, WYNC, and it translates scientific discoveries into the public sphere. The show is notable for its signature audio design, which features mashed up voices, musical stings, and the banal sounds of inquiry. While this innovative sonic aesthetic initially did not play well on the

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<sup>13</sup> "iTunes Store Top 10 Podcasts," accessed April 21, 2013.  
<http://www.apple.com/euro/itunes/charts/podcasts/top10podcasts.html>.

<sup>14</sup> Kris M. Markman, "Doing Radio, Making Friends, and Having Fun: Exploring the Motivations of Independent Audio Podcasters," *New Media & Society* 14 (2011), 549.

<sup>15</sup> Laurie Ouellette, "Reinventing PBS: Public Television in the Post-Network, Post-Welfare Era," in *Beyond Prime Time: Television Programming in the Post-Network Era*, eds. Amanda Lotz (Hoboken: Taylor and Francis, 2010), 182.

radio (listener's complained it was kitsch and annoying), the show's popularity soared once it was released as a podcast. *Radiolab* is also effective in making difficult scientific discoveries accessible to the public. In fact, it has received a significant amount of funding from the National Science Foundation (NSF) to teach the public about the sciences. The NSF recently audited *Radiolab* to evaluate its effectiveness.<sup>16</sup> The inquiry found that *all* listeners surveyed found the show accessible and engaging, and 91 percent of listeners retained content. More importantly, the survey found that over half of *Radiolab* listeners reported the show prompted them to reflect on their own conduct.<sup>17</sup>

The next chapter, "Podcast Presents" will review the literature and propose a method of analysis. I will identify the three strains of podcast scholarship: the political economy of broadcasting, the phenomenology of vocal effectivity, and the practice of pedagogy. My project intersects with each of these discourses: I am interested in podcasts' democratic potential for creating deep connections and inculcating democratic values. The broadcast scholarship suggests that podcasts contain democratic potential because they provide a digital platform for citizens to disseminate their views.

Additionally, podcasts provide a digital platform that enables people distributed over vast space and time to coalesce into counterpublics. While I agree with the podcast's political potential, I disagree with the method used to infer these claims. I will argue that the broadcast literature is premised on an *essential* difference between radio and podcast. Instead, I will approach the podcast as a contingent assemblage: the articulation of disparate practices, relations, and instruments into a social whole.

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<sup>16</sup> Barbara Flagg, "Summative: Listeners' Evaluation of Radiolab Program: Choice," *Informal Science*, September 29, 2010. <http://informalscience.org/evaluation/show/262>.

<sup>17</sup> Ibid.

The phenomenology of vocal effectivity literature asks how podcasts can foster deep connections across time and space. These scholars valorize the podcast's use of voice to communicate information. Here, voices project the speaker's presence and thus foster an intimate connection. This branch of literature, I will argue, obscures the cultural conditions that enable a voice to circulate. Instead of focusing on the voice, I will advocate we pivot to explore the techniques of interpretation that underscore the reception of content.

Finally, the practice of podagogy explores the podcast's pedagogical potential. Podagogy scholars experiment with ways of recruiting the podcast into the classroom. They suggest that podcasts may be effective educational instruments. Underwriting this literature, I will claim, is a pedagogy focused on a student's capacity to memorize and recite facts. In contrast, I advocate that we approach the podcast as an instrument of inculcation. More important than the particular content of any lesson, podcasts instill democratic disposition. I conclude this chapter by introducing my method of writing a history of the present. This method implores critics to explore the contingent circumstances that enabled an assemblage to emerge.

Before the term "podcast" was coined, Apple approached Duke to test their products and become a "digital campus." Duke picked the iPod, distributed them to the 2004 incoming freshman class, and the Duke iPod experiment was born. The experiment was a watershed moment for podagogy because it sanctioned the iPod as an educational instrument. According to Cathy Davidson, one of the experiment's architects, the goal of the Duke iPod experiment was to find innovative techniques to surmount the neurological problem of "attention blindness." This problem is located deep within our brains where



neurobiology dictates that focus is zero-sum—attending to one thing means ignoring another. While the experiment was not explicitly articulated to the problem of attention blindness, Davidson hoped it might prompt networked thinking that could bypass this biological limitation. Underwriting the Duke iPod experiment was the figure of the digital nativist: those students that were born after 1985. Digital nativists have materially different brains that have a proclivity towards networked thinking. Here, I will introduce the concept of “neurogovernance” which governs liberal societies through citizens’ brains. This governing rationality locates problems and solutions at the neurological level.

The iPod experiment was radical in that it occurred without a rubric or hypothesis, but with enabling constraints—like faculty training and literature on iPod applications—and an injunction to invent new uses. I will provide a thick description of the iPod experiment, detailing the different ways students deployed their new instrument. I will also canvas the cynical responses of the student newspaper, *The Chronicle*. The iPod is what I call a “technique of relation” that brings together diverse perspectives, people, and instruments into relation. I will theorize that by putting the digital nativist and the iPod into relation Duke University inaugurated the creation of the podcast-subject. This entity is an exemplar of collaboration by difference, where disparate perspectives are melded into a more robust view of the world. I will explain that the podcast-subject is a novel operation irreducible to either the iPod or the digital nativist, but implicates both of them. It encourages students to upload class materials onto a network they can portably access anywhere on campus.

I will then outline Nicholas Carr's criticism that this kind of thinking precipitates shallow thinking. Relying on neuroscience, Carr argues that digital technologies trade in distraction. For example, when reading a blog post, readers are confronted with hyperlinks that briefly interrupt thought to decide if they should click. Similarly, Carr's objections center around the iPod experiment's celebration of distraction as the engine of collaboration by difference. Carr asserts that an inability to think deeply precludes democracy because people default to visceral reactions instead of reasoned analysis. I will then compare this to Davidson's reflection on the experiment. In contrast to Carr, Davidson celebrates the iPod experiment as a success. I will note that she concedes most of Carr's assertions because she finds them irrelevant. If Davidson is right in arguing that individual reasoning is always, already flawed, then we need new techniques to surmount the individual. I will conclude by comparing Carr and Davidson's arguments as two competing strategies of neurogovernance.

My fourth chapter, "Emergence," introduces *Radiolab*. The chapter begins with conjunctural analysis. First, I outline the legal conditions that enabled podcasting to mature into a culturally accepted medium. This history starts back in the early 1990s when the United States District Court for the Southern District of New York ruled that websites were not culpable for what people post on their message boards. The court's ruling, coupled with an amendment to the *Telecommunication Act of 1996* codified norms that fostered Internet free speech. However, the concerns around file sharing enshrined tough copyright protections and bureaucratic regulatory regimes that suffocated early digitally streaming audio. What allowed podcasts to flourish, however, was a legal loophole which restricted the "public performance" of copyrighted material. Because podcast material

time-shifts, the courts ruled that it is not subject to public performance guidelines.

Around the year 2000, the invention of the Creative Commons copyright and the resulting Podsafe network provided producers with ample auditory material without fear of law suit.

Next, I turn my attention to the institutional history of NPR. I argue that NPR's decision to produce podcasts should be read in the context of its struggle for resources. Since its inception, NPR has fought for funding and looked for other revenue streams. Key to its survival was a strategy of learning their audience's tastes to solicit donations. NPR's digital prominence must be read along these lines. I argue the podcast enables NPR to collect more specific data on audience wants and tastes, facilitates deeper connections, creates new funding opportunities, and allows them to secure some advertising dollars. Then, I trace the *Radiolab*'s history, from Jad Abumrad transmitting radio documentaries to almost nobody in the dead of night to a popular and extremely successful podcast. I will give an account of how Abumrad met his future co-host, Robert Krulwich. I will also describe some of the happenstance moments that became codified into *Radiolab*'s signature sonic aesthetic. Moreover, I will argue it is *Radiolab*'s sound that makes it an ideal podcast because it allows listeners to appreciate the intricate sonic detail through head phones and multiple listens. Additionally, I will elucidate *Radiolab*'s links to a broader governmental program of teaching science.

Finally, I will explicate *Radiolab* as a technique of inculcation. I will argue that podcasts act as "listening technology" that instruct listeners in how to reason. I argue that more than the particular content of each episode, Abumrad and Krulwich teach listeners how interpret evidence, draw conclusions, and coordinate findings with prevailing

convictions. Through the hosts' banter, the listener is encouraged to accept a disposition that grants many positions provisional truth. I will claim that *Radiolab* deploys a neurological mode of reasoning that collapses the animal/human and mind/body dichotomies. By teaching listeners to make these inferences, they lay the conditions for the identification as neurological selves. Specifically *Radiolab* engages in the argumentation of inquiry. The show often starts by introducing a common problem, troubles contemporary answers, and then introduces new science (most often neuroscience) to provide another perspective.

Chapter five explores a recent controversy surrounding a recent *Radiolab* segment, "Yellow Rain." Released on September 24, 2012, the podcast recounted the slaughter of hundreds of thousands of the Hmong after the United States left Vietnam. This episode also explores the subsequent debates besetting the chemical weapon called yellow rain. Before explaining the controversy, I will contextualize the debate by explaining the uncertainty around yellow rain. I will explain why it is difficult to determine if yellow rain was a chemical weapon, or just bee feces.

Next, I will provide an account of *Radiolab's* "Yellow Rain" segment and the infamous interview with Eng Yang (E. Yang), a genocide survivor and Thai historian, and his niece Kao Kalia Yang (K. Yang), an award winning writer. During the interview, Krulwich was very harsh, as he discounted E. Yang's experience; at one point, Krulwich called E. Yang's recollections hearsay. The interview ends when K. Yang sobs and presents what I read as a sonorous objection. I will argue it was K. Yang's sonorous objection drew attention to her unethical treatment and sparked a broader controversy and debate.

Then, I will unpack the critiques of *Radiolab*. In particular, I will focus on an opinion-editorial K. Yang penned shortly after the interview. I will explicate her two arguments that *Radiolab* was neither transparent nor objective. Her argument challenges *Radiolab*'s ethos as an ethical, transparent, and fair podcast. In response to public pressure, *Radiolab* opted to revise and rerelease the podcast. Many critics were upset, alleging that *Radiolab* was covering up their transgressions. I argue that the podcast's immaterial nature gave *Radiolab* a significant amount of latitude to appear reasonable while making strategic edits. *Radiolab*'s revision externalized their "discussion minded attitude," which served as a site for higher-order strategic maneuvering.

This dissertation intervenes into both argumentation theory and digital media studies. For argumentation scholars, theorizing the podcast's democratic promises satisfies the injunction of the recent issue of *Argumentation & Advocacy* to "articulate new concepts, theories, and heuristics to better analyze digitally networked arguments."<sup>18</sup> My dissertation identifies new techniques and practices that secure the conditions for deliberation in a networked public sphere. Concepts like the podcast-subject and listening technologies provide new tools to describe novel operations inaugurated by emerging digital practice. I also update traditional argumentation analytics, such as the critical discussion and discussion-minded attitudes to accommodate new arguing contexts. Digital media scholars would be interested in my dissertation because I account for the podcast as a cultural contingent assemblage. Additionally, these scholars would be interested in how podcasts are recruited into neurological, liberal governing rationalities.

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<sup>18</sup> Damien Smith Pfister, "Introduction to Special issue: Public Argument/Digital Media," *Argumentation and Advocacy* 47 (2010), 64.

My work shows how podcasts secure the conditions for governance by providing citizens with a tool to adjust their thinking.

## **CHAPTER TWO: PODCAST PRESENT**

This chapter will review the current podcasting literature and propose my method of analysis, writing a history of the podcast present. The current literature on podcasting can be roughly broken into three lines of inquiry: the political economy of broadcasting, the phenomenology of vocal effectivity, and the practice of podagogy. The political economy of broadcasting is interested in uncovering podcasting's democratic potential. Here, podcasts offer citizens a digital platform to congregate and disseminate perspectives. The Internet's infinite space removes the need for gatekeepers and facilitates a plurality of views. The phenomenology of vocal effectivity asks how podcasts foster connection and kinship. For these scholars, the mobilization of the voice allows people to connect with the speaker in ways unavailable in print. From the boardroom to the pulpit, podcasts allow producers to connect with listeners in new ways. The final group of literature, which goes by a portmanteau from the phrase podcasting pedagogy—podagogy—studies how podcasting aids knowledge acquisition and retention. Teachers use podcasts to substitute lectures, provide supplemental material, and even give feedback on assignments. These educators argue the podcast's unique auditory format, combining convenience and portability, makes it an ideal medium for teaching a "digital nativist," a term used to describe students born after the internet.

Each body of literature has something to offer my project. The political economy of broadcasting foregrounds podcasting's democratic potential by theorizing how it

creates a robust market place of ideas. Moreover, it provides a theory of networked citizenship, through which people across heterogeneous times and spaces can come together to form counter publics. The phenomenology of vocal effectivity research suggests the sonority of podcasting affects audiences differently than texts, because listening is more intimate than reading. Finally, the practice of podagogy operationalizes podcasting's power to create, good liberal citizens.

Independently each branch of literature is insufficient to address my three research questions: 1) what is the cultural history of the podcast? 2) what is podcast's political potential? 3) what are the ethics of critical podcast argumentation? The political economy of broadcasting methodology naturalizes contingent assemblages and thus precludes writing a podcast present. The phenomenology of vocal effectively operates from the flawed premise that all voices are treated equally, which obscures the cultural conditions of podcast argumentation. Finally, the practice of podagogy relies on exam performance to anchor its arguments, which misses how podcasts inculcate habits and dispositions.

### **Radio Broadcasts and Podcasts: Differences of Kind or Degree?**

One major line of inquiry investigates the potential democratic promises of podcasting. These studies explore everything from the podcast as a space for queer activists to churches disseminating sermons.<sup>1</sup> Several studies focus on the rise of the

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<sup>1</sup> For more see Kylie Jarrett, "Private Talk in the Public Sphere: Podcasting as Broadcast Talk," *Communication, Politics, & Culture* 42 (2009): 116-135; on queer activism see, Regan Fox, "Sober Drag Queens, Digital Forests, and Bloated 'Lesbians,': Performing Gay Identities Online," *Qualitative Inquiry* 14 (2008) 1245-1256; for religious podcasts see, Douglas J. Swanson, "Preaching, Prosperity, and Product Sales: A Profile of On-Demand Digital Audio Offerings of Christian Renewalist Ministries," *International Journal of Listening* 24 (2010): 106-124.



“professional amateur,” podcasters that quickly gained a popular following and now professionally podcast.<sup>2</sup> There are some notable exceptions like a spat of research exploring podcasts’ potential to communicate scientific research.<sup>3</sup> However, this research suggests in general that podcasts empower everyday citizens as media producers. Thus, according to Richard Berry, podcasts offer a

disruptive technology and one that has already forced some in the radio business to reconsider some established practices and preconceptions about audiences, consumption, production and distribution.<sup>4</sup>

Similarly, J. Ignacio Gallego Pérez applauds podcasts for challenging the “‘culture industries’ [that] were up until very recently dominated by big media—state run or linked to large private corporations.”<sup>5</sup> Podcasting, like many other emerging digital practices, promised a disruptive anecdote to homogenous and corporate broadcasting.

A number of studies exploring podcasts emerge by contrasting podcasts to radio. Richard Berry wrote one of the first pieces of podcast scholarship. Published in early 2006 and aptly named “Will the iPod Kill the Radio Star?,” Berry theorized the political potential of podcasting by contrasting it to another popular auditory medium: radio. Through this method, he identified three overlapping variables that imbued the podcast with democratic purchase: space, cost, and audience participation. According to Berry,

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<sup>2</sup> Kris M. Markman, “Doing Radio, Making Friends, and Having Fun: Exploring the Motivations of Independent Audio Podcasters,” *New Media & Society* 14 (2011), 547-565.

<sup>3</sup> Hayley Birch and Emma Weitkamp, “Podologues: Conversation Created by Science Podcasts,” *New Media & Society* 12 (2010): 889-909; Illenia Picardi and Simona Regina, “Science via Podcast,” *Journal of Science Communication* 7 (2008): 1-4.

<sup>4</sup> Richard Berry, “Will the iPod Kill the Radio Star? Profiling Podcasting as Radio,” *Convergence: The International Journal of Research into New Media Technologies* 12 (2006), 145.

<sup>5</sup> J. Ignacio Gallego Pérez, “Podcasting in Spain: A New Business Model or a Reflection of Traditional Radio?,” *International Studies in Broadcast & Audio Media* 10 (2012), 26.

these three variables combine to produce a medium that is more amenable to democratic expression than traditional broadcasting. First, the electromagnetic spectrum's scarcity coupled with limited programming slots curb potential radio content.<sup>6</sup> If the electromagnetic spectrum is finite, then a model of distribution is required. Under these constraints, the goal of a radio station is to secure the largest possible audience—and thus the most advertising revenue—by appealing to pedestrian tastes. In contrast, podcasts disseminate through the internet which offers an infinite, asynchronous space. When spatial and temporal restrictions are removed, quantitative markers like book and music sales indicate that more obscure markets significantly outpace their “popular” counterparts: Chris Anderson calls this the “long tail phenomena.” “If Amazon statistics are any guide,” Anderson writes, “the market for books that are not even sold in the average bookstore is larger than the market for those that are.”<sup>7</sup> The long tail suggests that podcasts offer a voice to more radical views typically nudged out of the public sphere. Kris Markman explains that “while the hits are dominated by traditional media outlets (e.g. NPR), there is indeed a long tail of podcasts covering everything from video games to beer to Celtic music.”<sup>8</sup>

Second, Berry argues that podcasts are significantly cheaper to produce and distribute than radio. The creation of a podcast program requires little more than a microphone, an Internet connection, and sound editing software. Berry asserts that

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<sup>6</sup> Berry, “Will the iPod Kill the Radio Star? Profiling Podcasting as Radio,” 156.

<sup>7</sup> Chris Anderson, “The Long Tail,” *Wired Magazine*, October, 2004.  
<http://www.wired.com/wired/archive/12.10/tail.html>.

<sup>8</sup> Kris M. Markman, “Doing Radio, Making Friends, and Having Fun: Exploring the Motivations of Independent Audio Podcasters,” *New Media & Society* 14 (2011), 549.

Podcasting has its roots in open source technology and draws extensively on the world of the written ‘weblog’ and, unlike traditional broadcasters, the Podcaster does not require studios, transmitters or licenses, making the movement from listener to producer easy.<sup>9</sup>

In fact, many podcasters create for the feeling of community as opposed to profit.<sup>10</sup> These podcasts sustain themselves through sponsors, crowdsourcing, and/or grants. *The Dawn and Drew Show*, an established podcast started by two amateurs, secured its means by asking listeners to donate. Those that do attract advertising dollars do so because they appeal to a specific audience. Helen Shaw explains that “the real attraction for sponsors and advertisers with podcasts is the ability to get closer to a defined niche and create interaction with users by linking to online sales.”<sup>11</sup> This new fund raising formula reduces advertising pressure and enables podcast producers to make unpopular arguments. As a result, podcasting has become an alternative to institutionalized media and a home to many different standpoints.

Third, podcasts invite audiences to syndicate, schedule, and share podcasts in place of gatekeepers that filter content. To illuminate this argument, Berry introduces the difference between “pushing” and “pulling” media. Radio, Berry observes, is a pushing media because it propels contents towards the audience. The listener figures as a passive end point for content. A pulling medium is one in which the audience proactively acquires content. A search engine, for example, is a pulling medium because it asks users to input the content they desire. The podcast is a mixture of pushing and pulling. While

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<sup>9</sup> Berry, “Will the iPod Kill the Radio Star? Profiling Podcasting as Radio,” 151.

<sup>10</sup> Markman, “Doing Radio, Making Friends, and Having Fun: Exploring the Motivations of Independent Audio Podcasters,” 547-565.

<sup>11</sup> Pérez, “Podcasting in Spain: A New Business Model or a Reflection of Traditional Radio?,” 31.

the listener selects and subscribes to particular shows (pulling), RSS feeds deliver programming (pushing). Once listeners upload podcasts onto portable MP3 players, they can craft custom stations that mix styles, genres, and languages. One other difference is worth noting: unlike a radio program that evaporates as it is transmitted, the podcast allows users to pause, rewind, and re-listen to a program.

Ragan Fox extends podcasts' potential to the context of marginalized voices. He argues, in the contemporary moment, queer bodies are scarcely afforded spaces to congregate, affirm their identities, and discuss matters of mutual concern. Podcasting, however, provides an inexpensive and efficient means to gather up an oppressed community to call attention to marginalization, legitimize personal experiences, and otherwise affirm identity.<sup>12</sup> This digital enclave, or what Fox calls a "stigmaphile space," also functions tactically to disseminate arguments into the public sphere. He argues that podcasts bypass cultural gatekeepers that often silence voices; thus, it provides an ideal site for queer activism. For instance, Fox argues that podcasts provide an antidote to mainstream media's scant coverage of gay hate crimes. He writes that

podcast-disseminated news of gay bashings and soundscapes that chronicle the dangers of performing mundane activates work in an iterative fashion. The dual approach is a digital form of rhetorical marginality that extends feminist traditions of consciousness raising.<sup>13</sup>

Moreover, Fox explains that these podcasts frequently feature mundane activities of queer people. These stories function to diversify media representations of queer bodies

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<sup>12</sup> Ragan Fox, "Sober Drag Queens, Digital Forests, and Bloated 'Lesbians': Performing Gay Identities Online," *Qualitative Inquiry* 14 (2008): 1260.

<sup>13</sup> *Ibid.*, 1259.

and it provides spaces of identification for the public sphere. So, for instance, a podcast about a trip to Costco illustrates that gay people live normal lives like anyone else.

Hayley Birch and Emma Weitkamp explore podcasts' potential to import science into the public sphere. In their qualitative inquiry into audience participation with podcasts, they echo many of Berry's initial claims. They characterize podcasts as a hybrid, push/pull medium that is "most definitely narrowcasting as opposed to broadcasting."<sup>14</sup> That is, podcasting subscribes to the logic of the long tail more so than a radio or television associated with a mass audience. Through their expansive study of multiple different science podcasts, they found that podcasting is preferable to radio because podcasts facilitate a robust dialogue between fellow listeners or between listeners and media producers. Discussion forums, comment sections, and other digital platforms often accompany podcasts to facilitate dialogue between listeners, scientists, and media producers. Birch and Weitkamp write

The potential of podcast could lie not just in informing or entertaining lay audiences but in stimulating meaningful conversation, for example, facilitating dialogue between lay listeners and those with a range of expertise, including both formal and informal knowledge.<sup>15</sup>

These conversations can spill into the public and "contribute to wider political agendas related to increasing public deliberation and discussion about scientific advances."<sup>16</sup>

The logic that underwrites broadcast literature is an argument by division wherein radio operates as a foil to demonstrate the radical potential of podcasting. This argument

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<sup>14</sup> Hayley Birch and Emma Weitkamp, "Podologues: Conversation Created by Science Podcasts," *New Media & Society* 12 (2010), 891.

<sup>15</sup> Ibid. 893.

<sup>16</sup> Ibid. 907.

surfaces in the assertions that radio is finite while podcasts are infinite; radio is a form of gatekeeping while podcasts are open; radio is one-to-many while podcasts are many-to-many; and so on. While many of these observations are accurate, the method of outlining the differences between radio and podcast begs the prior question of what we mean when we talk about their nature.<sup>17</sup> Instead of offering a historical account of radio or podcasting as a cultural object, this line of inquiry naturalizes their current organization. For instance, the definition of radio as a one-to-many, for-profit or state-sponsored medium that restricts normal citizens' access rests on a well-documented history of corporations like the Radio Corporation of America (RCA) and governments like the British Broadcasting Corporation (BBC) who promote a limited definition of broadcasting.<sup>18</sup> Even the claim that the electromagnetic field is finite is largely exaggerated; in the past, the radio was a many-to-many medium that invited audience participation.<sup>19</sup> By juxtaposing limitless podcasting to limited broadcasting, this literature

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<sup>17</sup> Jonathan Sterne, Jeremy Morris, Michael Brendan Baker, Ariana Moscote Freier, "The Politics of Podcasting," *The Fibreculture Journal* 13 (2008): <http://thirteen.fibreculturejournal.org/fcj-087-the-politics-of-podcasting/>.

<sup>18</sup> For more see Susan J. Douglas, *Listening In*, Minneapolis: University of Minnesota Press 1999.

<sup>19</sup> Thomas Kidd and Mark Rossow, "Spectrum Isn't Like 'Other Natural Resources,'" *CHIPS: The Department of the Navy's Information Technology Magazine*, October-December 2010. <http://www.doncio.navy.mil/chips/ArticleDetails.aspx?ID=2347>. Thomas Kidd, the director of Strategic Spectrum Policy for the Navy, and Mark Rossow explain the faculty metaphor of scarcity to talk about radio:

Spectrum has often been referred to as the "fuel" for wireless technology and the "oxygen" of the Internet. Spectrum differs greatly from natural resources, such as coal, land, water and air, because these resources are finite commodities; there is a limited amount of water, air, coal and land. Because they are finite resources, renewing them is either impossible or incredibly difficult. But the electromagnetic spectrum is not a finite commodity; it cannot be exhausted, and most importantly, the electromagnetic spectrum is instantly renewable. The moment that a radio, radar or some other spectrum-enabled device stops using a radio frequency, that radio frequency becomes instantly reusable by some other device. This simple, yet remarkable, difference means that efforts to manage and conserve the electromagnetic spectrum as if it were a natural resource,

further solidifies a hegemonic model of broadcasting and precludes an investigation into the podcast as a cultural object.

I concur with the broadcasting literature that podcasts have democratic potential. Podcasts offer citizens an inexpensive and relatively easy avenue into the public sphere. Anyone with a microphone, Internet connection, and a bit of audio skill can reach a vast audience. While I wish to retain these insights, the dialectical mode of analysis that posits broadcasting as a stable historical category obscures the cultural processes underwriting the formulation of radio and podcasts. Instead, I conceptualize podcasts as an assemblage and an articulation of disparate practices, relations, and instruments into a social whole. This would suggest that podcasts and radio are not differences in kind but difference of degree. Both are cultural formations that distribute electronic content; they merely recruit different protocols to achieve this goal. As I will cover in the next section, podcast as assemblage shifts the methodological scope to the historical circumstance that enabled podcasting to become a cultural object. This shift is important because the democratic future of a medium is governed by circumstance. If we draw a comparison to radio, we find a cautionary tale of how a radically open medium was eventually managed by corporations. Approaching podcasting as an assemblage accounts for the conditions under which democratic possibilities emerge.

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like water and land, are often misguided or ill-conceived. A resource that is instantly renewable cannot really be in short supply. As such, spectrum conservation is a misnomer.

*Linking Together Practices, Relations, and Instruments: Podcasts are an Assemblage*

Instead of a transhistorical substance, media are contingent assemblages: the articulation of disparate and recurring practices, relations, and instruments into a social whole.<sup>20</sup> Lisa Gitelman defines media as:

socially realized structures of communication, where structure includes both technological forms and their associated protocols, and where communication is a cultural practice, a ritualized collocation of different people on the same mental map, sharing or engaged with popular ontologies of representation. As such, media are unique and complicated historical subjects.<sup>21</sup>

Comparisons between a radio and a telephone illuminate Gitelman's argument. While radios and telephones both rely on a wireless receiver, their uses import different protocols in the forms of different practices, relations, and institutions. I will not rehearse all the differences here, but the phone's capacity for the exchange of expletives adequately demonstrates its difference from radio. The phone allows for a one-to-one relationship without the Federal Communication Commission (FCC) monitoring speech. Overtime, these protocols become habits that easily escape critical inspection. As a result, radios and phones appear to exist without history. When we answer the phone "hello," it sounds like something that you naturally say. Yet, these protocols are far from neutral. They import cultural assumptions and perspectives that weld effects. The simple "hello," for instance, sutures together norms of politeness with instrument use. While good manners may seem banal, they contain cultural assumptions about the right kind of conduct. This is what Gitelman means when she calls media historical subjects—as

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<sup>20</sup> Lawrence Grossberg, *We Have to Get Out of This Place* (New York: Routledge, 1993), 70. A cultural formation is "a historical articulation, an accumulation or organization of practices [...] that have no intrinsic or even apparent connection [...] to construct an apparently new identity."

<sup>21</sup> Lisa Gitelman, *Always, Already New* (Cambridge: MIT Press, 2006), 7.



protocols settle and congeal they subtly influence how people relate to the past and project into the future. As a result, this historical approach accounts for the underlying conditions that enable a medium to emerge. This emphasis encourages critics to explore 1) the problems that prompted the creation of a new technology 2) the prevailing epistemologies, and 3) the plural and unanticipated ways people employ technologies.<sup>22</sup>

Jonathan Sterne's history of audio technologies in *The Audible Past* demonstrates these three salient features. Sterne argues that prior to the creation of audio technologies, sound was understood as being entirely tied to its source—the belief that a violin or a mouth actually contained the sound. However, 19<sup>th</sup> century scientists like Herman von Helmholtz challenged these assumptions by arguing that “sounds are made up of a range of frequencies” and as such “sound is a process that takes place ‘within the ear itself.’”<sup>23</sup> It was this epistemological shift from sound as cause to sound as effect that facilitated the development of sound reproducing technologies such as the phonautograph. The phonautograph's original purpose was to create auditory surrogates for deaf people. This technology would take sound and translate it into an intelligible, visual form. While dreams of auditory surrogates were never realized, the phonautograph was redeployed in a variety of ways and figured prominently in the telephone. Additionally, the phonautograph promised to assist deaf people as they learn to speak by translating speech into marks they could then compare to “correct” speech. This technology was part of an effort to give deaf people full citizenship because their inability to produce “correct”

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<sup>22</sup> Martin Lister, Jon Dovey, Seth Giddings, Iain Grant, and Kieran Kelly, *New Media: A Critical Introduction* (New York: Routledge, 2009), 86.

<sup>23</sup> Jonathan Sterne, *The Audible Past*, (Durham: Duke University Press, 2003), 65.

speech rendered them less than human.<sup>24</sup> In sum, contemporary auditory technologies emerged within a context of epistemologies, institutions, notions of deafness, power, and pluralist technological uses that all coalesced.

New technologies also create new problems that require cultural regulation. Extending the radio and phone example, the radio's one-to-many relationship (broadcaster to audience) resulted from a specific set of circumstances that attempted to preserve radio channels for emergencies. According to Susan Douglas, the discovery of the crystal detector (an inexpensive and effective transmitter) facilitated the rapid proliferation of amateur radio hobbyists. By 1910, these amateur operators outnumbered all other radio broadcasters, which inaugurated a new set of problems. These amateur hobbyists troubled the veracity of broadcasts by deliberately sending out false and obscene messages. Douglas notes several cases when hobbyists played practical jokes on the U.S. Navy by sending false distress signals. The proclivity for such shenanigans was only amplified because it was impossible to track a broadcaster's location. This new problem came to a head when, in the aftermath of the infamous *Titanic* disaster, amateurs clogged the radio waves and prevented a rescue attempt. As a result, the Radio Act of 1912 implemented licensing protocols and reserved some radio waves for government use only.<sup>25</sup>

Like other medium forms, podcasts exist at the intersection of power and amnesia. As the relevant cultural practices become naturalized into the fabric of podcasting, they gain more authority and become more self-evident. The proper content, the appropriate

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<sup>24</sup> Ibid.

<sup>25</sup> For more see Susan J. Douglas, *Listening In*, (Minneapolis: University of Minnesota Press 1999), 59-62.

listening location, and the ethics of production all become normative components of podcasting that obscure other potential practices. The way the political economy of broadcasting literature discusses radio provides a convenient example. As I discussed above, a common theme linking this scholarship is the assumption that radio precludes citizen involvement. Yet, radio was once an inexpensive medium without any gatekeeping that encouraged amateur involvement. Radio emerged in its contemporary form through happenstance incidents, lobbying of corporations, and other historical factors. When a practice loses its historicity, it gains the most force.

What is needed, then, to tackle these questions is a method to account for the historical conditions that enabled podcasts in their contemporary form. This method requires attention to the localized moments that become inscribed into the medium and dictate its use. Historicizing podcasts as a cultural technology can reveal a host of alternative protocols—some more democratic and others less so. But the production of these fractures, Michel Foucault argues, opens “up the space of freedom understood as a space of concrete freedom that is of possible transformation.”<sup>26</sup>

### **The Phenomenology of Vocal Effectivity: Podcasts, Technological Determinism and Orality**

The next line of research is phenomenological; it is interested in podcasting’s potential to forage deeper connections between people across time and space. Here, podcasts are akin to a convenient form of talk radio that allows users to select where and when they prefer to listen. From classrooms to boardrooms, the podcast is studied as a

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<sup>26</sup> Michel Foucault, “Critical Theory/Intellectual History,” in *Critique and Power*, ed. Michael Kelly, (Cambridge, MA: The MIT Press, 1994), 127.

way to foster new connections between listeners and content. Christine Tulley explains that podcasting is

a distinct product of the cultural moment of secondary orality [...] return to an oral-aural tradition offers several unique benefits. For example, aurality permits podcasts to adapt well to an unstructured work space due to portability and free- or low-cost production and reception technologies. Moreover, because human physicality is reinscribed through the corporeal character of voice, podcasts can break down boundaries between virtual and face-to-face communication.<sup>27</sup>

What this quotation reveals is the phenomenology of vocal effectivity technological determinism. The appeal to oral-aural cultures and the second orality imports a mode of inquiry that charts human history through a technological axis. For these scholars, technology is not simply an instrument, but it is mapped into the brain and structures the conditions for thought. As Walter Ong put it, “technologies are not mere exterior aids but also interior transformations of consciousness.”<sup>28</sup> Auditory and visual technologies, as the primary channels of communication, have the most salient effects. Each sensing faculty is accorded its own method of reasoning which translates to broader cultural habits. So, if the dominant technological milieu favors the ear, then it will produce a different cultural configuration. As such, technological determinists posit history occurring in the dialectic between the ear and the eye.

For instance, in the introduction to *Orality and Literacy*, Ong implores his readers to approach culture by examining “successive periods with one another” as illustrated through the following passage:

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<sup>27</sup> Christine Tulley, “IText Reconfigured: The Rise of the Podcast,” *The Journal of Business and Technical Communication* 25 (2011), 259.

<sup>28</sup> Walter Ong, *Orality and Literacy* (New York: Routledge, 1982), 82.

Human society first formed itself with the aid of oral speech, becoming literate very late in its history, and at first only in certain groups [...] Diachronic study of orality and literacy and of the various stages in the evolution from one to the other sets up a frame of reference in which it is possible to understand better not only pristine oral culture and subsequent writing culture, but also the print culture that brings writing to a new peak and the electronic culture which builds on both writing in print. In this diachronic framework, past and present, Homer and television can illuminate one another.<sup>29</sup>

These historical epochs are informed by different technological innovations that inflected either the ear or the eye. The past offers critics an anchoring heuristic to make claims about the present. Conversely, the present can offer a foil to interpret the ebb and flow of technological history. This approach broadly yields three periods: oral, print, and second orality. It is through this dialectical method that technological determinists account for cultural changes.

History begins with oral cultures that use sound as the primary medium. The inability of oral cultures to externalize thought in writing resulted in an interior psychic space that encouraged rhythmic styles of communication, favored traditionalism, and precluded abstract thought. If people could not externalize thoughts, then they spent their psychic resources on short term memory. Oral cultures were temporally-historically narrow, relying on redundant cultural habits and conservative dispositions which translate into concrete thinking and additive logics. Despite its “problems,” orality facilitated community and kinship by foregrounding the voice as the primary mode of communication.<sup>30</sup> Marshall McLuhan and Ong celebrate the “primitive” ear as a nexus of empathy, community, and family. Conversely, literate cultures extend thought over space and time, allowing more reflection and revision of ideas as well as the creation of

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<sup>29</sup> Ibid., 2.

<sup>30</sup> Ibid., 31-75.

“objective” distance between idea and speaker to enable more complex and abstract thought.

The shift from oral to literary culture occurred around 750 BC when the Greeks systematized the alphabet. While there were alphabetic systems that predated the Greeks, theirs was notable because it only had 24 symbols which made it efficient, comprehensive, and easy to disseminate.<sup>31</sup> The invention of writing invited the eye to participate in the production and retention of cultural information. Yet, early texts lacked grammatical rules and spaces because they were designed not for the eyes but for the audience’s lips and ears.<sup>32</sup> As a result, the rules of orality governed the production and reception of texts.

Many point to the rise of Gutenberg’s printing press as the pivotal moment when vision gained prominence in Western societies as the rapid proliferation of texts decentered traditional, oral communication in favor of a standardized method of relaying information. “Civilization is built on literacy,” McLuhan proclaims, “because literacy is a uniform processing of a culture by a visual sense that extended in space and time by the alphabet.”<sup>33</sup> The prominence of the written word initiated abstract thinking. Writing externalized thought and freed up mental faculties for critical reflection. Print also introduced the solitary reader. Books changed from public spectacles read to an audience to an isolating activity. Whereas sonic cultures conveyed information interpersonally, one

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<sup>31</sup> Nicholas Carr, *The Shallows* (New York: W. W. Norton & Company, 2011), 53.

<sup>32</sup> Ibid., 61.

<sup>33</sup> Marshall McLuhan, *Understanding Media*, (Cambridge: The MIT Press, 1994), 86.

could now glean information through the private act of reading.<sup>34</sup> As print made sight the primary medium for information, vision became the knowing sense while sound was relegated to epiphenomenal and ancillary statuses. It is not a coincidence that the terms Enlightenment, Aufklärung, Illuminismo, and le Lumières are all visual.<sup>35</sup> The rich sensory experience of life was reduced to the eye—a point, McLuhan bemoans. McLuhan calls this new subject the “typographic man,” and he worries that texts alienate humans from lived experience. He writes that with the dominance of written text, “nearly all the emotional and corporate family feeling is eliminated from his relationship with his social group.”<sup>36</sup>

Currently, we are in the midst of the second orality. This period began with the invention of the telegraph, radio, television, and other electronic technologies that traverse vast space. They allow for an “all at oneness” that stimulates the senses, builds empathy, and rebuilds the communal kinship lost in the print age. If print culture is characterized by the solitary person reading, then the second orality marks a return to a community. It retains all the potential benefits of print culture like writing, extended memory, and abstract thought but couples them with the powers of the ear: the ability to speak with one another and build community. McLuhan views the second orality, or what he calls “electronic culture,” with the great optimism of a global village where electronic circuits may unite us. The podcast is often located within this particular historical epoch.

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<sup>34</sup> Ong, *Orality and Literacy*, 117-135.

<sup>35</sup>For more information see, Sophia Rosenfeld, “On Being Heard: A Case for Paying Attention to the Historical Ear,” *American Historical Review* 116 (2011): 316-334.

<sup>36</sup> McLuhan, *Understanding Media*, 82.

Robert MacDougall argues that the podcast represents a turn away from the visual proclivity inherited from print culture and returns to the “tactical embrace” of orality. While the second orality predates the podcast, the latter has radically mobilized the voice in unprecedented ways. He applauds the podcast because it is the “modern version of soothsayer or village [...] rendered more compelling than even the televised audio visual representation.”<sup>37</sup> For MacDougall, the podcast promises an empathetic link that surpasses other electronic media.

In contrast to texts, Gardner Campbell stresses the power of podcasts and voice in communicating content. She writes that “there is magic in the human voice, the magic of shared awareness. Consciousness is most persuasively and intimately communicated via voice.”<sup>38</sup> Each voice is unique and ephemeral, representing the human condition. The moment of speaking creates a shared experience that impinges upon being to facilitate a mutual recognition of shared temporal space. Just like the description of a beautiful wedding can never excite the same emotions as being there, symbols can never adequately capture voice because they miss shared durational experience. The voice, in other words, has mystical powers that can reach through headphones and impart a sense of presence—it feels as though a person is there talking to you.<sup>39</sup> In other words, the podcast allows people to connect in intimate ways across vast time and space via the human voice.

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<sup>37</sup> Robert C. MacDougall, “Podcasting and Political Life,” *American Behavioral Scientist* 55 (2011): 717.

<sup>38</sup> Gardner Campbell, “There’s Something in the Air: Podcasting in Education,” *Educause Review* November/December (2005): 40.

<sup>39</sup> Diane Davis, “Addressing Alterity: Rhetoric, Hermeneutics, and the Nonappropriative Relation,” *Philosophy and Rhetoric* 38 (2005): 191-212.



MacDougal suggests the voice becomes the primary sensory data that organizes the surrounding field of action and imbues it with meaning.<sup>40</sup> If there is a voice, then all other sensory data become epiphenomenal, subject to the interpretation of vocality. Michel Choin calls this proclivity to anchor perception in the voice as “vocalcenterism.” Relying on psychoanalysis, Choin posits an innate tendency to focus on voices prior to any other sound. When the voice is disembodied, as in the case of a podcast or a movie narrator, the voice gains the power of the *acousmêtre*—the mystical, omnipresent and omnipotent.<sup>41</sup> Disembodied voices occupy a God-like space, all-encompassing while remaining invisible. MacDougal extrapolates this observation to suggest that a mobile voice, as in the form of a podcast, helps organize everyday experience. By plugging a voice into the ear, external experience conforms to podcast narration. For example, he cites the testimony of a woman who listens to her church’s daily podcast. She notes that while she listens to the podcast, she is more aware of sinning in her day-to-day activity. The preacher’s words direct her attention towards the conduct of her peers and cause her to notice more transgressions. The podcast’s portability coupled with this attention-setting function suggests that the podcast represents a significant digital alteration for the experiences of everyday life. Underwriting this potential effect are assumptions about technological agency.

While this research address an important problematic of connection, it has three problems. First, universalizing orality ignores histories that govern the reception of voice.

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<sup>40</sup> MacDougall, “Podcasting and Political Life,” 717.

<sup>41</sup> Michel Chion, *The Voice in Cinema*, trans. Claudia Gorbamn, (New York: Columbia University Press, 1999), 27.

It obscures the way tones, inflections, rhythms and accents implicate message reception. Words do not glide through a frictionless, smooth space from speaker to listener; rather, communication navigates a sticky, thorny, segmented space inscribed with cultural assumptions that govern the proper discursive conduct. Joshua Gunn acknowledges that the status of voice is determined by contingent historical conditions. He writes that “the point here is that *tone is essentially pointless*, but it is not normless.”<sup>42</sup> Perhaps if McDougal’s female subject heard a female voice or a voice with a strong accent delivering a sermon, she may be less inclined to believe the podcast. This may not be the case, but it is problematic to take her experience with a particular voice and extrapolate it to all other voices. The voice is subject to power relations; thus, we should approach the voice from the perspective of “vocality”—or the idea that voice is a cultural object. Writing about the birth of audio recording technologies Greg Goodale underscores the contingent relations inscribed into voice:

‘American’ voices move along a vertical axis from sopranos with no authority (like women) to basses, who exemplify authority like the mythologized voice of Abraham Lincoln. Voices with foreign accents can move down the sonic scale toward a deeper voice without increasing their authority; the voices are still just those of powerless immigrants, after all.<sup>43</sup>

Goodale’s observation can be mapped onto four broader ways of speaking that affect a message’s circulation: structure (the grammatical coherence of our speech); voice quality (accent and pitch); affective disposition (the amount of passion imbued in a speech); and framing (use of rhetorical devices).<sup>44</sup> These different modes have a real effect on who is

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<sup>42</sup> Joshua Gunn, “On Speech and Public Release,” *Rhetoric & Public Affairs* 13 (2010): 28.

<sup>43</sup> Greg Goodale, *Sonic Persuasion*. (Urbana, IL: University of Illinois Press, 2010), 19

sanctioned to speak under what circumstances.<sup>45</sup> For instance, inappropriate pronunciation potentially triggers xenophobic histories that mute some voices.

Second, the second orality tells the story of humanity's innocence corrupted by the isolating powers of Gutenberg's technology and potentially restored by emerging audio technologies. Here, podcasts represent just another manifestation of our current technological trajectory to the global village. Technology becomes the benchmark of progress, and cultures that fail to meet the mark are positioned as totems of the past.

McLuhan illustrates this point when he proclaims that

until Writing was invented, we lived in acoustic space, where the Eskimo now lives: boundless, directionless, horizonless, the dark of the mind, the world of emotion, primordial intuition, terror. Speech is a social chart of this dark bog.<sup>46</sup>

Elsewhere, McLuhan says this bog "exists in the Third World and vast areas of the Middle East, Russia, and the South Pacific."<sup>47</sup> Beyond awkwardly organizing all oral cultures as the same (Russian and South Pacific cultures are not exactly similar), this view proffers an imperialist rhetoric of development. In Sterne's words, it "denies coeval existence to different cultures [and..] transforms spatial differences into temporal difference, so that people who live elsewhere also live in the past."<sup>48</sup> In technological

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<sup>44</sup> Susan Bickford, *The Dissonance of Democracy* (Ithaca: Cornell University Press, 1996), 97-98.

<sup>45</sup> For more information see, Penny O'Donnell, Justine Llyod, and Tanja Dreher, "Listening, Pathbuilding and Continuities: A research Agenda for the Analysis of Listening," *Continuum: Journal of Media & Cultural Studies* 23 (2009), 423-439.

<sup>46</sup> As cited in Jonathan Sterne, "The Theology of Sound: A Critique of Orality," *Canadian Journal of Communication* 36 (2011), 219-220.

<sup>47</sup> Marshal McLuhan and Bruce Powers, *The Global Village*. (Oxford: Oxford University Press, 1989), 37.

<sup>48</sup> Jonathan Sterne, "The Theology of Sound: A Critique of Orality," *Canadian Journal of Communication* 36 (2011): 220.

determinism's rush to organize history into a progression of epochs, it naturalizes a history of oppression and colonialism.

Third, phenomenologists conflate voice as such (sound) with recorded voice (audio).<sup>49</sup> To claim that the voice maintains its mystical properties when it is recorded is to collapse the distinction in its entirety. Indeed, sound and audio are the same as far as the technological determinists are concerned. Friedrich A. Kittler, for instance, proclaims that sound recording captures the Real because "the phonograph does not hear as do ears that have been trained immediately to filter voices, words, and sounds out of noise, it registers acoustic events as such."<sup>50</sup> While sound and audio are connected, they are different organizations of practices and relations. For example, Chion explains that contemporary listening expectations dictate the following:

sound recording should have more treble than would be heard in the real situation (for example when it's the voice of a person at some distance with back turned.) No one complains of non-fidelity from too much definition! This proves that its definition that counts for sound, and its hyperreal effect, which has little to do with the experience of direct audition.<sup>51</sup>

That is to say, audio technologies define the aesthetic expectations of what something should sound like. This tendency crops up while editing a film scene to mitigate background noise and foreground conversation. If listeners heard a scene without any editing, they would be overwhelmed by the cacophony of noises. Similarly, vocal expectations are the product of sonic editing software which imparts high definition. It is

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<sup>49</sup> Sterne, *The Audible Past*, 218-288.

<sup>50</sup> Friedrich A. Kittler, *Gramophone, Film, Typewriter*, trans. Geoffrey Winthrop Young and Michael Wutz, (Stanford, California: Stanford University Press, 1999), 23.

<sup>51</sup> Michel Chion, *Audio-Visual*, trans. Claudia Gorbman (New York: Columbia University Press, 1994), 99.

important to remember that audio is not neutral. Through his careful investigation of Osama bin Laden's voice, Sterne demonstrates how the lack of audio-rendering makes bin Laden's voice appear grainy and of lower quality. He argues that these auditory tricks work to undermine bin Laden's credibility and voice. Sterne reminds us that voice recordings "are always part of larger networks of action, technology, power, and meaning." <sup>52</sup>

In short, phenomenological research obscures the conditions—both technological and cultural—that guide podcast's circulation and cultural purchase. Missing from these accounts is the importance of RSS feeds, which provide a powerful means of organizing content online and are a key ingredient to the podcast's political potential. They also bracket out the different regimes of listening that dictate how vocalicity circulates and to what effect. Despite these issues, the problem of connection is salient. It implicates how podcasts are mobilized into governmental programs to inculcate dispositions and habits. If podcasts proffer a more intimate connection between speaker and listener, then they can contain radical potential for changing dispositions. I locate vocalicity "in a materialistic epistemology centered on the human body and its surroundings that nonetheless refuses to treat them as stable, a priori entities encapsulated by given scientific laws." <sup>53</sup> To ascertain to the conditions that undergird vocalicity, then, requires we pivot to an historical inquiry, investigating the heterogeneous circumstances of a voice with its power. <sup>54</sup>

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<sup>52</sup> Jonathan Sterne, "Enemy Voice," *Social Text* 25 (2008): 96.

<sup>53</sup> Nina Sun Eidsheim, "Sensing Voice: Materiality and the Lived Body in Singing and Listening," *Senses & Society* 6 (2011): 148.

<sup>54</sup> Ibid.

Specifically, the power of the voice can be grasped by exploring the techniques that underwrite its reception: listening.

*Techniques of Interpretation: Podcasts and Listening*

When discussing the phenomena of aural reception, the English language affords two different terms often used synonymously: hearing and listening. Hearing refers to the physiological process of vibrating air impinging upon the cochlea, stimulating tiny hairs, and quivering nerves that eventually becomes consciously-perceived sound. Listening, on the other hand, is a culturally mediated process that operates on a number of registers. For some, listening functions as a metaphor, a way of relating to visual texts.<sup>55</sup> For example, media scholars argue that listening analytically reveals the immersive nature of digital ecologies.<sup>56</sup> Another creed defines listening as an ethical injunction that ascribing the other with destitute authority.<sup>57</sup> For these scholars, listening is a “*dwelling place* from where we offer our ethical response, our hospitality, to the other and the world.”<sup>58</sup> There are also sociocognitive theories that take a quantitative approach to listening.<sup>59</sup> This camp

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<sup>55</sup> For example, see “Introduction: Listening Out for Connections,” in Nick Couldry, *Listening Beyond the Echoes* (Boulder: Paradigm Publishers, 2006); Krista Ratcliff, *Rhetorical Listening: Identification, Gender, Whiteness* (Carbondale: Southern Illinois University Press, 2006); Katie Crawford, “Following You: Disciplines of Listening in Social Media,” *Continuum: Journal of Media & Cultural Studies* 23 (2009): 525-535.

<sup>56</sup> Nick Couldry, *Listening Beyond the Echoes* (Boulder: Paradigm Publishers, 2006), 7.

<sup>57</sup> For more on ethics see, David Michael Levin, *The Listening Self: Personal Growth, Social Change and the Closure of Metaphysics* (New York: Routledge, 1989); Pat J. Gehrke, “Introduction to Listening, Ethics, and Dialogue: Between the Ear and the Eye: A Synesthetic Introduction to Listening Ethics,” *The International Journal of Listening* 23 (2009): 1-6; Lisa Lipari, “Listening, Thinking, Being,” *Communication Theory* 20 (2010): 348-362.

<sup>58</sup> Emphasis in original, Lisa Lipari, “Listening, Thinking, Being,” *Communication Theory* 20 (2010), 350.

<sup>59</sup> The term sociocognitive theory to describe the scientific and quantitative approach to listening comes from Perry Beard, “A Broader Understanding of the Ethics of Listening: Philosophy, Cultural Studies, Media Studies and the Ethical Listening Subject,” *The International Journal of Listening* 23 (2009): 7-20.

believes that listening is “an area of scientific inquiry” that explores how cognition, attention, culture and memory influence message interpretation and retention.<sup>60</sup> I define listening as a learned, active faculty that selects sensory data and renders it into a cogent auditory experience.<sup>61</sup> The shifting definitions of noise attest to the contingent nature of listening. Take for example the San Francisco trolley bell. For some, it is a comforting sound synonymous with the Golden Gate Bridge, sourdough bread, and salty air. For others, the bell represents an irksome noise, another raucous chime. These reactions evince the contested nature of listening—differing logics correspond to unique auditory gestalts.

Like the San Francisco trolley bell, the meaning of a voice and its relevance is the product of audible techniques, or “a set of practices of listening that were articulated to science, reason, and instrumentality and that encouraged the coding and rationalization of what was heard.”<sup>62</sup> From the early exhibitions of the telephone to modern-day cell phone use, audio requires techniques to discern the signal from the noise. Meaning is contingent

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For examples of the sociocognitive literature, see, Margarete Imhof and Laura Ann Janusik, “Development and Validation of the Imhof-Janusik Listening Concepts Inventory to Measure Listening Conceptualization Differences between Cultures,” *The Journal of Intercultural Communication Research* 35(2006): 79-98; Laura Ann Janusik, “Building Listening Theory: The Validation of the Conversational Listening Span,” *Communication Studies* 58 (2007): 139-156; Graham D. Bodie, Debra Worthington, Margarete Imhof, Lynn O. Cooper, “What Would a Unified Field of Listening Look Like? A Proposal Linking Past Perspectives and Future Endeavors,” *The International Journal of Listening* 22 (2008): 103-122; Graham D. Bodie, “The Understudied Nature of Listening in Interpersonal Communication: Introduction to a Special Issue,” *The International Journal of Listening* 25 (2011): 1-9.

<sup>60</sup> Graham D. Bodie, Debra Worthington, Margarete Imhof, Lynn O. Cooper, “What Would a Unified Field of Listening Look Like? A Proposal Linking past Perspectives and Future Endeavors,” *The International Journal of Listening* 22 (2008): 117.

<sup>61</sup> Bickford, *The Dissonance of Democracy* , 3.

<sup>62</sup> Sterne, *The Audible Past*, 23.

upon material practices that underwrite the reception of content. Sterne discusses a number of groups' audible techniques from telegraph operators to music listeners.

In particular, Sterne's treatment of 19<sup>th</sup> century medical auscultation, or the use of a stethoscope to diagnose a patient, imports many salient features of various audible techniques. He explains that listening inside a patient's body requires "a faculty of hearing that is separated from the other senses. Once so separated, it can be intensified, focused, and reconstructed."<sup>63</sup> Hence, the stethoscope's headset both isolates and extends the ears, enabling the doctor to focus on the body's sounds. Though this tool expanded the horizons of the audible, doctors often lacked the sonic terminology to describe what they heard. Attenuating this problem required the development of a symbolic grid to give sonorous objects meaning.<sup>64</sup> Sterne details the codification of sounds into texts to aid in diagnosis. Yet, these terms were still fairly ambiguous which required doctors to practice listening and develop practical wisdom. Auscultations became a site of virtuosity and a mark of distinction. Here, listening is wedded to the production of medical knowledge as it attempts to map the interior states of the human body. Hence, we see some key components of a particular audible technique: the extension of the ear, the definition of a sonorous object, the importation of sounds into a symbolic economy, and the gap that enables virtuosity. While these basic features exist in every audible technique, they change based on the particular program.

Often times, different mediums solicit a variety of interpretative techniques. Douglas enumerates a number of audible techniques concurrent with the rise of early

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<sup>63</sup> Ibid., 93.

<sup>64</sup> Ibid., 94.



radio like narrative listening, music listening, exploratory listening, and DXing.<sup>65</sup> Each mode imported a different set of goals, techniques, and expectations. Narrative listening, for example, required listeners to adhere to a schedule. It also fostered a mode of public audition wherein people would conjoin and sit in silence while listening to a radio program. In contrast, exploratory listening was a solitary practice that scanned radio waves—like a modern day mashup—to create an aural, somatic experience. There was also DXing that sought to reach the furthest possible radio stations. This mode of listening compelled technical knowhow because a listener had to tweak the radio to amplify its signal and reach. These practices exemplify a technique of the subjectification that “cuts across symbolic systems while using them.”<sup>66</sup> It utilizes content coupled with practices of the self to constitute a subject. Different audible techniques produce different meanings and purposes for content. The music listening audience may listen to appreciate a sonic score. This is a different experience from that of the exploratory listener who constructs a sonorous bricolage (or, in modern parlance, a “mash-up”) and values snippets of songs. Both of these differ from DXing which technologically enhanced a radio to reach further stations. This is not to say that audible techniques are zero sums or that they trade off. Rather, different audible techniques are tied to different goals where the instrument (radio) and the material practices that underwrite its reception (audible technique) are articulated towards a goal.

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<sup>65</sup> Douglas, *Listening In*, 55-82.

<sup>66</sup> Michele Foucault, “On the Genealogy of Ethics: An Overview of Work in Progress,” in *The Foucault Reader*, ed. Paul Rabinow (New York: Pantheon Books, 1984), 369.

Over time, these interpretative habits become ingrained in our thinking. Increasingly, this claim is articulated through anticipation.<sup>67</sup> Previous audible techniques help anticipate the meaning of a sonorous event and determine if it is dangerous. These anticipations are the products of previous experiences that teach the body what to expect in certain circumstances and operate through a feedback loop wherein the now-actualized experiences become enfolded into the body to sediment and inform future perceptions. William Connolly compares this process to learning to walk. While it may require a great degree of difficulty to learn how to move the body, it becomes habit over time and does not require the same sort of attention.<sup>68</sup> As a result, previous interactions dictate future perception. Just think of the number of billboards we confront daily that do not require us to strain our minds for interpretation. We look, and the meaning is immediately apparent. The same holds true with audible techniques, for our techniques of listening often actualize prior to conscious intention and guide our evaluation of an event.<sup>69</sup>

### **Podagogy: Podcasts as Educational Instruments**

The final group of literature explores podcast's pedagogical potential. This branch of inquiry dubbed "podagogy"—a combination of podcast and pedagogy—studies the podcast's educational applications.<sup>70</sup> Deborah L. Vess summarizes this sentiment:

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<sup>67</sup> William E. Connolly, *A World of Becoming*, (Durham: Duke University Press, 2011), 50

<sup>68</sup> William E. Connolly, *Neuropolitics* (Minneapolis: University of Minnesota Press, 2002).

<sup>69</sup> Charles Hirschkind, *The Ethical Soundscape: Cassette Sermons and Islamic Counterpublics* (New York: Columbia University Press, 2006), 123.

<sup>70</sup> See Crispin Dale and John M. Pymm, "Podagogy: the iPod as a Learning Technology," *Active Learning in Higher Education* 10 (2009): 84-96; Catherine Dunham and Steven I. Friedland, "Portable Learning for the 21<sup>st</sup> Century Law School," *The John Marshall Journal of Computer & Information Law* 26 (2009): 370-393; Carrie Windham, "Confessions of a Podcast Junkie," *Educause Review* May/June (2007): 52-65;

When applications are based on solid learning theory and designed with appropriate outcomes in mind, they [podcasts] can transform educational experience of students, build communities of learners, promote more active engagement of materials, and achieve” desired learning outcomes.<sup>71</sup>

Podagogy theorizes methods for including podcasts into curriculum as well as develops metrics to gage effects.<sup>72</sup> It also raises provocative questions like “can podcasts replace professors?”<sup>73</sup> This literature also includes a critical side regarding podcasting’s relationship to the rise of the controversial Massive Open Online Course (MOOC).<sup>74</sup> However, the vast majority of this literature employs quantitative methods in order to study and measure podcasts’ educational efficacy.

Podagogy is interested in reaching “digital natives,” a name given to the generation of students born after 1985. For these students the world has already, always been digital. Growing up in a digital milieu materially altered their brains, and natives display proclivities towards networked collaboration and problem solving.<sup>75</sup> Crispin Dale

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Nicola J. Woods and Simon Phillips, “Podagogy: Can Podcasting Enhance the Quality of Learning and Teaching in Higher Education?,” in Simon K. Haslett and Hefin Rowlands (eds) proceedings of the Newport NEXUS Conference *Linking and Teaching in Higher Education* (2009): 117-123; Gardner Campbell, “There’s Something in the Air: Podcasting in Education,” *Educause Review* November/December (2005): 33- 46.

<sup>71</sup> Deborah L. Vess, “History To Go: Why iTeach with iPods,” *The History Teacher* 39 (2006): 479.

<sup>72</sup> Blanche W. O’Bannon, Jennifer K. Lubke, Jeffrey L. Beard, and Virginia G. Britt, “Using Podcasts to Replace Lecture: Effects on Student Achievement,” *Computers & Education* 57 (2011): 1885-1892 ; Simon B. Heilesen, “What is the Academic Efficacy of Podcasting?” *Computers & Education* 55 (2010): 1063-1068; Ashley Deal “Podcasting: A Teaching with Technology White Paper,” *Teaching with Technology* (2007), [http://www.cmu.edu/teaching/technology/whitepapers/Podcasting\\_Jun07.pdf](http://www.cmu.edu/teaching/technology/whitepapers/Podcasting_Jun07.pdf); Sarah Brittain, Pietrek Glowacki, Jared Van Ittersum, and Lynn Johnson, “Podcasting Lectures,” *Educause Quarterly* 3 (2006): 24- 31.

<sup>73</sup> Dani McKinney, Jennifer L. Dyck, and Elisa S. Luber, “iTunes University and the Classroom: Can Podcasts Replace Professors,” *Computers & Education* 52 (2009): 617-623.

<sup>74</sup> Tara Brabazon, “Socrates in Earpods?: The Ipodification of Education,” *Fast Capitalism* 2 (2006). [http://www.uta.edu/huma/agger/fastcapitalism/2\\_1/brabazon.htm](http://www.uta.edu/huma/agger/fastcapitalism/2_1/brabazon.htm).

<sup>75</sup> Cathy Davidson, *Now You See It*, New York: Penguin Books, 2011.

and John M. Pymm assert that it was nativists' tendency towards networked interaction that catalyzed the development of MySpace, Facebook, Twitter, and YouTube.<sup>76</sup> For educators, nativists' networked predispositions can be helpful and harmful to education. Social networking sites offer students distractions and even the potential to cheat. At the same time, they also provide coordinating, collaborating, and general problem solving tools. The introduction of new technology into the classroom is always potentially controversial. For Cathy Davidson, the problem facing education is learning how to incorporate digital technology into the classroom to ensure that students can use these new tools to find jobs. Davidson warns that by ignoring emerging digital practices educators will leave students unprepared for the digital economy. The challenge for the 21<sup>st</sup> century, she argues, is learning how to incorporate emerging digital practices into the curriculum to ensure students are ready for the new work place.

The iPod offered a potentially provocative pedagogical instrument. Of course, it was an extremely popular entertainment medium before it was recognized as educational. The iPod accrued unseen cultural capital following its introduction to the public in 2001, being called the "supreme creation of an era" by French theorist Michael Bull.<sup>77</sup> For educators, the iPod offers five advantages: 1) its hipness attracts students to the device; 2) it is portable and can accompany students anywhere, encouraging flexible learning; 3) it has a very simple interface, so it is quick to learn; 4) it provides students a large hard

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<sup>76</sup> Crispin Dale and John M. Pymm, "Podagogy: the iPod as a Learning Technology," *Active Learning in Higher Education* 10 (2009): 85.

<sup>77</sup> For more on the cultural importance and spread of the iPod see Michael Bull, *Sound Moves: iPod Culture and Urban Experience*. (London: Routledge, 2007).

drive that can hold text, images, and audio; 5) it can encourage lifelong learning. As a result, educators began experimenting with the iPod as an educational tool. Through these experiments, the podcast became the ideal way to recruit the iPod into the classroom. Teachers use platforms like iTunes University to upload content, determine its publicity, and give students a portal to subscribe to the class. Each time the instructor uploads a new podcast, all of the students will receive it. While earlier iterations of this technology require an iPod attached to a computer, newer generations allow subscriptions to download on portable devices in real time.

Ashley Deal, writing for Carnegie Mellon, released a White Paper advocating the educational use of podcasting. In her policy paper, she analyzes the major studies conducted on podcast and education. She found three pedagogical uses for podcasts: archive lectures, distribute new content, and encourage student digital production. First, teachers upload lectures as podcasts sometimes referred to as iLectures. This is the most common educational use of podcasts. Deal speculates this is because recording and uploading a lecture requires minimal effort and technical skill.<sup>78</sup> Software programs now enable teachers to simply click a button to record and upload a lecture. Tara Brabazon describes the iLecture software as

automated, so that staff are not involved in—and implicitly cannot ‘ruin’—the recording process. They simply switch on a microphone and recording commences, ceasing fifty minutes later. The media file is then transferred over the network from Lecture Theater via the file transfer protocol (ftp). The recordings are compressed, uploaded and streamed to servers distributed over the network.<sup>79</sup>

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<sup>78</sup> Deal, “Podcasting: A Teaching with Technology White Paper,” 4.

<sup>79</sup> Brabazon, “Socrates in Earpods?: The Ipodification of Education.”

The subscription model also ensures that students receive iLecture, and it sits on their iPod or computer for future review. In contrast to webcasting, the act of audio streaming content, the RSS feeds increase the likelihood that students will listen to a lecture podcast.<sup>80</sup>

Initially, some teachers worried that iLecture would encourage students to miss class. However, the data indicates a minimal impact on attendance.<sup>81</sup> Generally, students do not listen to every single lecture podcast, but mostly use them to review for a test. The incorporation of podcasts into the educational curriculum shifts the burden of learning onto the student. It is no longer at the providence of the instructor to dictate the appropriate time and place of learning. Instead, it is incumbent upon subjects to evaluate their schedule and determine when they wish to learn. This is often applauded as granting students a novel convenience, allowing them to dictate how learning fits within their busy lives. Most often, the space identified for learning is the transitory space betwixt places and in addition to other tasks. Carrie Windham, for instance, suggests that podcasts enable students to learn “while on the bus, at the gym, or in their dorm rooms.”<sup>82</sup> Indeed, others suggest listening while walking to class, driving to work, showering, or cooking. These banal suggestions represent neo-liberal capitalism’s larger concern with “dead-time,” those spaces of transition as subjects move from one enclosure to another. For many advocates of podagogy, these “spaces” represent the ideal time to engage in productive learning. As such, podcasts reconfigure transitory space as a plane of learning.

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<sup>80</sup> Deal “Podcasting: A Teaching with Technology White Paper,” 5.

<sup>81</sup> Ibid.

<sup>82</sup> Carie Windham, “Confessions of a Podcast Junkie,” *Educause Review* May/June (2007): 54.

Gardner Campbell extends this line of inquiry. She celebrates the podcast's “

ease of use across multiple environments, typically over computer speakers, over a car stereo, and over headphones—all while the listener is walking or exercising or driving or traveling or otherwise moving about.”<sup>83</sup>

Here, the podcast is celebrated because it is totally mobile, accompanying listeners wherever. Podcasts also do not adhere to a programming schedule, which allows listeners to select the most appropriate time to listen. If sitting in the car is the right time to listen to a biology lesson, then so be it. Additionally, podcast's sonority opens up the field of attention by allowing listeners to multitask. As opposed to reading, which requires eyes transfixed on a text, the podcast enables listeners to distribute their attention across a variety of tasks. While it may be difficult to read a book and walk at the same time, the podcast user can walk, listen, and chew gum. This truly delimits the podcast's potential. The podcast is a potentially liberatory technology because it releases users from the tyranny of scheduled programming, removes spatial restraints, and frees attention.

The podcast also provides a distribution system to disseminate supplemental content. This was tied to a strategy of “flipping the classroom” where teachers assign lectures via podcast and use class time to work on assignments. Catherine Dunham and Steven Friedland explain that with the introduction of podcasts, “the nature of a course changes and teachers are less ‘sages’ dispensing information than ‘coaches’ providing critiques and feedback, as well as providing ways to improve skills.”<sup>84</sup> Moving course content from the classroom to the podcast frees up time for teachers to cultivate particular

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<sup>83</sup> Gardner Campbell, “There's Something in the Air: Podcasting in Education,” *Educause Review* November/December (2005): 34.

<sup>84</sup> Catherine Dunham and Steven I. Friedland, “Portable Learning for the 21<sup>st</sup> Century Law School: Designing a New Pedagogy for the Modern Global Context,” *The John Marshall Journal of Computer & Information Law* 26 (2009): 392.

skills they deem important. Many have advocated this podcast model for teaching in which the lecture occurs at the students' convenience and the class becomes a space for activities and questions. Podcasts are also deployed to teach listening as a technical skill. For example, medical students were assigned different heart beats to learn how to identify different cardiac irregularities. Language classes used podcasts to teach audible techniques to guide pronunciation.

Third, podcasts are deployed as an assignment for students. This is the least written-about component of pedagogy. Deal notes that assigning podcasts imparts technical skills required for digital citizenship. As digital networks spread, students should learn how to broadcast their voices. These assignments are also used to teach students digital collaboration. All three of these uses foreground student flexibility and choice to challenge the traditional classroom.

While podcasts may have started out as a radical pedagogical tool, the vast majority of pedagogy research is conducted through testing. For instance, in the provocatively titled essay, "Can Podcasts Replace Professors?" Dani McKinney, Jennifer L. Dyck, and Elisa S. Luber tested their hypothesis by dividing students up into two groups.<sup>85</sup> The first group was given a lecturer by a professor and the second group was given the same lecture via podcast. Then both groups were given an exam on the content covered in the lecture. McKinney, Dyck, and Luber report that students in the podcast condition scored an average of 71.24% (C-), while those who attended a traditional

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<sup>85</sup> Dani McKinney, Jennifer L. Dyck, and Elisa S. Luber, "iTunes University and the Classroom: Can Podcasts Replace Professors," *Computers & Education* 52 (2009): 617-623.



lecture averaged 62.47% (D-).<sup>86</sup> Here, the podcast's pedagogical value resides in its ability secure higher test scores. Of course, this assumes tests are an accurate gauge of learning. Cathy Davidson argues this is a Fordist model of education designed for "producing the kind of standardized, hierarchical results we might expect for a society that valued those qualities, they often fail to tell us anything meaningful about our kids."<sup>87</sup> Instead, of conceptualizing podcasting as aiding in fact retention, I argue podcasts can serve another pedagogical purpose: inculcating the norms of citizenship.

For example, Ronald Walter Greene illustrates the way media can inculcate the norms of citizenship. He argues that during the Industrial Revolution, the Young Men's Christian Association (YMCA) deployed films to turn immigrants and the working class into citizens. As a new media, film attracted the working class to the YMCA and their events. The portability of the projector allowed the YMCA to enter gymnasiums, town halls, and other event centers with relative ease. Although these early films were silent, an employee of the YMCA known as the "talking secretary," would accompany and narrate the film. This did more than give the story narrative cohesion; the secretary acted as an exemplary reader by instructing the audience in how to interpret the film. As Ron Greene explains, the YMCA films were basically "a visual aid to help Y secretaries teach English and moral character."<sup>88</sup> Through the repetition of these methods for interpreting what counted as "good citizenship" viewers could examine their conduct and align it with contemporary discourses of citizenship. Notably absent from Greene's analysis, however,

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<sup>86</sup> Ibid. 621.

<sup>87</sup> Cathy Davidson, *Now You See It*, (New York: Penguin Books, 2011), 111.

<sup>88</sup> Ronald Walter Greene, "Y Movies: Film and the Modernization of Pastoral Power," *Communication and Critical/Cultural Studies* 2 (2005): 25.

is the content of the film. He omitted these details to account for the material conditions underwriting the production of liberal citizenships. While the movies were probably ideological, or at the least designed to foster a pro-American attitude, it was the way it brought people together to teach liberal modes of thinking and unity that really aided the project of citizenship formation. I argue that this is similar to the way podcasts inculcate the democratic citizenship.

Podagogy imports a number of assumptions about education that are tied to the contemporary moment. If education is defined as the retention of content, then podcasting may not be seen as an educational device because it encourages students to delegate memory to their iPods. But if education is defined as the inculcation of civic cooperation, then the podcast may be seen as pedagogical because it encourages collaboration. Underwriting each side of this debate are different epistemological formations with their own rules for sanctioning truth. As a practice gains prominence, its contested nature recedes from view and protocol becomes enshrined in the medium. Parsing through different practices and relations requires attention to their historical natures, the happenstance occurrences and accidental mutations that facilitated podcasting in its contemporary form. To accomplish this task, I will write a history of the podcast present. Much like the “history of the present” associated with governmentality scholarship, this approach views media as contextually circumscribed: a temporary fixity of rationalities, relations, practices, technological capacities, economics, and institutions.<sup>89</sup>

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<sup>89</sup> For governmentality and a history of the present see Mitchell Dean, *Critical and Effective Histories: Foucault's Methods and Historical Sociology* (New York: Routledge, 1994).

## Writing a History of the Podcast Present

Writing a history of the podcast calls for a problemology (mode of critique which explicates the intersecting domains of practices and thoughts that enable podcasting).

Instead of asking *why* a particular media form exists, it asks *how* it came to be. The switch from *why* to *how* is a significant analytic change because it directs attention away from grand historical narratives towards detailed, localized problems. Writing a history of the podcast present indexes the complex conditions that facilitated its emergence.

Practices like echo chambers that appear sutured to podcasting are reconfigured as contingent habits subject to reworking and rethinking. Like the history of the present, this mode of criticism explores the historical conditions that enable it in the contemporary moment. Exposing the limits of the contemporary moment enables a space “to grasp the points where change is possible and desirable, and to determine the precise form this change should take.”<sup>90</sup> Thus, the podcast’s

transitional states, and identity crises of different media stands to tell us much, both about the course of media history and about the broad conditions by which media and communication are and have been shaped.<sup>91</sup>

Transitional states encompass the moments of novelty and instability that every medium experiences as it gains cultural purchase. Returning to these moments of instability draws into relief the contingent nature of practices and provides a space to destabilize them.

These insights not only demonstrate the fragility of protocols, but the discounted perspectives also provide a wealth of political potential.

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<sup>90</sup> Michel Foucault, “What is Enlightenment,” in *The Foucault Reader*, ed. Paul Rabinow (New York: Pantheon Books, 1984), 46.

<sup>91</sup> Gitelman, *Always, Already New* 1.

Excavating discounted views can be tricky because they typically do not accord with contemporary sensibilities. Following Foucault, this mode of critique emancipates

historical knowledges from the subjection, to render them, that is, capable of opposition and of struggle against the coercion of a theoretical, unitary, formal, and scientific discourse.<sup>92</sup>

A history of the podcast present uses history neither as a justification for contemporary assumptions nor as a space of judgment. Instead, it stresses the heterogeneous conditions that facilitate a particular moment to exhibit its contingency. I will not measure these alternative protocols against our contemporary moment; rather I will locate them within a set of rules for a valid truth claim, of what Foucault would call a game of truth. So while, for example, we may disregard phrenology as bad science, it had procedures for making a truth claim. Here, texts do not represent access to some sort of fragment of history but import a series of relationships between discourses, objects of inquiry, evaluation, truth, and use. Instruments are entangled in epistemological regimes.

If contemporary problems include podcasting's predilection for problematic protocols, then mining history for alternative and even contradictory uses gains critical significance. Exploring localized moments in the podcast's history can reveal a host of alternative protocols. Beyond destabilizing contemporary formulations of podcasting, it also provides a method for envisioning a new future. By focusing on narrow examples of podcast conflicts, I can carefully account for the historical conditions that enabled a practice to gain prominence. This is not to say that I can account for all the contingent

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<sup>92</sup> Michel Foucault, "Two Lectures," in *Power/Knowledge*, ed. Colin Gordon (New York: Random House, 1980), 85.

circumstances, but I can index some of the conditions that enabled particular podcast formations.

In particular, the next chapter will write a history of the podcast present through the 2004 Duke iPod experiment. Initially costing the University a half million dollars, Duke purchased the 2003 freshman class brand new iPods equipped with voice recorders and preloaded with lectures. The experiment's architects celebrated the iPod's fit within foreign language and music classes—the way, for example, listening to Spanish could attune the ear to a language's nuances. Its founders also recently gloated that it was DukeCast, the experiment's information repository, that provided the foundation for iTunes U.<sup>93</sup> After the iPod experiment, Davidson held a “podcasting” conference to evaluate what the students and professors did with their podcasts. Indeed, this experiment is often cited as the example of iPods' pedagogical potential. This study inspired the University of Wolverhampton in England to fund the “podagogy research project.”<sup>94</sup>

The Duke iPod experiment is also notable because it did not have any predetermined objectives. Duke differed from traditional experiments that employ all the trappings of the scientific method like research question/hypothesis, control groups, and so on. Duke released preconceived notions of potential outcomes and instead provided “enabling constraints” like teacher training, digital platforms, preloaded content, among others to see what would occur. Yet this was the experiment, I will argue in the next

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<sup>93</sup> Lynne O'Brien and Samantha Earp, “Reconsidering Duke's iPod Program,” *The Chronicle*, March 23, 2011, <http://www.dukechronicle.com/article/reconsidering-duke-s-ipod-program>. Lynne O'Brien and Samantha Earp, two administrators heavily involved in the iPod experiment wrote “Our work building DukeCast, an early repository for all that media, led to our pioneering work with Apple on the creation of iTunesU.”

<sup>94</sup> Dale and Pymm, “Podagogy: the iPod as a Learning Technology,” 85.

chapter, that enabled the creation of podcasting as an educational medium. Only by relaxing cultural expectations could students begin inventing novel uses for the iPod. I will argue the iPod acted as a “technique of relation” that brought students, professors, staff, digital content, and the Internet into dynamic relations to create something larger than the sum total of its parts: the podcast-subject.

### CHAPTER THREE: DUKING THE IPOD

One of the early questions raised around podcasting involved its potential educational uses. These authors were interested in the central question, “does podcasting enhance education?”<sup>1</sup> Answering this question is the nascent discipline of “podagogy,” the study of podcast pedagogy.<sup>2</sup> Starting in 2005, this research broadly identifies three possible uses for podcasts within education: 1) a method of archiving lecture materials; 2) a delivery mechanism for supplementary content; and 3) an innovative assignment for students. Yet, the capacity to digitally share audio-visual files has been possible for a number of years. Why did this discipline suddenly appear in 2005? Crispin Dale, one of the early promoters of podagogy, points to the Duke iPod experiment as a catalyzing moment. “Since the Duke University initiative,” Dale writes, “a number of other institutions have subsequently followed suit in adopting iPods and podcasting as an educational medium.”<sup>3</sup> Dale is not the only one who celebrates the Duke iPod experiment as the watershed moment of podagogy. Nicola J. Woods and Simon Phillips, in the

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<sup>1</sup> Ashley Deal “Podcasting: A Teaching with Technology White Paper,” *Teaching with Technology* (2007), [http://www.cmu.edu/teaching/technology/whitepapers/Podcasting\\_Jun07.pdf](http://www.cmu.edu/teaching/technology/whitepapers/Podcasting_Jun07.pdf).

<sup>2</sup> The name podagogy was coined at the Centre for Excellence in Learning at Teaching at the University of Wolverhampton. For more see Crispin Dale and John M. Pymm, “Podagogy: the iPod as a Learning Technology,” *Active Learning in Higher Education* 10 (2009), 84-96; Crispin Dale and Ghislane Povey, “An Evaluation of Learner Generated Content and Podcasting,” *Journal of Hospitality, Leisure, Sport & Tourism Education* 8 (2009), 117-123; Crispin Dale, “Strategies for Using Podcasting to Support Student Learning,” *Journal of Hospitality, Leisure, Sport & Tourism Education* 6 (2007) 48-57.

<sup>3</sup> Crispin Dale and John M. Pymm, “Podagogy: the iPod as a Learning Technology,” *Active Learning in Higher Education* 10 (2009), 86.

proceedings of a special conference on podagogy, trace the trend “to the year 2004 when the Duke University USA distributed to new students over 1,600 iPods [...] and] there has since been a swift growth in the use of podcasting across the world.”<sup>4</sup> Indeed, the Duke iPod Experiment surfaces in much of the podagogy literature.

In the summer of 2004, Duke University announced that all incoming freshman would receive a free, custom iPod. This 20-gigabyte, portable device was given to the freshmen as a gift and as an invitation to participate in a classroom makeover. Costing Duke nearly a half-million dollars, the “Duke iPod Experiment,” was an exercise in crowdsourcing educational innovation. Students were given the device and asked to invent educational uses. As Davidson suggests, this experiment inaugurated the beginning of “a new learning paradigm of formal education for the digital era.”<sup>5</sup> Indeed, the iPod experiment has even been replicated in other countries, perhaps most notably China.<sup>6</sup> It also yielded DukeCast, the foundation for iTunes U.<sup>7</sup> Yet, the iPod was a strange candidate for pedagogical exploration because it was designed primarily as a music player. Critics did not miss this observation. For them, the experiment was a naked publicity ploy designed to attract future students. However, the experiment’s advocates

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<sup>4</sup> Nicola J. Woods and Simon Phillips, “Podagogy: Can Podcasting Enhance the Quality of Learning and Teaching in Higher Education,” proceedings of the Newport NEXUS Conference *Linking and Teaching in Higher Education*, edited by Simon K. Haslett and Hefin Rowlands (2010), 117-118

<sup>5</sup> Cathy Davidson, *Now You See It*, (New York: Penguin Books, 2011), 69.

<sup>6</sup> Cathy Davidson, “Plug In-But Tune In, Too,” *Times Higher Education*, October 13, 2011. <http://www.timeshighereducation.co.uk/story.asp?storycode=417761>. Cathy Davidson notes that “The Innovation at Duke led the way to engagement that is only now starting to be embraced by many institutions worldwide. I managed Apple Education initiatives in EMEA, then later in Beijing, between 2004-2009.”

<sup>7</sup> Lynne O’Brien and Samantha Earp, “Reconsidering Duke’s iPod Program,” *The Chronicle*, March 23, 2011. <http://www.dukechronicle.com/article/reconsidering-duke-s-ipod-program>.



saw unrealized potential in the iPod. Tracy Futhey, Duke's Vice President, acknowledged the critics' concerns when she reflected that "iPods were mostly considered to be an entertainment device, but no one had explored their untapped potential for education."<sup>8</sup> This educational potential resided not simply in the content that could be disseminated but also in the *process* of working together. The iPod provided a novel puzzle for the incoming freshman class to solve together.

Cathy Davidson, one of the experiment's chief architects, adduces the iPod as an antidote to antiquated pedagogical practices. She argues that the 2004 freshman were "digital natives," a label that describes students born into a digital age. Being born after the invention of the Internet, Davidson contends, results in materially different brains endowed with special reasoning skills. Traditional educational models which focus on rote memorization, guided discussion, and term papers are inadequate to address the needs of this new generation of digital natives. In fact, Davidson suggests that these anarchistic practices are harmful because they reify the biological problematic of attention blindness. Located deep within our neurology, attention blindness describes the zero-sum nature of focus: focusing on one thing means ignoring another. Attention blindness threatens liberalism by propagating irreconcilable interpretations of the world. Davidson thus cultivates new modes of collaboration that merge heterogeneous views into a more robust conception of the world. The iPod acts as a vector to actualize the digital natives' unique reasoning skills to combat the problem of attention blindness.

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<sup>8</sup> Steve Veres, "I-Pod Experiment," *The Chronicle*, February 28, 2005.  
<http://www.dukechronicle.com/article/i-pod-experiment/>.

However, not everyone applauds the experiment. The iPod experiment's use of distraction courts some potentially troubling risks. Nicholas Carr argues that constantly interrupting thought with new stimuli precludes the techniques of reflection required for liberalism. Drawing from contemporary neuroscience, Carr argues that digital technology causes cognitive overload and thus makes it difficult for students to retain content. By overwhelming the brain, digital technology denies students the capacity to critically evaluate perspectives. So when they are confronted with contrary views, they resort to preheld notions. That is, distraction perpetuates echo chambers by eroding critical judgment required to evaluate the perspectives of others. While Davidson advocates for a more collaborative subject, Carr favors the discrete reasoning individual.

At stake in this debate are two different strategies to govern digital conduct. The relationship between media and the production of liberal citizenship is demonstrated by Ronald Walter Greene's work on the Young Man's Christian Association's (YMCA) use of film to craft liberal subjects.<sup>9</sup> Greene notes that a problem for liberal governance was managing the xenophobia and class tensions accompanying the industrial revolution. He argues that the newness of film, coupled with its portability, made it an ideal candidate to attract diverse audiences and constitute them as the single entity of the audience. That is, the film dissolved the constitutive differences that animate conflict and refashioned the audience as a cohesive group of citizens. My argument extends Greene's analysis by exploring the ways new media entrain conduct into our brains.

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<sup>9</sup> For more see Ronald Walter Greene, "Y Movies: Film and the Modernization of Pastoral Power," *Communication and Critical/Cultural Studies* 2 (2005), 20-36.

While Greene's research addresses early liberalism, the contemporary conjuncture subscribes to a regime of neurogovernance that "not only establishes what counts as an explanation—it establishes what there is to explain. The key here is a particular organ—the brain."<sup>10</sup> Neurogovernance dissolves the Cartesian dualism by uniting the mind and body: thoughts, actions, and conduct are reducible to material processes and chemical exchanges in the brain. Problems and solutions are articulated at the level of neurons, chemical exchanges, and synapses. I argue that the Duke iPod informs a broader neurogovernmental strategy that manages attention blindness by creating "podcast-subjects," an assemblage that traverses disparate perceptions, neurons, thoughts, silicon wires, and feeds. The iPod operates as a technical instrument that encourages students to delegate attention and externalize memory onto a technical device. By interrupting the process of reflection, the iPod attenuates convictions and ensures that users are more accepting of contrary views. From this hodgepodge of perspectives, as Davidson points out, we are able to confront the challenges of digital culture.

### **The Duke iPod Experiment**

Apple, the popular technology manufacture, approached Duke University in 2003 about becoming an "Apple Digital Campus." As one of six schools sponsored by Apple, Duke would test the educational value of new Apple products. Each school selected an Apple product to test its educational potential. Some schools selected more intuitive technologies like Apple PowerBooks. Duke, however, opted for the flashy and culturally relevant iPod. In the deal with Apple, Duke agreed to purchase 1,800 20-gigabyte

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<sup>10</sup> Nikolas Rose, "Governing the Will in a Neurochemical Age," in *On Willing Selves: Neoliberal Politics and the Challenge of Neurosciences*, eds. Sabine Maasen and Barbara Sutter (New York: Palgrave Macmillian 2007), 82.

iPods.<sup>11</sup> Finalized in May 2004, the Center for Instructional Technology (CIT) began laying the scaffolding for what would be known as the “Duke iPod experiment.” The same week that a *Newsweek* cover proclaimed, “iPod, Therefore I am,” Duke announced its plan to give all incoming freshman a free iPod. Taking a half-million dollars from a reserve fund to promote technology, Duke secured the necessary conditions for its experiment. Duke’s decision courted much public attention. “Dude, I just got a free iPod!” an excited teen told MTV news. “Shakespeare on the iPod, calculus on the iPod,” Peter Jennings jeered at the end of ABC’s coverage of the iPod experiment. Even the BBC covered the event by reporting that the “‘kudos factor’ is unmistakable on campus.”<sup>12</sup> Understandably, many were skeptical of the iPod and suggested that the experiment was nothing more than a publicity stunt. In response to these accusations, Peter Lange, Duke’s provost, remarked that

people have accused us [of] or admired us [for] having been either incredibly manipulative or prescient with regard to the publicity that it got for Duke [but] the one thing we most clearly did not anticipate was the degree of attention and publicity we got from the iPod experiment.<sup>13</sup>

On a warm August 19, 2004 evening, Duke freshmen received their iPods. The sleek and small portable MP3 player came preloaded with Duke’s fight song, an address from President Richard Brodhead, phone numbers, lectures, language lessons, schedules, and maps. Concomitant with the iPods giveaway, Duke also launched a customized

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<sup>11</sup> Jane Stancill, “Some Duke Students are Critical of iPod’s expense,” *News & Observer*, July 26, 2004. Lexis-Nexus.

<sup>12</sup> The news snippets cited in James Todd, “The iPod iDea: Wired for Scholarship,” *Duke Magazine* 91(2005), <http://dukemagazine.duke.edu/article/duke-magazine-ipod-idea-james-todd-septemberoctober-2005-1>.

<sup>13</sup> Ibid.

version of Apple's iTunes which allowed students to download new content for their courses and legally purchase new music. It even gave each undergraduate ten free downloads to interest them in the service.<sup>14</sup>

Duke's decision to go with the iPod beguiled the public. They were curious as to how a music listening device could be educational. Tracy Futhey explained that "the idea behind this project was to put an incredibly easy to use, highly mobile and versatile device into the hands of our creative faculty and students to find out what kinds of academic uses they would discover."<sup>15</sup> She added that there was a practical reason for selecting the iPod: "There's nothing the student can do with an iPod that he or she couldn't do with a laptop [...] the mobility and power in that small package means they'll most likely take it with them everywhere."<sup>16</sup> For Davidson, who was one of the experiment's architects, the iPod's counter-intuitive design contained the most educational potential. She explained that "we were interested in what learning applications students might come up with if challenged to think about pedagogical uses of a technology that was already part of their everyday life."<sup>17</sup> Introducing the iPod into the educational environment created a number of problems that resisted easy explanation. In this way, Davidson articulated the experiment as a "calculated disruption of the pedagogical status quo with the aim of reshaping education for the Broadcast Yourself

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<sup>14</sup> Kelly Rohrs, "RIAA Gives Support to iPod Plan," *The Chronicle*, August 26, 2004. <http://www.dukechronicle.com/article/riaa-gives-support-ipod-plan>.

<sup>15</sup> Veres, "I-Pod Experiment."

<sup>16</sup> Jefferson Graham, "Duke Passes out iPods for Educational Use," *USA Today*, July 21, 2004, 1B.

<sup>17</sup> Davidson, "Plug In-But Tune In, Too."

era of the interactive, digital age.”<sup>18</sup> The iPods provided students a unique challenge to fashion an entertainment device into a pedagogical instrument.

There are two different ways to approach experimentation. Approach 1 involves speculation, control groups, and data collection. It usually results in a report that confirms or denies the hypothesis. This sort of work operates from a top-down model wherein researchers attempt to control variables to ensure replicable results. It is tied to university politics where academics are encouraged to produce deliverables for evaluation and assessment. In this sort of experiment, there is not a lot of surprise. Either it proves the hypothesis or not. This approach would prejudge the iPod experiment as a failure. Michael Bugeja asserts in his piece for *Inside Higher Ed*, “the only stream of content readily available for this medium was music. Without a plan for a steady stream of academic related content, the iPod as an academic medium was destined to fail.”<sup>19</sup> From this perspective, the Duke iPod experiment could never succeed because there is not enough work dedicated to defining the contours of the exercise. Thus, students would default to old habits of listening to music.

Approach 2 is much more radical. Its goal is to foster creativity and potentially enable the production of an “event” when something new jumps into being. Instead of rigid procedures and planning, approach 2 provides “enabling constraints,” or a set of conditions that facilitate creative interaction.<sup>20</sup> The Duke initiative is an exemplary of this

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<sup>18</sup> Ibid.

<sup>19</sup> Michael Bugeja, “The Medium is the Moral,” *Inside Higher Ed*, May 20, 2005. <http://www.insidehighered.com/views/2005/05/20/tech>.

<sup>20</sup> Brian Massumi, “Of Microperception and Micropolitics: An Interview with Brian Massumi, 15 August, 2008” *Inflexions: A Journal for Research-Creation* 3 (2009), 15

second approach because it favored enabling constraints like giving teachers some iPod training, limiting the number of classes with explicit uses for iPods, and delegating students as the iPod experts. Students were asked to invent “educational” uses for their new devices. “Educational,” however, was a vexed term. A rigid definition would preclude innovation by predicating the outcome. For instance, if CIT defined educational as a study aid, then it would obscure other potential inventions. In Davidson’s words, “this was an educational experiment without a syllabus. No lesson plan. No assessment matrix rigged to show that our investment had been a wise one.”<sup>21</sup> Davidson was concerned that antiquated assessment tools may miss some of the iPods more ingenious applications. Yet, removing all enabling constraints would collapse the experiment into a public relations stunt.

At the center of the experiment was the digital nativist, which denotes students who were born roughly around 1985 and have never known a world without high tech computing.<sup>22</sup> This denomination emerged from the recent discourses surrounding neuroplasticity. In the past, the brain was mapped with specific regions named after the early scientists who discovered them. For example, the frontal gyrus that governs the production of speech was dubbed Broca’s area because it was discovered by Paul Broca. Brain maps at this time were also topographical and organized the brain along hierarchical axes, elevating the prefrontal cortex to higher-order intellectual reasoning

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<sup>21</sup> Davidson, *Now You See It*, 63.

<sup>22</sup> For critiques of the term digital nativism see, Jamie McKenzie, “Digital Nativism, Digital Delusions, and Digital Deprivation,” *From Now On: The Educational Technology Journal* 17 (2007), <http://www.fno.org/nov07/nativism.html>; “The Net Generation Unplugged,” *The Economist*, March 4, 2010, [http://www.economist.com/node/15582279?story\\_id=15582279](http://www.economist.com/node/15582279?story_id=15582279).

and relegating the amygdala to base functions. Each region of the brain assumed a particular characteristic that was hardwired into its biology. Neural capacities would peak at around twenty-five and decline rapidly for the rest of the individual's life. This model of the brain emerged during the Industrial Revolution. Much like the steam engine, the brain was an orderly and mechanical set of parts performing precise functions that contributed to cognition.

However, contemporary neuroscience suggests that the brain is far more malleable than machinery as it can change to accommodate experience and the environment. To follow Davidson's analogy, the contemporary brain is like an iPhone. It comes with a certain set of applications, but those programs can be removed, revised, and replaced. Current neuroscience replaces the static model with one that foregrounds plasticity. This new, plastic brain connects neurology to circumstance and explains how biographical, cultural, and political dispositions become etched into our synapses. Underwriting the plastic brain are assumptions about the associative nature of experience and neuron formation. The famous neuroscientist Donald Hebb, and a pioneer of neuroplasticity, put it this way: "any two cells or systems of cells that are repeatedly active at the same time will tend to become 'associated,' so that activity in one facilitates activity in the other."<sup>23</sup> Put simply, cells that fire together wire together. As the brain repeats similar tasks, they settle into habits that obviate the need for conscious attention. The process of learning how to walk illustrates this dynamic neural process. While babies initially struggle to walk, the complex neural relations underwriting movement sediment

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<sup>23</sup> Cited in Nikolas Rose and Joelle M Abi-Rached, *Neuro: The New Brain Sciences and the Management of the Mind* (Princeton: Princeton University Press, 2013), 49.



through repetition and practice which turns walking from chore into habit. The merger of these neural relays generates a kind of efficiency that allows the mind to concentrate on other tasks. Such mergers occur in the classroom too where students learn proper methods of reading. While we may have had to concentrate to extract meaning out of a hodgepodge of letters, we can now effortlessly glean instant meaning from billboards. Different habits manifest in physically different brains. For example, cab drivers in London who rely on their spatial reasoning to navigate the difficult roads have a physically different hippocampus—the part of the brain responsible for spatial reasoning—than others. As a result, neuroscientists create a direct link between the environment and the materiality of our brains.

If historical circumstance molds the brain, then technology has a significant role in its formulation. This was the central insight of Marshal McLuhan's famous aphorism that the medium is the message: It is not the particular content of a medium that is important but the series of assumptions and relationships it imports. McLuhan explains that "the effects of technology do not occur at the level of opinions or concepts, but alter sense ratios or patterns of perception steadily and without any resistance."<sup>24</sup> For example, the introduction of the railroad also inaugurated new ways of thinking about space, speed, and distance. From this perspective, digital media is studied at the level of neurological effects. So, this sort of media criticism is not particularly concerned with representation but with the ways digital technologies become mapped into our neurological processes.

One salient aspect of digital media is its capacity to gather disparate modes of inscription (wax grooves, magnetic tape, 35 negative film, and so on) and translate them

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<sup>24</sup> Marshall McLuhan, *Understanding Media: The Extension of Man*, (Cambridge: MIT Press, 1994), 18

into binary code. While the availability of these different media encourage multitasking, the software protocols embalm these habits into digital practice. For example, the invention of the popular personal computing operating system known as Windows encouraged people to multitask by putting content into different boxes that can open concurrently. In its contemporary formation, networked technologies invite people to divide their attention between tasks: you can do your taxes while listening to music, shopping, and catching up with a friend. The resulting media use is registered neurologically as it forges new neural networks to accommodate the juggling. Digital nativists are thus people who have always had this multitasking brain.

The different shape of their brain gave digital nativists new modes of problem-solving, reading, memory, and collaboration. Davidson queries:

What if we assumed that their experiences online had already patterned their brains to a different kind of intellectual experimentation [...] and what if we let them show us where the pedagogical results of such an experiment might lead?<sup>25</sup>

In contrast to their teachers who were reared on studious focus and the accumulation of facts, this new generation was equipped to juggle multiple tasks. The iPod experiment harnessed these new brains to surpass the faculty's attention blindness and invent new educational uses. It is this neural divide that was the main engine of the experiment: different brains had the potential for new thoughts, but years of institutional training equipped teachers to direct the experiment.

Like any entity, the iPod contains latent capacities, or dormant potentials, that activate only when put into particular relationships. For example, throwing either hydrogen or oxygen on a fire only intensifies the blaze. However, if you put hydrogen

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<sup>25</sup> Davidson, *Now You See It*, 62.

and oxygen into relation, they actualize into water. This is not an additive logic; water is not produced by the simple addition of hydrogen and oxygen but emerges from complex processes that transform both entities. In contrast, coupling hydrogen and helium activates another set of potentials that would create a compound central to nuclear fusion. The Duke iPod experiment put digital nativists in relation with the iPod. If the digital nativist's brain is able to activate the iPod's properties, then the iPod also activated latent capacities in the nativists' brain. While students probably used iPods in the past, the institutional educational injunction unsettled older habits of education and catalyzed new modes of creativity, thinking, and problem solving.

Professors who featured iPods in their curriculum submitted request to CIT for assessment and approval. If the CIT felt that the request was a good use of the iPod, the professor and the entire class received iPods. Other courses may have used the iPod though in a more supplemental function. When the experiment started in August 2004, the CIT approved six classes with many other proposals awaiting approval.<sup>26</sup> After the first week of iPod use, Duke's student newspaper, *The Chronicle*, ran a story to analyze how the iPods were utilized in classrooms. The students interviewed reported that they used the iPod primarily for its mnemonic potential. The iPod's microphone and portable storage allowed students to record lectures and save them for later. It became a new method of inscription that supplemented and, in other cases, displaced note taking. Students were able to delegate remembering class lectures and content to a digital device. Regina Liu applauded the iPod because it allowed her to listen to a lecture multiple times,

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<sup>26</sup> Seyward Darby, "Freshmen Receive Long-Awaited iPods," *The Chronicle*, August 20, 2004. <http://www.dukechronicle.com/article/freshmen-receive-long-awaited-ipods>.

catching bits that she did miss in class. However, sonic inscription created other problems such as fellow freshman Marc Champaloux's complaint that the audio quality was just alright and the iPod's usefulness was tied to "how loud your professors speak—and how loud everyone else talks."<sup>27</sup> However, the report found that overall "iPods, for many, have blended quickly into the background" and that many students have not even taken it out of the box. While recording lectures may not appear to be a novel educational function, it signaled students turning into content producers.

As professors and students found new uses as the year progressed, the CIT approved 17 more courses. The iPod gained the most currency in music and language courses. Anthony Kelley, a music professor, integrated the podcast by distributing a Bach chorale MP3 that was missing particular vocal ranges (soprano, alto, tenor or bass), and he asked students to fill the missing pitches with their voices. Lisa Merschel, a visiting professor in romance studies, used the iPods to replace a language lab. In place of confined hours and circumscribed locations, students were able to listen to native Spanish speakers on their own schedules and record their practice on an audio-diary that they could later submit. The iPod facilitated "time-shifting" lessons where students could choose the most appropriate time and place to learn. This new capacity activated students to take charge of their learning. It was now their obligation to evaluate their schedule and determine the best time to learn.

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<sup>27</sup> Elizabeth Floyd, "Think Out of the Box, or Leave your iPod in it," *The Chronicle*, August 27, 2004, <http://www.dukechronicle.com/article/think-out-box-or-leave-your-ipod-it>.

Students learned “while on the bus, at the gym, or in their dorm rooms.”<sup>28</sup> *The Chronicle* bemoaned ear budded students traversing the Duke campus. Its writers worried that these students were missing an important part of the community by shutting out the campus’s sounds.<sup>29</sup> If pedagogy was once tied the classroom, then the iPod radically mobilized education. The silicon chips enabled a parallel, virtual space that accompanied students throughout their days. Students held a virtual field of lectures, assignments, and news updates in their pocket. Now, anywhere they went was a potential place for them to work. The iPod transfigured the entire Duke campus into a pedagogical site.

To liberate content stored on the iPod, the CIT sought out new programs. *The Chronicle* disseminated the CIT’s findings, detailing new programs, their function and location. They championed “SharePod” for the PC and its Mac analog, “iLinkPod,” because they enabled students to transfer MP3s to their computers and share files. There was also iPod Agent (PC) and Pod2Go (MAC) which linked RSS feeds to the iPod, allowing students to update their portable devices with the most recent headlines. They also told students about iSpeak by ZappTek, which promised to convert any file into speech for easy listening on the go.<sup>30</sup> These new programs helped give the iPods new educational purchase by allowing students to network recorded lectures, listen to assigned readings, and keep abreast of current events. Students radicalized this novel ability outside of the classroom by developing “Audioscrobber,” a program which catalogues

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<sup>28</sup> Carie Windham, “Confessions of a Podcast Junkie,” *Educause Review* May/June (2007): 54.

<sup>29</sup> “Tuning into Duke,” *The Chronicle*, January 12, 2006, <http://www.dukechronicle.com/article/tuning-duke/print>.

<sup>30</sup> Sean Beiderman, “iRock,” *The Chronicle*, August 26, 2004, <http://www.dukechronicle.com/article/irock>.

the music on student iPods and uploads them onto a Duke based server. This technology tapped network intelligence to determine the most popular songs on campus and allowed students with similar musical taste to find one another.<sup>31</sup> Whether it was a lecture or a hit song, students became both producers and distributors of content.

Digital nativists began deploying the iPods in ways that were conducive to collective learning. For instance, students in Professor Marie Lynn Miranada's class used iPods to conduct interviews with the local community about their concerns with lead paint. Students uploaded their interviews onto a common server, and other students could then download them, listen to them, and offer feedback. This project resulted in a crowd-sourced audio-documentary that appeared on local radio stations. Students also developed *ad hoc* networks to share music and learn about other students' tastes. Another group uploaded an audio archive of heart arrhythmias on their iPods and programmed a "signal-tracking technology to match what they were hearing in the patient's chest to the cataloged conditions."<sup>32</sup> Students quickly discovered that they could produce media content and upload it on to a shared server that would distribute the content to other students.

The iPod experiment merged disparate perspectives, cultures, expertise, ages, and abilities with an iPod to produce what I call the podcasting-subject. "By the end of our first experimental year," Davidson brags, "Duke was part of a new movement to

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<sup>31</sup> Priyanka Kanakamedala, "Faculty Call iPod a Success," *The Chronicle*, September 7, 2006, <http://www.dukechronicle.com/article/faculty-call-ipods-success>.

<sup>32</sup> Davidson, *Now You See It*, 67.

transform the iPod from a listening device into an interactive broadcasting device.”<sup>33</sup> The iPod was not an instrument but a vector propelling the podcasting-subject into being. iPods offered a host of capacities including memory, networking, and mobility. The digital nativist’s unique brain also signaled a set of potentialities: distrusted attention, networked thinking, and proclivities for sharing. Each of these potentials exists on different registers: technical, biological, and cultural. However, the capacities snapped together when digital nativists began interacting with podcasts, inaugurating the podcast-subject. The iPods activated entrepreneurial students to deploy the technology; students’ tendencies to share meshed with networked potential; multitasking jived with mobility; and students’ potential to distribute information and consciousness across platforms catalyzed the emergence of the podcast-subject. It would be insufficient to argue that it was the iPod or the student who enabled the creation of the podcast subject. Instead, this novel subject formed through the dynamic relationship between these two entities.

A month later, Duke announced that it would continue a modified version of the iPod experiment. In an interview, Lange indicated that the decision to continue the experiment was influenced by the “innovative uses of the iPods as demonstrated by both faculty and students.”<sup>34</sup> In particular, Duke cited a number of developments that justified the extension of the iPod program such as 75 percent of freshmen self-reporting academic use of the iPod, professors observing improvements in student work, and the promises of “podcasting”—the nascent practice of recording audio information for digital

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<sup>33</sup> Ibid., 69

<sup>34</sup> Tiffany Webber, “Duke iPod Program to Continue Next Year,” *The Chronicle*, April 7, 2005, <http://www.dukechronicle.com/article/duke-ipod-program-continue-next-year>.

distribution.<sup>35</sup> This innovation resulted in the first ever academic podcasting conference. Duke introduced DukeCast in 2006, an online repository for digital content and the harbinger to the 2007 launch of Apple's iTunes University.

Following Duke, a number of different schools such as University of Wisconsin, University of Michigan, Harvard, and the University of Washington cited the Duke iPod experiment and implemented similar experiments to test the potential benefits for incorporating podcasting into the classroom.<sup>36</sup> With the spread of programs also came the development of new tools and instruments that are able to gauge podcasts' effects, measure use, and inform future policy proscriptions. The legacy of the Duke iPod experiment firmly enshrined podcasts as an educational tool. Teachers use podcasts to substitute lecture, provide supplemental material, and even give feedback on assignments. These educators argue that the unique auditory format, combining convenience and portability, makes it an ideal medium for teaching the digital nativist.

### **Attention Blindness and Collaboration**

Years after the iPod experiment, Davidson began theorizing its radical potential; she "was excited to take the methods we had gleaned from the iPod experiment back into the classroom."<sup>37</sup> The year following the experiment, Davidson attended a lecture on the neuroscience of attention. She recalls the speaker playing Christopher Chabris and Daniel Simons' famous "gorilla experiment" video. The video features six people—three in

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<sup>35</sup>Ibid.

<sup>36</sup> Ashley Deal, "Podcasting: A teaching with Technology White Paper," *Carnegie Mellon Office of Technology for Education*, June 4, 2007, accessed January 29, 2013, [http://www.cmu.edu/teaching/technology/whitepapers/Podcasting\\_Jun07.pdf](http://www.cmu.edu/teaching/technology/whitepapers/Podcasting_Jun07.pdf).

<sup>37</sup> Cathy Davidson, "Collaborative Learning for the Digital Age," *The Chronicle of Higher Education*, August 26, 2011, <http://chronicle.com/article/Collaborative-Learning-for-the/128789/>.



white shirts and three in black shirts—passing a basketball back and forth. The audience was asked to count the number of times people in white shirts passed the balls. While the people count passes, a guy in a gorilla suit strolls out, thuds on his chest, and walks away. After the video ends, the audience was asked to recall the number of times the ball was passed around. After the audience (often correctly) guesses the numbers of passes, the researchers asks “how many saw the gorilla?” While some members of the audience notice the animal, most are completely flabbergasted that they missed it. The gorilla experiment evidences attention blindness: every act of selection (focusing on the basketballs) trades off with some other part of lived experience (the gorilla).

For Davidson, attention blindness has political consequences because it can obscure threats and obfuscate problems. If we do not agree on the basic coordinates of a political problem, then it becomes even more difficult to resolve. The debates attempting to respond to the 2010 British Petroleum Deepwater Horizon incident that dumped 5 million barrels of oil into the Gulf of Mexico illustrate the problem well. In the aftermath of the environmental catastrophe, there was a divide between those who demanded a complete ban on offshore drilling and those who were concerned about jobs. The assumption of mutual exclusivity between these two views animated this debate even though offshore drilling can both cause environmental harm and compromise a number of jobs important to the economy. Attention blindness manifested in each side’s inability to grasp the potential truth of the other’s claim. As a result, deliberations lagged and policy inadequately addressed the complexity of the problem.

Attention blindness is created by previous attention habits that are entrained into our neural circuitry and help direct our focus. Like walking, neurological habits that underwrite an act of attention escape conscious reflection. We do not think about attention in much the same way we do not think about motor skills. Yet, attention is far from neutral and reflects certain value judgments that dictate what objects are worthy of attention. As a consequence, it can be difficult to meld competing perspectives because their normative orientations are obscure. For Davidson, attention blindness is an innate, neurological problem akin to our inability to fly. She even calls it the “fundamental structuring principle of the brain.”<sup>38</sup>

Davidson argues, our contemporary regime of attention emerged during the industrial revolution when education focused on turning incoming rural farmers and immigrants into productive worker citizens. Public education crafted methods for inculcating these new workers with prudent habits. The bell became a central figure of this new pedagogy, mandating attendance and constituting the tardy. The underlying thinking was that absent or tardy employees undermined the productivity of the entire factory. Lessons were concerned with accumulation and memorization of facts. Schools tested these skills through showcases like the spelling bee, pop-quizzes, and standardized testing. These different techniques were guided by an expert, a disciplinary teacher who maintained order. While these techniques produced the right regime of attention for factory workers, these skills do not translate well into the digital economy. In our contemporary conjuncture, factory jobs are increasingly outsourced or inscribed into code and mechanized. Unlike the factory floor with its hierarchical organization, the digital

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<sup>38</sup> Davidson, *Now You See It*, 2.

workplace is entirely rhizomatic wherein “everything links to everything” in this “network of networks.”<sup>39</sup> There is no longer a linear factory line but an exponentially expanding fractal.

Technology offers a solution by disrupting thought and refreshing our “mental browser.”<sup>40</sup> Davidson compares disruptions to almost running over a kitten: when a person recognizes a kitten in the road, a shot of cortisol traverses the body and jolts her/him out a driving lull and prompts quick reaction. In this example, the cat interrupts the causal act of driving and draws attention to the various invisible processes enabling the driver to operate the car. Interruptions can come in a number of forms, but their function is to trouble practices by making people aware of them. By interrupting our thinking, new media facilitate a process of reflection critical to keep pace with our rapidly evolving climate.

Disruption coupled with a networked platform encourages people to delegate memory and it facilitates “collaboration by difference.” Collaboration by difference refers to a strategy people use when working together to achieve a common task. It provides an anecdote to attention blindness by surpassing the individual. The Duke iPod experiment, Davidson observes, was an example of this method of working together. This practice has gone by many other names, most notably Linus law named after Linux founder Linus Torvalds and his use of crowds to perfect his operating software. Linus law postulates that the more people directed at a problem, the more problems will be solved. This maxim has been recruited to solve a variety of problems from the creation of

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<sup>39</sup> Ibid. 6.

<sup>40</sup> Ibid., 19.

the 2013 Super Bowl half time show to solving diseases.<sup>41</sup> By linking people across different spaces and times, collaboration by difference encourages a variety of views to gather in a virtual location. This complex set of relationships produce an operation that is irreducible to a single person. It signals, in Alfred North Whitehead's vocabulary, the emergence of a new "subject." For Whitehead, a subject describes the concrescence of diversity into a self-sustaining operation. So, Linus law can be thought of as describing an operation when a multiplicity dissolves into a singular, reasoning entity. Digital networks thus mitigate attention blindness by surpassing the discrete individual and creating a new subject. These new subjects are capable of more robust reasoning empirically proven to solve problems too difficult even for experts. The podcast subject was neither the product of any single student, professor, or administrator nor the product of any single interaction. Instead, it represents the dynamic relation of people, technology, culture, and brains working together to produce the podcast-subject. Thus, collaboration by difference, Davidson argues, can precipitate better policy making.

Duke's iPod experiment was an exercise in disruption and collaboration by difference. In Davidson's words, it was

a lesson in institutional unlearning, in breaking our own patterns and trying to understand more of the intellectual habits of a new generation of students and providing a unique space where those new talents might flourish. Instead of teaching we hoped to learn.<sup>42</sup>

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<sup>41</sup> Sean Gallagher, "Crowdsourcing the Cloud to Find Cures for Rare and 'Orphaned' Disease," *Ars Technica*, last modified March 8, 2013, <http://arstechnica.com/information-technology/2013/03/crowdsourcing-the-cloud-to-find-cures-for-rare-and-orphaned-diseases/>.

<sup>42</sup> Davidson, *Now You See It*, 63.

The iPod's introduction into the Duke campus troubled the conventional structure of the classroom. While traditional classes were hierarchical and designed to utilize teachers' expertise, the iPod experiment ceded teachers' authority to digital nativists and their new neural capacities. Thus, the experiment invited professors and students alike to reconsider many of the conventions that govern predigital conduct. The iPod's corresponding infrastructure provided a supple context for novel forms of collaboration. It provided students an asynchronous space to create, upload, and share digital content. As a result, it formulated a subject larger than the sum total of its parts; it created the podcast-subject.

### **Shallow Thinking**

While many applaud the Duke iPod experiment as an example of successful digital pedagogy, some worry that enshrining distraction may result in shallow thinkers incapable of critical thought. Nicholas Carr is one such critic. He worries that the sort of multitasking championed by Davidson may erode critical reasoning. Like Davidson, he starts from the premise of neural plasticity and warns that digital technologies are rapidly changing our brains. In his words, "the net may well be the single most powerful mind-altering technology that has ever come into general use."<sup>43</sup> He argues that digital media enfolds a steady stream of stimulation into our neural reward systems. Each ping, update, and e-mail could be a message tailored to the specific user, giving digital connectivity an addictive quality. It should thus not be a surprise that digital media use is exponentially increasing. The digital nativists, Carr notes, send or receive a text message every couple minutes. Here, Davidson and Carr agree. Digital media is ubiquitous and occupies most people's attentions.

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<sup>43</sup> Carr, *The Shallows* 117.

Central to digital media is a fundamental paradox: the more digital media arrests our attention, the more our attention scatters. While Carr acknowledges that distraction can helpfully loosen concentration to enable creative thought, he argues that too much can short circuit reasoning. Carr admits that different kinds of distraction exist. There are the kinds of distraction that occur if we step away from a difficult problem to do something else and allow our non-conscious mind to sort it out. Those are good distractions. But too much digital technology proffers another kind of distraction that thwarts reflection. Beyond the ads, flashing lights, pings, and e-mails, digital media interrupts sustained attention by constantly requiring judgment. Scroll across some hypertext, and the mind quickly needs to decide if it wants to click it. Even if this decision is a fracture of a second and does not register in conscious thought, it impedes comprehension because it divides the mind and requires judgment. “The more choices you make through the day, the harder each one becomes for your brain, and eventually it looks for short cuts,” John Tierney explains.<sup>44</sup> Similarly, listening to a podcast while driving or working out forks the mind between tasks and precludes retention. Each glance and each change in thought is a redeployment of finite cognitive resources and trades off with acumen.

Adapting to digital media’s distractions may come at a neurological cost. Just as the repetitive associations between tasks forge new neurons, older neural pathways atrophy when neglected. So, multitasking trades off with singular focus. What we lose, in other words, is our ability to engage in sustained thought. As a result, digital technology

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<sup>44</sup> John Tierney, “Do You Suffer from Decision Fatigue?,” *The New York Times Magazine*, August 17, 2011, [http://www.nytimes.com/2011/08/21/magazine/do-you-suffer-from-decision-fatigue.html?pagewanted=all&\\_r=0](http://www.nytimes.com/2011/08/21/magazine/do-you-suffer-from-decision-fatigue.html?pagewanted=all&_r=0).

may actually impede liberalism. Carr cites one study in particular when participants were asked to read two opposing articles on the nature of knowledge. Both articles were structured the same way and had internal hyperlinks to the other paper. While researchers hypothesized that the hyperlinks would offer a more robust understanding of both sides of the argument, they found the hyperlinks actually undermined retention. That is to say, multitasking did not attenuate convictions--just the opposite. When hypertext interrupted reading by asking users to judge whether they should click, the readers demonstrated significantly lower comprehension. Carr argues that the more we multitask, the less deliberative we become. Instead of critically reasoning, people become impulsive and “rely on conventional ideas and solutions rather than challenging them with original lines of thought.”<sup>45</sup> And, Carr continues, what we pay attention to tends to be ancillary. Even when people can focus, they are unable to sort the relevant material. “More information,” Carr asserts, “can mean less knowledge.”<sup>46</sup> As a result, the iPod may inculcate shallow thought by thwarting the kind of reflection required for argumentation and inquiry. If people cannot challenge their own convictions, then they cannot escape echo chambers.

Moreover, Carr cautions against outsourcing memory to digital networks. Memory is an embodied experience one cannot simply externalize into an iPod. Carr would chide Davidson’s position because she conflates working memory and long-term memory. While working memory describes the thoughts that populate our immediate consciousness, long-term memory resides below conscious reflection. Long-term memory “expands and contracts with almost unlimited elasticity, thanks to the brain’s

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<sup>45</sup> Carr, *The Shallows*, 140.

<sup>46</sup> *Ibid.*, 215.

ability to grow and prune synaptic terminal's and continually adjust the strength of synaptic connections.”<sup>47</sup> That is, long-term memory is not finite but rather an ever-expanding resource. The invitation to offload content can preclude the incorporation of information into long term memory. This is worrisome considering the litany of studies Carr cites to draw a link between the depth of long term memory and sharpness of thought. The more embodied experience underwriting a judgment, Carr argues, the better the reasoning. So, the invitation to externalize classes and content onto digital networks precludes students from retaining content.

Carr is also suspicious of collaboration by difference. He argues that such a method requires an overarching logic to organize and synthesize data. “If peer production is a good way to mine the raw material for innovation,” Carr writes, “it doesn’t seem well suited to shaping that material into a final product.”<sup>48</sup> Indeed, having everyone upload content onto a network seems to only redouble the problem of information overload. What is required is a system to sort and evaluate the incoming data. In the past, an expert gatekeeper performed this task. In place of an expert, a mechanized algorithm now factors in the number of posts, user interest, newness, and so on. Davidson’s injunction to distribute attention instigates the problem because it asks users to delegate the task of sorting information to technology.

To resolve attention blindness, Carr advocates deep thought synonymous with the literary tradition. Toby Miller explains that reflection provides a critical space where

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<sup>47</sup> Ibid., 192.

<sup>48</sup> Nicholas Carr, “The Ignorance of Crowds,” *Strategy + Business*, May 29, 2007, <http://www.strategy-business.com/article/07204?gko=6c4ad&pg=all&tid=27782251>.



students can interrogate their own assumptions. It is “a mode of self-formation inscribing incompleteness” because deep thought “provide[s] the space for understanding the social.”<sup>49</sup> Deep reflection invites students to compare themselves to external touchstones, like literary characters, and draw conclusions about proper conduct. Deep thinking prompts

auto-critique and auto-appreciation that would make for the well-rounded individual, an outcome that could be worked for by a combination of maintenance and renewal through critical reflection.<sup>50</sup>

As a result, deep thinking proffers a mode of reflexivity critical to liberalism. Students learn to subject their conduct to careful, ethical evaluation. Carr buttresses this claim through a number of studies that indicate that deep thinking ameliorates attention, memory, and reasoning. Carr’s argument can be formulated to suggest the more cognitive facilities directed towards a problem, the better the solution. By cultivating more mindfulness, deep thinking may surpass echo chambers because it provides students with the reflexivity to question their own assumptions.

### **Neurogovernmental Strategies**

In our contemporary conjuncture, citizens direct the production, consumption, organization, and circulation of digital content. Peer syndication, time-shifting, and search engines create problems that require governance. The debate between Davidson and Carr represents differing approaches to managing this problem. Carr advocates deep thinking and deep reading. Through the practice of sustained attention, reflective thought encourages critical judgment. Underwriting the practice of deep reading is a matrix of

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<sup>49</sup> Toby Miller, *The Well Tempered Self* (Baltimore: The Johns Hopkins Press, 1993), 49.

<sup>50</sup> *Ibid.*, 50.

practices, relations, and institutions that frame how subjects relate to themselves. As Ian Hunter argues, deep thinking does not stem from apodictic recognition but from practices that teach students to identify, evaluate, and adjust problematic conduct.<sup>51</sup> That is, students must learn the critical hermeneutics to engage in deep reading. The student-teacher relationship is critical to inculcate these habits of self-evaluation. The teacher acts as an exemplary thinker who uses lessons, assignments, and assessments to inculcate modes of ethical problematization. Teachers can also discipline students if they do not follow directions. Grades, tardies, and detention require students to accept teachers' authority and expertise. As a result, teachers provide the content and a mechanism to ensure students internalize lessons.

However, the status of expert is also changing in the contemporary moment when anyone with the right tools is entitled to a voice. The arrival of Yelp, a peer site for the evaluation of restaurants, has supplanted the traditional restaurant critic in the culinary world.<sup>52</sup> Even the *curation* of knowledge is delegated to websites like Wikipedia.<sup>53</sup> The classroom is not exempt from these changes. The proliferation of networked devices has changed the relationship between teacher and students in three ways. First, the Internet enables students to audit and challenge the teacher's lessons, purchase papers and excuse letters, and direct their attention away from lessons. Second, digital nativists are showing up to school with more knowledge of digital networks than their teachers. As Russell

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<sup>51</sup> Ian Hunter, "The Occasion of Criticism: Its Ethic and Pedagogy," *Poetics* 17 (1988): 159-184.

<sup>52</sup> Ike DeLorenzo, "Everyone's a Critic," *The Boston Globe*, June 2, 2010, [http://www.boston.com/lifestyle/food/articles/2010/06/02/websites\\_such\\_as\\_yelp\\_and\\_citysearch\\_are\\_adding\\_to\\_the\\_pressure\\_put\\_on\\_restaurants\\_and\\_their\\_chefs\\_by\\_amateur\\_critics/](http://www.boston.com/lifestyle/food/articles/2010/06/02/websites_such_as_yelp_and_citysearch_are_adding_to_the_pressure_put_on_restaurants_and_their_chefs_by_amateur_critics/).

<sup>53</sup> Daniel Terdiman, "Study: Wikipedia as Accurate as Britannica," *Cnet*, December 15, 2005, [http://news.cnet.com/2100-1038\\_3-5997332.html](http://news.cnet.com/2100-1038_3-5997332.html).

Hobby, the general secretary of the British National Association of Head Teachers, plainly puts it, “Nowadays the average teenager does know more about IT [information technology] than their teacher.”<sup>54</sup> Even if we do not accept the full weight of Hobby’s assertion, the teacher’s status as the exemplary user is now tenuous. Finally, digital technology obscures the teacher’s gaze. While many instructors have strict policies on “competing” technology use, many students still check text messages, shop, and Facebook during class. As many anecdotal examples suggest, trying to stop students from using technology during class time is a Sisyphean task. As a consequence, the teacher can no longer act as a disciplinary center, ensuring that students are diligently focused on the task of deep reading. This may make Carr’s alternative a bit difficult. If the relationship between teacher and student is changing, then deep reading may not be a viable technique.

In contrast to Carr, Davidson advocates students divide their attention and shallowly attend to many tasks. The iPod with its microphone, links to a digital network, and memory provide the ideal site to facilitate this kind of collaboration. Underwriting the iPod experiment, we can discern a matrix of new practices and relationships that guide the creation of the podcast subject. First, the iPod experiment changed the teacher and student relationship. The teacher no longer claimed expertise in the classroom. Whereas teachers previously wrote stringent policies sanctioning technology use, technology is now at the student’s discretion. This is because the students had materially different brains that could activate latent capacities in the iPod. By empowering and

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<sup>54</sup> Janet Murray, “Do Students Know More about Technology Than Their Teachers,” *The Guardian*, November 21, 2011, <http://www.guardian.co.uk/education/2011/nov/21/multiple-choice-students-teachers-technology>.

activating students, the teacher's role changes from the sage dispensing information to the coach helping students realize their visions.

Second, learning is decentralized onto students. Uploading and mobilizing content creates a mobile and accessible classroom. It delegates the tasks of scheduling class times and locations to the student. This has the added benefit of fostering a student investment in the appointed learning time. So while they frequently may be engaged in other tasks, they are more likely to pay attention and internalize information. The iPod takes the place of the teacher as the "exemplary reader" because it dictates the correct pace of content. In contrast to a book where the reader has a great deal of agency determining the pace, the sonorous qualities of the podcast have only one speed. Gardner Campbell applauds this kind of listening. She writes, "it is sometimes a good thing for the learner not to control the tempo, particularly if one wants to lead the learner away from habitual patterns of perception and cognition."<sup>55</sup> Activating students to take charge of their learning removes the need of the disciplinary teacher because students are now in charge.

Third, podcasting encourages students to externalize their memory, delegate attention, and accept that many perspectives can be true. Even if we grant Carr's claims, they are still circumscribed to the individual. The premise of Davidson's argument is that the individual is already, always flawed. Our neurology dictates inherent blind spots in our reasoning. The iPod subject, however, surpasses the singular individual by encouraging collaboration by difference. By providing students a flexible network, it invites them to upload content, attenuate convictions, and externalize memory.

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<sup>55</sup> Campbell, "There's Something in the Air: Podcasting in Education," 42.

Collaboration by difference inculcates respect for difference because it views it as a benefit rather than a deficit.

The Duke iPod experiment identifies the ways podcasts can become educational instruments. Through a mixture of practices, it invites listeners to externalize memory, listening, and content onto a digital network. From this perspective, it is a technology for the modulation of citizen conduct. It encourages people to divide their attention and externalize memory onto a digital prosthetic. Memories are separated from the user and accessible through networked connections. As a consequence, the store of perspectives is amenable to evaluation and intervention. Moreover, as I will discuss later, content producers are able to intervene in podcast episodes and change them without the users' knowledge.

## CHAPTER FOUR: EMERGENCE: *RADIOLAB* AS A LISTENING TECHNOLOGY

“The art of listening is crucial so you can tell what is true and what is dissimulation, what is rhetorical truth and what is falsehood in the discourse of rhetoricians.”  
Michel Foucault<sup>1</sup>

Around the same time that Duke was experimenting with iPods, Jad Abumrad was in a studio experimenting with audio design, spinning radio documentaries. These experiments yielded an innovative program that captured the attention of National Public Radio’s (NPR) New York affiliate (WYNC) and eventually precipitated *Radiolab*. Now distributed to over 300 different radio stations by NPR, *Radiolab* translates scientific insights (most often neuroscience) into the public sphere. *Radiolab* invites listeners into an intricately composed auditory space to explore broad, complex topics like stochasticity, memory, and death. Episodes feature a collage of expert voices, provocative anecdotes, unique sounds, and playful banter between the show’s hosts Jad Abumrad and Robert Krulwich. The mixture of these different elements produces a pleasurable listening experience that has courted 2.8 million mostly young (17-45), white

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<sup>1</sup> Michel Foucault, “Technologies of the Self.” In *Technologies of the Self: A Seminar with Michel Foucault* eds. L.H. Martin, H. Gutman, and P.H. Hutton (Amherst: The University of Massachusetts Press, 1988), 32.

and college educated followers.<sup>2</sup> In addition to its immense popularity, the show has received numerous accolades including funding from the Alfred P. Sloan Foundation, a National Academies Communication Award, a Peabody, and a MacArthur Genius grant. *Radiolab* is also incredibly effective. A recent study commissioned by the National Science Foundation found that after listening to a program on the topic of choice “half (53%) of listeners were motivated to reflect on their own choice-making behavior and almost half (45%) had discussed the show with others.”<sup>3</sup>

In this chapter, I will argue that *Radiolab* operates as what I call a “listening technology” that “cuts across symbolic systems while using them.”<sup>4</sup> Beyond the specific content of each episode, *Radiolab* functions pedagogically by 1) inscribing indeterminacy into conventional styles of thought, 2) instructing how to interpret and evaluate evidence, and 3) demonstrating how to coordinate new insight with previously held belief. Specifically, *Radiolab* inculcates a neurogovernmental mode of reasoning that believes “human neurobiology sets the conditions for the lives of humans in societies and shapes human actions in all manner of ways not amenable to consciousness.”<sup>5</sup> Listening technologies provide the antecedent conditions for liberalism because they determine what arguments sound true. As Charles Hirschkind argues, listening technologies are as

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<sup>2</sup> Barbra Flagg, “Evaluation of Radiolab: Choice,” *Multimedia Research*, May 19, 2007, accessed April 18, 2013 [http://informalscience.org/reports/0000/0253/Radiolab\\_Choice\\_Evaluation.pdf](http://informalscience.org/reports/0000/0253/Radiolab_Choice_Evaluation.pdf).

<sup>3</sup> Ibid.

<sup>4</sup> Michele Foucault, “On the Genealogy of Ethics: An Overview of Work in Progress,” in *The Foucault Reader*, ed. Paul Rabinow (New York: Pantheon Books, 1984), 369.

<sup>5</sup> Nikolas Rose and Joelle M. Abi-Rached, *Neuro: The New Brain Sciences and the Management of the Mind* (Princeton: Princeton University Press, 2013), 226.

“infrastructural to politics and public reason as are markets, associations, formal institutions, and information networks.”<sup>6</sup> Indeed, listening technologies adjust the attitudes and dispositions that give claims their weight.

To make my argument, I will situate *Radiolab* within a conjuncture that enabled it to flourish as a podcast. Podcasts are subject to a number of copyright restrictions and licensing regimes inherited from the cultural policies of the 1990s. Since the law is an institution of justice, its primary goal is to calculate the correct cost for an action as with tort values, insurance claims, and prison sentences.<sup>7</sup> These calculations reflect the underlying norms of a conjuncture. By examining the legal terrain, I can account for some of the governing rationalities that enabled the practice of podcasting. Next, I will situate *Radiolab* within the evolving institution of public broadcasting. I will argue that since its inception, NPR has been under attack as an inefficient use of taxpayer dollars. Deep spending cuts in the 1980s inaugurated alternative revenue streams like personal donations and corporate underwriting. More broadly, I will argue that NPR’s capricious funding situation propelled its entrance into digital content production. From this perspective, *Radiolab* is another example of NPR trying to extend its brand to new users and secure more donations. Then, I will attend to the history of *Radiolab*. Here, I will detail *Radiolab*’s origins and its quest for funding. I will also argue that *Radiolab* provides an ideal site to study podcasting. The show’s intricate sonic design requires on-

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<sup>6</sup> Charles Hirschkind, *The Ethical Soundscape, Cassette Sermons and Islamic Counterpublics* (New York: Columbia University Press, 2006), 9.

<sup>7</sup> Alan Hunt and Gary Wickham, *Foucault and the Law* (London: Pluto Press, 1994), 100.



demand audio that users can repeat and listen to many times. *Radiolab* also highlights the way podcasts are articulated to larger programmatic goals. Finally, I will argue that *Radiolab* mixes anecdotes, neuroscience, debates, and sonic effects to inculcate liberal sensibilities.

### **The Legal Terrain**

In the 1990s, two court cases in New York provided the antecedent conditions for contemporary digital conduct. *Cubby, Inc. v. CompuServe, Inc.* appeared in the United States District Court for the Southern District of New York in 1991. Cubby, Inc argued that Rumorville, a publication available on CompuServe's Journalism Forum, propagated false and libelous statements and that CompuServe should be culpable. Cubby predicated its claim on the assumption that CompuServe acted as the publisher of the content. That is, they assumed responsibility as the publisher of the content by hosting the forum. CompuServe retorted that it was a distributor and, like a bookstore, could not be reasonably culpable for everything put on its forums. Central to CompuServe's argument was the observation that internet traffic outpaces its ability to edit. The court sided with CompuServe. Like bookstore owners, the court reasoned, a digital service provider cannot be reasonably expected to read the contents of everything posted on its website.<sup>8</sup> If distributors were accountable for the content, then they would only sell what they could read. This in turn, the court worried, would chill the number of resources available to the public.

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<sup>8</sup> *Cubby, Inc. v. CompuServe, Inc.*, 766 F. Supp. 135, 137 (S.D.N.Y. 1991).

A similar case, *Stratton Oakmont, Inc. v. Prodigy Services Co.*, appeared before the New York Supreme Court in 1995. Like the *Cubby* case, Stratton Oakmont's suit was a response to defamatory statements posted on a message board. Stratton Oakmont, a financial investment firm, was concerned with posts on Prodigy's bulletin boards that called the company "a major criminal fraud" and a "cult of brokers who either lie for a living or get fired."<sup>9</sup> While the New York Supreme Court considered the former *Cubby v. CompuServe* decision, it sided with Stratton Oakmont because Prodigy claimed editorial control over its message boards. If Prodigy sanctioned the content of its website, then it should be considered responsible for all content as the publisher, the New York Supreme Court argued. These two cases provided precedents for two different legal frameworks to approach the nascent challenges of digital governance.<sup>10</sup> If the Internet is viewed as a distributor, then digital service providers will be insulated from lawsuits concerning third-party remarks (like on message boards, comments, and Facebook pages). But if they are considered publishers, then digital companies will be responsible for anything and everything on their sites. What was needed was some codification of law that could guide the regulation of digital content.

The same year as the *Stratton* decision, Senator James Exon introduced the *Communication Decency Act* (CDA) as an appendix to the *Telecommunication Act of 1996*. The CDA regulated the digital distribution of obscene, pornographic, and indecent

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<sup>9</sup> Mathew C. Sidertis, "Defamation in Cyberspace: Reconciling *Cubby, Inc v. CompuServe, Inc.* and *Stratton Oakmont v. Prodigy Services Co.*," *Marquette Law Review* 79 (1996):1077.

<sup>10</sup> *Ibid.*, 1065-1082.

content. When the bill reached the house, Chris Cox and Ron Wyden amended the CDA to ensure that “providers of an interactive computer service’ would not be treated as publishers of third-party content,” effectively codifying the Cubby decision into law.<sup>11</sup> The Cox and Wyden amendment, officially called “Section 230,” treated the Internet as a distribution system rather than a publisher. Specifically, Section 230 stipulated that “no provider or user of an interactive computer service shall be treated as the publisher or speaker of any information provided by another information content provider.”<sup>12</sup> It allowed online platforms like YouTube, Facebook, and even Apple’s iTunes to be insulated from any civil litigation for the content it distributes. Without Section 230, digital service providers could be tried as publishers, which would likely incentive strict message board policies that taper free speech.

While Section 230 preserved free speech, the rest of the CDA regulated any comment, request, suggestion, proposal, image, or other communication that, in context, depicts or describes, in terms patently offensive as measured by contemporary community standards, sexual or excretory activities or organs [as illegal].<sup>13</sup>

Bill Clinton ratified the CDA on February 8, 1996, and it faced significant legal troubles almost immediately. The American Civil Liberties Union (ACLU) filed suit, alleging First Amendment infringement. The *United States District Court* for the Eastern District of Pennsylvania agreed with the ACLU and ruled that the CDA’s language was too

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<sup>11</sup> “CDA 230: Legislative History,” *Electronic Frontier Foundation*, accessed April 15, 2013, <https://www.eff.org/issues/cda230/legislative-history>.

<sup>12</sup> Ibid.

<sup>13</sup> Solveg Bernstein, “Beyond the *Communication Decency Act*: Constitutional Lessons of the Internet,” *The Cato Institute*, November 4, 1996, <http://www.cato.org/pubs/pas/pa-262.html>.

vague. Janet Reno, the United States Attorney General at the time, appealed this decision to the United States Supreme Court. In 1997, the Supreme Court granted certiorari to *Reno v. American Civil Liberties Union*. Reno argued that the CDA was akin to “cyberzoning” and accorded with the courts’ earlier time, manner, and place restrictions. However, the government’s case failed to persuade the Supreme Court which upheld the lower court’s decision. Justice John Paul Stevens’ majority opinion reasoned that the ambiguity surrounding the word “indecent” chilled speech.<sup>14</sup> The Court worried that the scope of the CDA’s language extends far beyond its intended goal of governing the circulation of pornographic material to encompass anything potentially considered offensive. While the CDA was declared unconstitutional, the Court preserved Section 230. Since then, “federal courts have stretched Section 230’s immunity for publisher liability to cover every conceivable tort.”<sup>15</sup>

While court decisions and legislations codified rules that prevent monitoring and censoring content, they also inaugurated a new copyright regime. In the 1994 *United States v. LaMacchia* decision, the court abdicated individuals from criminal copyright infringement in cases with no intent of financial gain.<sup>16</sup> That is to say, people could easily copy and share music with a friend without committing a crime. This decision, coupled

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<sup>14</sup> “The First Amendment and the Internet,” *Net Litigation*, accessed April 17, 2013, <http://www.netlitigation.com/netlitigation/cases/reno.htm>.

<sup>15</sup> Michael L. Rustad and Diane D’Angelo, “The Path of Internet Law: An Annotated Guide to Legal Landmarks,” *Duke Law & Technology Review* 12 (2011): P27.

<sup>16</sup> Julie Cohen, Lydia Loren, Ruth Okediji, and Maureen O’Rourke, *Copyright in a Global Information Economy* (New York: Aspen Law & Business, 2010), <http://www.coolcopyright.com/cases/chp6/uslamacchia.htm>.

with new devices that can copy audio files without scarifying sound quality, created economic concerns for the Recording Industry Association of America (RIAA). The RIAA funneled money into its lobbying efforts to ramp up copyright protections and protect profits. “The senate declared,” Matthew J. Astle notes, “that it sought to address the concerns of record producers and performers regarding the effects that new digital technology and distribution systems might have on their core business.”<sup>17</sup> Similarly, the House of Representatives acted to

the concerns expressed by representatives of the recording community, namely that certain types of subscription and interaction audio services might adversely affect sales of sound recordings and erode copyright owners ability to control and be paid for use of their works.<sup>18</sup>

The *No Electronic Theft Act of 1997* (NET) overturned the *United States v. LaMacchia* loophole by stipulating that infringement, regardless of profit, violates copyright law.

Within this complex legal terrain, an incipient broadcasting medium named “webcasting” was growing. A harbinger to the podcast, this nascent medium refers to the practice of streaming audio online. The RIAA felt threatened by this new medium and lobbied for the ratification of new copyright protections. The RIAA successfully lobbied Congress to pass the *Digital Millennium Copyright Act of 1998* (DMCA) which required, among many things, webcasters to pay royalties to use some sounds. The DMCA enforced an onerous licensing and regulatory scheme which suffocated webcasters. Securing the rights to a single musical track entailed getting permission for the

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<sup>17</sup> Matthew J. Astle, “Will Congress Kill the Podcasting Star?,” *Harvard Journal of Law and Technology* 19 (2005), 172.

<sup>18</sup> Ibid.

composition and the recording as well as the right to disseminate and “publicly perform” said track. This law presented an insurmountable legal and financial obstacle for many amateur webcasters, and webcasting faded into obscurity by 2002.<sup>19</sup> It was around this period of webcasting’s demise that podcasting was introduced.<sup>20</sup>

The *Public Performance Right* was one of the primary mechanisms that thwarted webcasting. In their legal guide for podcasters, Colette Vogele and Mia Garlick explain that performance “is defined in the Copyright Act to include essentially anything that allows music to be heard.”<sup>21</sup> This provision covers everything from the live performance of a song to its digital transmission. This particularly bureaucratic licensing regime arguably served the death knell for webcasting; however, podcasts dodged some of these concerns because of the legal definition of public. Vogele and Garlick continue to explain that a performance is public

if it takes place where many people are gathered (except in a home among family and friends) or if it involves transmitting a work either to a place where many people are gathered or generally to the public (as with a radio broadcast). The ‘public’ requirement means that playing legitimately acquired music at home, like on your iPod or stereo, does not infringe the public performance right.<sup>22</sup>

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<sup>19</sup> Ibid., 162-210

<sup>20</sup> Colette Vogele and Mia Garlick, “Podcasting Legal Guide: Rules for the Revolution,” last modified April 4, 2006, [http://wiki.creativecommons.org/Podcasting\\_Legal\\_Guide](http://wiki.creativecommons.org/Podcasting_Legal_Guide). For Colette Vogele and Mia Garlick, podcasts “date back to 2001, and are closely tied to the development of blogs (or web logs). It developed from the desire to have downloadable audio and video content delivered automatically to your digital media player.”

<sup>21</sup> Ibid.

<sup>22</sup> Ibid.

This caveat is significant because it allows podcasters to circumvent thorny and vexed legal questions surrounding performance. Whereas webcasting faced suffocating licensing regimes to “publicly” perform audio content, the podcast’s elusive public removed that obligation. While the content of a podcasts is still subject to regulatory regimes, it imports a much less complicated set of licenses. In fact, the major performing rights organizations in the United States—ASCAP, BMI, and SESAC—created podcast-specific licenses.<sup>23</sup>

The creation of the Creative Commons also contributed to the success of podcasting. Founded in 2001 with the support of the Center for the Public Doman, the Creative Common’s licenses are copyrights that make material available for public, non-profit use.<sup>24</sup> These licenses reduced the other significant barrier for podcasters: acquiring music and other sonic features for a show. While producers can create content, it is often time consuming and may represent another obstacle. The introduction of the Creative Commons created a public archive for producers to draw from. On August 23, 2005, Curry announced (with ABSOLUT Spirits Co.) the PodSafe Music Network, an “independent online community that connects artists, podcasters and listeners into one exciting environment where fresh music can be discovered and used royalty-free.”<sup>25</sup> The Podsafe Network offers songs, interviews, and other sonic elements free of charge and

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<sup>23</sup> Ibid.

<sup>24</sup> “History,” *The Creative Commons*, accessed April 17, 2013 <http://creativecommons.org/about/history>.

<sup>25</sup> “Podshow.Com Launched the Podsafe Music Network,” *PR Newswire*, August 23, 2005, <http://www.prnewswire.co.uk/news-releases/podshowcom-launches-the-podsafe-music-network-the-first-online-music-network-that-features-royalty-free-music-for-listeners-amp-podcasters-155434675.html> .

remains a prominent member of the podcast community. Conversely, this service allows artists to license their work under the Creative Commons to promote and market their music.

A number of important trends combined to foster the development of podcasting like the proliferation of the iPod, the invention of easy audio editing formatting, the spread of cheap Internet access, and so on. But, we must also account for the legal terrain. By characterizing the Internet as a distribution mechanism and not a publisher, courts encouraged platforms to open up production. If iTunes was legally responsible for everything said on a podcast, then it may have significantly reduced the number of available podcasts. In addition, the podcast's capacity to time-shift surmounted significant legal obstacles. Finally, the creation of the Creative Commons' licenses and the Podsafe network reduced the burden of producing a show while providing legal protections. All of these events laid the foundation for NPR's *Radiolab* to emerge as a podcast.

### **National Public Radio**

National Public Radio (NPR) originates from Lyndon B. Johnson's Great Society initiatives. The *Public Television Act of 1967* was introduced into the House of Representatives to support the public with cultural resources for citizenship unavailable on corporate media. While the bill promoted good intentions, many in the radio industry worried that a publicly subsidized television channel would destroy radio. However, Senator Robert Griffin changed the bill's name to the *Public Broadcasting Act of 1967*



(PBA) when it reached the Senate.<sup>26</sup> Far from a semantic shift, the change to broadcast increased the scope of the act to include radio. However, the term “radio” was missing by the time the bill reached Johnson’s desk. Johnson, who owned two radio stations himself, crudely Scotch-taped radio back into the bill.<sup>27</sup> “The typeface of the inserts doesn’t even match that of the document,” Jack Mitchell observes.<sup>28</sup> Once signed, the PBA codified the Corporation for Public Broadcasting (CPB) under the mandate

to provide programs and services that inform, enlighten, and enrich the public [...and] to encourage the development of programming that involves creative risks and that addresses the needs of unserved and underserved audiences, particularly children and minorities.<sup>29</sup>

The CPB launched the Public Broadcasting Service (PBS) and NPR. Like PBS, NPR provides

cultural resources for citizenship: informal education, civic training, cultural enlightenment, [and] opportunities for self-improvement in tandem with the expanding social and educational services provided by the US government.<sup>30</sup>

However, NPR received very little funding, and it would take a couple years before it would be up in running.

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<sup>26</sup> That article says his name is Giffin, but a quick internet search says it's Griffin. Emily Hellewell, “How Public Radio Scotch-Taped Its Way into *Public Broadcasting Act*,” *National Public Radio*, November 08, 2012, <http://www.npr.org/blogs/thisisnpr/2012/11/08/164624162/how-public-radio-scotch-taped-its-way-into-public-broadcasting-act>.

<sup>27</sup> Susan J. Douglas, *Listening In* (Minneapolis: University of Minnesota Press 1999), 320.

<sup>28</sup> Hellewell, “How Public Radio Scotch-Taped Its Way into *Public Broadcasting Act*.”

<sup>29</sup> “CPB’s Goals and Objectivities,” *The Corporation for Public Broadcasting*, last modified June 4, 2012, <http://www.cpb.org/aboutcpb/goals/goalsandobjectives/>.

<sup>30</sup> Laurie Ouellette, “Reinventing PBS: Public Television in the Post-Network, Post-Welfare Era,” in *Beyond Prime Time: Television Programming in the Post- Network Era*, eds. Amanda Lotz (Hoboken: Taylor and Francis, 2010), 182.

90 radio stations began broadcasting public radio on February 26, 1970.<sup>31</sup> The first major program was *All Things Considered*, hosted by Susan Stamberg—the first national news female anchor—and Bob Edwards. NPR built its brand around in-depth and groundbreaking news coverage. For example, NPR was the first media organization to broadcast live from the Senate by radiocasting the 1978 Senate Panama Canal Treaty hearings. In addition to the news, NPR featured a number of cultural broadcasts like *The Masterpiece Radio Theater* and *Earplay* that sought to revive the art of audio plays. Most famously, it syndicated Garrison Keillor’s *A Prairie Home Companion* and his mix of songs, skits, instrumentals, fake commercials, and monologues. However, a central tension amongst NPR’s leadership regarding the direction of the station underlies the early programming: should it offer in-depth news or cultural programming? While NPR retained some of its cultural programs, like *A Prairie Home Companion*, it opted to focus on news programming.

Ronald Reagan’s administration cut the CPB’s funding by 31 percent in 1983, putting NPR 9 million dollars in debt.<sup>32</sup> These spending cuts instigated two major structural changes. First, CPB changed the way it distributes federal money. Rather than give the programming directly to NPR, it gives money to local subsidiaries that purchase programs from NPR or its nascent competitor, Public Radio International (PRI). This

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<sup>31</sup> There is a debate about the exact number of stations. Susan Douglas, in her account of NPR’s founding argues that only 73 stations met the CPB strict standards to carry NPR. NPR, in contrast, reports that there was actually 90 stations. For more: Susan J. Douglas, *Listening In* (Minneapolis: University of Minnesota Press 1999), 322; “Overview and History,” *National Public Radio*, last modified May 1, 2012, <http://www.npr.org/about/aboutnpr/history.html#history>.

<sup>32</sup> Douglas, *Listening In*, 322.

grants local stations autonomy in selecting content and creates competition between NPR and PRI. Second, NPR began accepting corporate underwriting and solicited contributions from listeners: a strategy that currently accounts for over half of NPR's funding.<sup>33</sup> Local affiliates conducted audience research to learn more about their listeners, their demographics, and the shows they value. By learning the audiences' tastes, local affiliates would change the programming schedule to reflect their listeners' wants in the hopes of attracting more donations during pledge drives. NPR historian Michael P. McCauley explains that the "audience research helped public radio fuse its programs more snugly to the values, beliefs, and attitudes of the people who turned in (and pledged their financial support) most often."<sup>34</sup> NPR focused on the demographic most likely to donate: well-educated, upper middle class, baby boomers. As a consequence, programming began reflecting "highly educated, socially conscious, politically active" liberal sensibilities.<sup>35</sup> This programming change mutated NPR's priorities from representing disadvantaged communities underserved by corporate broadcasting to disseminating elite tastes.

This strategy proved effective. NPR grew significantly, doubling contributions from 40 million in 1985 to 95 million by 1995.<sup>36</sup> NPR's growth, Susan Douglas

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<sup>33</sup> Michael P. McCauley, *The Trails and Triumphs of National Public Radio* (New York: Columbia University Press, 2005), 19. Only 14 % of NPR's annual budget comes from the federal government, and roughly 33% from state and local governments.

<sup>34</sup> *Ibid.*, 20.

<sup>35</sup> *Ibid.*, 2.

<sup>36</sup> Douglas, *Listening In*, 323.

speculates, was tied to the “loss of public life in the 1980s and beyond, the isolation that came from overwork and the privatization of American life, and the huge gap people felt between themselves and those who run the country.”<sup>37</sup> For instance, NPR encouraged the audience to participate in its programming. *All Things Considered* read and addressed listeners’ letters on air. *Talk of the Nation* invited citizens to call and comment on matters of public concern. NPR asked listeners to not only concentrate and listen but to also lend their voice to news stories. NPR provided an ethereal public sphere where citizen’s opinions were solicited and public concerns were debated.

In response to growing fears that nascent media like satellite radio and webcasting would displace traditional radio, NPR launched its website: [npr.org](http://npr.org). Early iterations of the site provided users with a variety of links that took them to news stories, special reports, and program pages, like *All Things Considered*. By 2001, McCauley notes, [npr.org](http://npr.org)

was attracting 350,000 visits and more than a million page views per week; by the summer of 2003, listeners were downloading between 5.5 and 7 million audio files each month.<sup>38</sup>

As he reflects on these statistics and the importance of digital content for securing NPR’s place in an evolving media landscape, McCauley concludes his history of NPR with the recommendation that

more people will appreciate the chance to hear their favorite programs asynchronously—time shifting their content in the same manner that cable and

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<sup>37</sup> Ibid., 285.

<sup>38</sup> McCauley, *The Trails and Triumphs of National Public Radio*, 113.

Satellite TV viewers do with the digital recorders and hard drives that comprise the TiVo technology.<sup>39</sup>

While the term “podcast” was not yet invented when McCaluey wrote his book, he clearly predicts its importance. Not long after the publication of McCaluey’s book, NPR would start distributing programs via podcast.

The decision to disseminate shows via podcast must be read within NPR’s struggle for funding. Since its inception, NPR has always stood on the chopping block. A litany of conservatives, like Newt Gingrich, spearheaded efforts to eliminate NPR in the 1980s. Even recently, in 2011, Republicans argued that the current recession, coupled with what they felt were questionable journalistic practices, mandated defunding NPR.<sup>40</sup> NPR needed to extend its brand, deepen listener attachments, and raise more money to fight against these attacks. NPR accomplished these three tasks through podcasting. Podcasting drastically expands a program’s potential audience because podcasting extends shows beyond their affiliate station and scheduling restrictions. Take *Radiolab* for example. It is produced by New York Public Radio and appears on Colorado Public Radio only sporadically, making it difficult to sustain a consistent audience. Disseminating the show via podcast puts the program on listeners’ schedules and removes any potential scheduling frictions. As a result, almost two-thirds of *Radiolab*’s audience comes directly from the podcast. The podcast also renders this expanded

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<sup>39</sup> Ibid., 121.

<sup>40</sup> Audie Cornish, “House Votes to Defund NPR,” *National Public Radio*, March 17, 2011. <http://www.npr.org/2011/03/17/134633209/House-Votes-To-Defund-NPR>.

audience more visible. While NPR used metrics and surveys to determine demographics and tastes in the past, digital download provide this information in real time. Now, NPR can tailor content to demographics even more accurately.

Additionally, digital networks provide a more robust fundraising strategy through new techniques that encourage listeners to invest—both emotionally and financially—in a show. While users can find podcasts on an aggregator, most NPR programs also have a website. This website traffic raises funds independently through “sponsored ads.” Many shows encourage listeners to visit the website to provide feedback or find more coverage, web exclusives, and ancillary material. *Radiolab* has a blog, exclusive articles, a Tumblr, and a comment section with a lax editing policy for fan debate. Once on the webpage, listeners also confront the support button that occupies prime visual space in the right side of the screen. In a couple of clicks, people can give micro donations of a couple dollars. Users no longer need to call in at an appointed time of the year to give their donations; they contribute in a couple of seconds whenever it is convenient for them. Overall, this has proven an efficient and effective means of fundraising.<sup>41</sup> Donations still come with the familiar tote bag or T-shirt that impart cultural capital. But in the digital era, users also have new opportunities to participate in the production of their favorite shows: *Radiolab* features the voices of donors reading the credits and sponsor information.

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<sup>41</sup> Ouellette, “Reinventing PBS: Public Television in the Post-Network, Post-Welfare Era,” 192.

### **Introducing *Radiolab***

Around the same time that podcasting was promoted at the BlogCon at Harvard, Jad Abumrad was hosting three-hour radio documentaries on Sunday nights for New York Public Radio's (WNYC) AM radio station. He covered topics as varied as "Death Penalty and the Prison Economy," "Pop Songs, Strip Clubs, and Commercials," "NY Screammers, Turkish Youth and Improv Comedians," and "Terrorism and Fundamentalism." In an interview, he recalls getting "all these really weird stories, like a BBC story from Zimbabwe or some sound-art piece about dogs, and you would have to somehow make a connection between them."<sup>42</sup> Many of these titles and documentaries remain unheard and obscure because, as Abumrad recalls, WNYC would turn down "to such an extent that unless you were literally standing directly in front of the transmitter, you couldn't even tune in the show."<sup>43</sup> Despite the fact that he was transmitting his show to almost no one, his unique sonic style captured the attention of WNYC producers. Dean Cappello, WNYC's chief content officer and senior vice president of programming, remarked that "what Jad was doing was actually more interesting than the pieces they were trying to showcase."<sup>44</sup> Eventually, WNYC gave Abumrad his own show. The show's first Executive Producer, Mikel Elcessor, envisioned the show as a space for experimental and independent documentary work from around the world. His concept

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<sup>42</sup> Maddie Oatman, "Radiolab's Jad Abumrad Tries Something Completely Nuts," *Mother Jones*, June 24, 2012, <http://www.motherjones.com/media/2012/05/jad-abumrad-radiolab-robert-krulwich-in-the-dark> .

<sup>43</sup> Jad Abumrad, "The Terrors & Occasional Virtues of Not Knowing What You're Doing," *Transom Review* 8 (2012): 5.

<sup>44</sup> Rob Walker, "On 'Radiolab,' the Sound of Science," *The New York Times*, April 7, 2011, <http://www.nytimes.com/2011/04/10/magazine/mag-10Radiolab-t.html?pagewanted=all&r=0> .

positioned Abumrad as a DJ spinning documentaries, and it would be called “Radio Lab.” This initial production did not sound like the show in its contemporary form. It was just Abumrad; it did not talk about science; and it lacked its signature sonic aesthetic.

Abumrad met Robert Krulwich during a WNYC pledge drive. Abumrad was asked to craft a short script for Krulwich to read over the air. When he handed the note card to Krulwich, he, according to Amburad’s recollection, tore it up and threw it away—although Krulwich denies this occurred. The two quickly became friends and started meeting for weekly breakfasts together. The two first collaborated on a short audio piece for *This American Life* called “Flag Day.” The piece was so bad that Ira Glass, *This American Life*’s host, suggested the two should not work together.<sup>45</sup> “It’s just amazing that you were able to put together such a wonderful program after that” Glass joked.<sup>46</sup> Eventually, their collaboration began yielding innovative audio and storytelling techniques. Krulwich quickly became a regular guest on the show and, WNYC re-launched the program with them as co-hosts in 2004. They tweaked the name to *Radiolab* because “it described what we wanted the show to be: a place to try new things.”<sup>47</sup>

Sound plays an important role in each episode by setting the scene, imparting a sense of discovery, anchoring thoughts, and prompting attention. It provides, the

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<sup>45</sup> Jad Abumrad and Robert Krulwich, *Jad and Robert: The Early Years*, podcast audio, Radiolab, MP3, 20, accessed April 20, 2013, <http://www.radiolab.org/blogs/radiolab-blog/2008/may/06/jad-and-robert-the-early-years/>.

<sup>46</sup> Ibid.

<sup>47</sup> Personal correspondence with Jad Abumrad, April 22, 2013.



“musical sea on which the story is floating.”<sup>48</sup> One of *Radiolab*’s distinctive aesthetics is its use of multiple voices interacting with one another. This produces a distinctive rhythm that pulls the listener along as different voices embody new ideas. Voices provide contours and counterpoints that imbue each episode with a harmonious musicality.<sup>49</sup> As Rob Walker puts it, *Radiolab* sounds like people “interviewed separately [who] seem to answer one another’s questions or speak in unison.”<sup>50</sup> This audio trope began, Abumrad recalls, over breakfast with Krulwich. Abumrad had just finished interviewing a neuroscientist, and he worried it was too droll and boring to use on air. Krulwich took the interview and spliced in a story about a rabbit in a garden to enliven the narrative. Abumrad did some sonic tweaking and published the episode. “When I heard that on the air,” Abumrad explains, “I was like oh damn!.. that’s kinda interesting, how all those layers of adjacent conversations bleed into one another.”<sup>51</sup> This quickly became part of *Radiolab*’s signature sound.

Throughout each story, Abumrad and Krulwich engage in playful banter. The hosts take turns playing the roles of advocate and skeptic to question each other and move the plot along. One of the hosts will recount a scientific discovery, and the other will raise objections. Although other shows like *Car Talk* and *Planet Money* use banter,

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<sup>48</sup> Marlene Cimon, “Unique Approach to Covering Science,” *US News and World Report*, October 31, 2011, accessed April 12, 2013, <http://www.usnews.com/science/articles/2011/10/31/unique-approach-to-covering-science>.

<sup>49</sup> Abumrad, “The Terrors & Occasional Virtues of Not Knowing What You’re Doing,” 3; Abumrad speaks of the influence of voice leading composition theories.

<sup>50</sup> Walker, “On ‘Radiolab,’ the Sound of Science.”

<sup>51</sup> Abumrad, “The Terrors & Occasional Virtues of Not Knowing What You’re Doing,” 8.

*Radiolab*'s unique balance of scripted dialogue and improvised moments impart discovery and wonder into the listener. Different narratives filter through this process, mimicking the argumentation that accompanies the discovery process. Abumrad explains that when confronted with scientific discovery,

I try my best, and expect Robert to rip it apart [...] so you end up with equal parts extreme excitement, and equal parts extreme caution. You have to listen to both, and balance them against each other.<sup>52</sup>

To so skillfully combine improvised banter with composed scenes, Abumrad and Krulwich write a rough outline which they perform and record multiple times. They discard much of this content, but they save the interesting bits and write them into new outlines. Then, Abumrad and Krulwich record a second round of improvisations. These different takes are then edited into the final product. It takes weeks of recording, writing, and editing to produce the illusion of informal dialogue.<sup>53</sup> This tension, Abumrad reasons, imparts each episode with a sense of wonder and makes “every story a road-trip, an act of co-discovery.”<sup>54</sup>

As a radio program, *Radiolab* did not fair very well. The dense sonic composition prompted listeners to dismiss it as over-produced, kitsch, and noisy.<sup>55</sup> It was not until *Radiolab* decided to make its show available as a podcast that it gained a cult following.

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<sup>52</sup> Cimon, “Unique Approach to Covering Science.”

<sup>53</sup> Jad Abumrad, “No Holes Were Drilled in the Heads of Animals in the Making of This Show,” in *Reality Radio: Telling True Stories in Sound*, ed. John Biewen (Chapel Hill: The University of North Carolina Press: 2010) 45.

<sup>54</sup> Abumrad, “The Terrors & Occasional Virtues of Not Knowing What You’re Doing,” 9.

<sup>55</sup> Rebecca Nicholson, “The Sound of Science,” *The Guardian*, April 23, 2011, 6.

This is because the podcast enabled the deep audition required to appreciate the show's sonic aesthetic. As Abumrad explains in a recent interview with *The New York Times*, he edits episodes for the fourth and fifth listen. In contrast to an ephemeral radio broadcast that evaporates as it streams content, the podcast give audio content some fixity and allows people to listen to an episode multiple times. Each listening prompts new discoveries and sonic textures in each story.<sup>56</sup> This effect provides an interesting counterpoint to some digital media theorists concerns with speed and new media. In place of the desire to be the most up-to-date, *Radiolab* strives for timelessness; it wants each episode to remain relevant whenever people listen. Additionally, *Radiolab*'s rich sonorous qualities are best appreciated in ear phones because listeners can shut out the rest of the world and focus on the sonic details.<sup>57</sup> While a number of audio devices allow for headphone listening, it is most commonly associated with the portable MP3 device. While listeners can grasp sonic details via a speaker, modern headphones allow people to enter their own sonic environment and tune out their surroundings. *Radiolab*'s popularity as a podcast is reflected in the fact that 1.8 million of *Radiolab*'s 2.8 million listeners come to the program via podcast.<sup>58</sup>

*Radiolab* has received numerous accolades including funding from the Alfred P. Sloan Foundation, a National Academies Communication Award, a Peabody, and a

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<sup>56</sup> Walker, "On 'Radiolab,' the Sound of Science."

<sup>57</sup> Nicholson, "The Sound of Science," 6. Krulwich explains, "People who can put plugs in their ears preferred us to an enormous degree. People who listen in the car or across a room, had more problems with us. The podcast audience, more than any other, took us to where we are now."

<sup>58</sup> Walker, "On 'Radiolab,' the Sound of Science."

MacArthur Genius grant.<sup>59</sup> In 2007, *Radiolab* applied for a National Science Foundation (NSF) Division of Research on Learning in Formal and Informal Settings (DRL). DRL grants funds to programs that encourage “out of school learning that makes learning Lifelong, Life Wide (occurring across multiple venues) and Life Deep (occurring at different levels of complexity).”<sup>60</sup> Recipients of this grant help incorporate scientific thinking into everyday life. In its application, *Radiolab* called itself “a new, unorthodox format with music, live sounds and conversations between the hosts designed to appeal to young adult listeners who previously thought they did not like science.”<sup>61</sup> *Radiolab* was initially awarded almost 800,000 dollars to produce 20 hour-long and 30 shorter interdisciplinary science programs on a wide range of Science, Technology, Engineering, and Mathematics (STEM) topics. Barbara Flagg, an education doctorate, was contracted in 2009 to evaluate *Radiolab*’s efficacy in disseminating science to the public. She asked people to listen to the episode “Choice” before filling out a questionnaire about the episode, and she found that *Radiolab* had prompted 53% of listeners to reflect on their choice-making behavior. 77% said the episode changed the way they think about their choices.<sup>62</sup> In 2011, *Radiolab* received another DRL grant for over a half-million dollars.

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<sup>59</sup> Ibid.

<sup>60</sup> “Advancing Informal Stem Learning,” accessed April 18, 2013, [http://www.nsf.gov/funding/pgm\\_summ.jsp?pims\\_id=504793&org=DRL](http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=504793&org=DRL),

<sup>61</sup> “Radio Lab—A New Approach to Science Story Telling,” accessed April 17, 2013, <http://informalscience.org/project/show/697>.

<sup>62</sup> Flagg, “Summative: Listeners’ Evaluation of Radiolab Program: Choice.”

Currently, *Radiolab* is one of the most downloaded programs on iTunes, often in the top 3.

### ***Radiolab*: Sound Reason**

There are two ways to approach *Radiolab*'s argumentative style. The first way conceptualizes argumentation as an oppositional activity. Facts are presented, disputed, and eventually reach consensus. The ultimate goal of this mode of argument is to resolve differences of opinion into knowledge. In this approach, one position must eclipse the other. This perspective would attend to specific episodes' rhetorical tropes and strategic maneuvers to elucidate strategies for eliding a listener's ascension to a given proposition. (I will explore this line of inquiry in the next chapter, "Yellow Rain.") The second approach views argumentation as inquiry—a way of coordinating claims, evidence, inference, and beliefs. Deanna Kuhn explains argument as inquiry "is implicated in all of the beliefs people hold, the judgments they make, and the conclusions they draw."<sup>63</sup> In other words, argumentative inquiry elucidates the underlying dispositions that guide the exchange of ideas. Reasoning is not necessarily geared towards finding consensus—it can also be about promoting inquiry. Argument-as-opposition and argument-as-inquiry are intimately connected because the proper disposition is a higher order condition of argumentation. If people do not have the right disposition, then deliberation may be useless. Proper reasoning is cumbersome and requires techniques of thought.

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<sup>63</sup> Deanna Kuhn, "Science as Argument: Implications for Teaching and Learning Scientific Thinking," *Science Education* 77 (1993): 322.

To this end, *Radiolab* operates as a listening technology that inscribes indeterminacy into listeners and encourages them to “unify these tensions into a single ethical substance” through “exercises of the mind.”<sup>64</sup> *Radiolab* episodes are typically one hour long and cover a broad topic like sleep, chance, choice, and certainty.<sup>65</sup> Each episode begins by problematizing conventional understandings of the topic, which encourages listeners to “distance themselves from their own beliefs to a sufficient degree to be able to evaluate them, as objects of cognition.”<sup>66</sup> Then, Abumrad and Krulwich feature a mixture of anecdotes and scientific evidence that offer a neuroscientific perspective on the broader topic. The “musical sting” that accompanies each story figures prominently by directing the listeners’ attentions and preparing them to internalize arguments. After each anecdote, Abumrad and Krulwich act as exemplary guides who instruct listeners in the proper way to interpret, relate, and evaluate evidence. Specifically, they teach listeners modes of reasoning that surpass the animal/human and mind/body dualism. Instead, listeners are encouraged to accept a neurological view of the world where animal brains inform our understanding of the human brain, and the brain is entirely reducible to its materiality. Abumrad and Krulwich also act as exemplary debaters, inculcating a method of means testing that should accompany the acceptance of a proposition. Even after rigorous debate, they rarely reach a conclusion and instead ask listeners to accept claims as provisionally true.

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<sup>64</sup> Toby Miller, *The Well Tempered Self*, (Baltimore: The Johns Hopkins Press, 1993), xiii.

<sup>65</sup> Abumrad, “The Terrors & Occasional Virtues of Not Knowing What You’re Doing,” 8.

<sup>66</sup> Kuhn, “Science as Argument: Implications for Teaching and Learning Scientific Thinking,” 331.

### *Problematizing Conventional Reasoning*

Consider the episode “Emergence,” which explores how order comes out of chaos through fireflies, ants, cities, capitalism, Google, and the brain.<sup>67</sup> “Emergence” is ranked as one of *Radiolab*’s best episodes and it was popular enough to warrant a rebroadcast.<sup>68</sup> It offers a representative example of *Radiolab*’s techniques. “Emergence” asks, “What happens when there are no leaders?” and it quickly answers, “Starlings, bees, and ants manage just fine. In fact, they form staggeringly complicated societies—all without a Toscanini to conduct them into harmony.”<sup>69</sup> Emergence offers a model that extends beyond linear causality to account for the complex interactions that produce novel operations. “Emergence” is an hour long and consists of three sections: The first section, “There is No Lord of the (Fire)Flies,” links fireflies, ants, and New York City’s flower market to evidence a “bottom up” logic that characterizes these disparate domains. The second section, “The Invisible Hand,” explores the wisdom of crowds through a group of people guessing an ox’s weight, the stock market, and the organization of Google. The final section, “the Unconscious Toscanini of the Brain,” focuses on the problem of thinking. Specifically, how does a thought materializes in our consciousness? The episode interviews a wide swath of experts like technological guru Steve Johnston,

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<sup>67</sup> Jad Abumrad and Robert Krulwich, *Emergence*, podcast audio, Radiolab, MP3, 57, accessed April 20, 2013, <http://www.radiolab.org/2007/aug/14/>. All exerts from the show are my transcription.

<sup>68</sup> For example see, “The Best Episodes of Radiolab,” *Ranker*, last modified May 3, 2013, <http://www.ranker.com/list/the-best-episodes-of-radiolab/karthik-c>; “WNYC’s Radiolab,” *iTunes Preview*, last modified May 12, 2013, <https://itunes.apple.com/us/podcast/wnycs-radiolab/id15224911>.

<sup>69</sup> “Emergence,” *Radiolab* (blog), August 14, 2007, <http://www.radiolab.org/2007/aug/14/>.

biologist Deborah Gordon, and neurologist Christof Koch. Each story, or segment, offers a different perspective on emergence theory.

“Emergence” starts off like many other episodes; after Abumrad and Krulwich introduce themselves, Abumrad tells the listeners that they are “going to start with something deceptively familiar.” Steven Strogatz’s voice cuts in and tells us that “fireflies are something we all loved as kids, right? Catching them in the backyard, putting them in a jar and watching them glow. So we do not think of them as mysterious...well, they do one thing very nicely, which is flash on and off.” But, “while we may think of fireflies flashing randomly, like we’re used to,” Abumrad explains, “there are parts of the world where they flash together.” Strogatz recounts a trip to Southeast Asia where he witnessed thousands of fireflies syncing their lights and flashing together like “rows and rows of Christmas lights wired together and going off.” “It is simply one of the most spellbinding spectacles in nature,” Strogatz gushes. John Buck, “the first Westerner to photograph the synchronized fireflies,” pipes up to corroborate Strogatz’s observations. But, Abumrad notes, no one knows how this synched up flashing occurs; “there are literally 10 theories” according to Strogatz. “What is clear,” Abumrad explains, “is it is not one firefly that makes it happen...it just happens on its own.” Strogatz formulates a question: “how can order come out of disorder?”; this question raises a host of other issues that extend beyond the example of fireflies to implicate the very fabric of the universe. He enjoins us to go beyond our theories of individuals and intentionality to explore celestial mechanics and theological cosmologies. To answer this



question, Abumrad tells the listener “we are going to do what Steve [Strogatz] urges and step away from the individual to find mystery, beauty, and order in the group.” Ants, neurons, and the Internet are all examples of emergence.

*Radiolab* episodes begin with a relatable object, practice, or event—in the above example, it is the firefly. Strogatz initially voices the conventional opinion that fireflies are nothing more than the stuff of childhood memories. Then, Abumrad and Krulwich trouble this object by demonstrating the inadequacy of conventional knowledge: fireflies have the capacity to spontaneously organize and synchronize into these bright, beautiful patterns. This poses listeners with a problem they are ill-equipped to answer—after all, there are over 10 contradicting theories on this issue—and this uncertainty inscribes indeterminacy into their reasoning. More than a command to learn more about a particular topic, this practice prompts listeners to reflect upon their own thinking. It constitutes thought as an object requiring evaluation and possibly intervention. William E. Connolly explains it helps people “come to terms viscerally and positively with the extent to which it [beliefs] must appear profoundly contestable.”<sup>70</sup> He explains that this estrangement from our own convictions equips us to confront myriad contradicting faiths and beliefs. *Radiolab*’s inscription of indeterminacy “juxtaposes exercises of the self to a positive version of the micropolitics by which we regularly work on each other [...securing...] the essence of ethico-political life in a pluralistic society.”<sup>71</sup> In other words, *Radiolab* acts as a technology of the self that aligns convictions with a liberal,

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<sup>70</sup> William E. Connolly, *Pluralism* (Durham: Duke University Press, 2005), 32.

<sup>71</sup> *Ibid.*, 33

pluralist disposition. It provides a context (or a micropolitics) that is receptive to contradicting perspectives.

*Exemplary Inquiry and Musical Stings*

“There is No Lord of the (Fire)Flies” opens with classical music framing Krulwich’s voice, “In the beginning God created heaven and earth, that’s the King James Bible, that’s how it starts; the ultimate expression of the boss, God, telling everyone else what to be, how to be.... it’s a top down kind of order.” Abumrad chimes in,

But about mid-way through, the Bible contains another passage, more of a bottom-up thing. From King Salmon, the wisest of the kings...where he says ‘look to the ants, consider her ways and be wise.

The juxtaposition of these two biblical quotes offers two different cosmologies: one where God is the supreme architect of the universe (top down) and the other which gestures towards immanence (bottom up). Neither Abumrad nor Krulwich resolve the tension between the claims despite the apparent contradiction; instead, they grant both provisional statuses. This encourages listeners to suspend their convictions and examine the evidence that is about to be presented. Lenore Langsdorf writes:

Privileging inquiry, rather than knowledge,” “means nurturing innovative ideas that can be communicated as plausible, rather than limiting argumentation to beliefs that can be derived from, and added to knowledge.<sup>72</sup>

An intense belief in either direction may preclude a thoughtful evaluation of the evidence.

The next scene is introduced by clicking heels walking down the hall, the creaks of a door opening, and muffled murmurs. Mundane clicks, creaks, and noise impart a sense of discovery into the audience. It sonically situates listeners in a space and reminds

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<sup>72</sup> Lenore Langsdorf, “Argument as Inquiry in a Postmodern Context,” *Argumentation* 11 (1997): 319.

them, in Abumrad's words, "we're right in the thick of it, and we don't know the answers."<sup>73</sup> Abumrad and Krulwich assume the positions of inquirers as opposed to experts, and the listener is encouraged to adopt *Radiolab's* disposition of being uncertain and open to exploration. For the listener to feel the sense of wonder, they must subordinate their convictions to the process of inquiry.

Behind the creaking door is Stanford biologist and "reigning ant queen" Deborah Gordon. "Do the ants know she is the queen?" Krulwich asks. "No," Gordon responds. Krulwich is audibly befuddled, "Wait....wait... I thought that Queens gave commands, like you know in Alice and Wonderland." Gordon quickly dispels this erroneous assumption; the queen has no power, "she is just a big ant that lays the eggs." A sharp note, or a "musical sting," punctuates her comment and functions to direct the listener's attention to Gordon's argument.<sup>74</sup> The musical sting is a salient trope in *Radiolab*. It accompanies an observation, argument, or conclusion that challenges conventional wisdom. The sting reframes auditory space and orients listeners "toward a future, a goal, and a creation of a feeling of imminence and expectations."<sup>75</sup> For novice listeners, the sting merely directs attention to the point. The loud sound captures listeners' attention, telling them it's important. For the more seasoned *Radiolab* fan, the tonality of the sting instructs openness to new ideas because the sting is coupled with the potentiality of

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<sup>73</sup> Abumrad, "No Holes Were Drilled in the Heads of Animals in the Making of This Show," 48.

<sup>74</sup> Ibid.

<sup>75</sup> Michel Chion, *Audio-Vision*, trans. Claudia Gorbman (New York: Columbia University Press, 1994), 13-14.

insight. Over time, the sting itself activates a receptive disposition that precedes the interpretation of symbolic content because sonority travels on a faster neurologic circuit than language.<sup>76</sup> If listeners are primed, then the sting pries open the ear in advance of the new idea. In Gordon's case, the sting instructs the listener that the conventional assumption that ants follow a hierarchical structure is wrong. In fact, Abumrad notes, ant colonies get by without any sort of leadership.

After dispelling the misconception that ants are ruled by a monarchy, Gordon confirms a common assumption that ants are stupid. Gordon recounts an instance where she watched two ants push and pull on the same twig for months. "Why exactly is this occurring?" Krulwich queries. Gordon explains it is most likely because one ant feels that the stick needs to go in one direction while the other feels it needs to go in another. Krulwich chuckles and says "it must be frustrating to watch these mindless exchanges." Despite this lack of intelligence, Abumrad chimes in, ants are the most successful species on the planet. "In pure evolutionary math terms," Abumrad proclaims "they're winning." Krulwich comes in and reminds listeners that ants can accomplish a number of complex tasks such as farming, warring, nursing, and engineering all without a centralized authority. Thus, ants present Abumrad, Krulwich, and listeners with a novel problem: on the one hand, two ants pulling on the same twig for months highlights how mindless they can be. On the other hand, they orchestrate and complete these incredibly complex

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<sup>76</sup> If someone hears a loud noise, they often move before they are aware why they moved. It is only after the body jerked that the person is able to interpret what occurred. This has a biological bias in the human fight or flight system. For more see Seth S. Horowitz, *The Universal Sense: How Hearing Shapes the Mind* (New York: Bloomsbury, 2012), 94-132.

projects. “Somewhere between the zooming in and zooming out intelligence appears, almost like a phantom,” Abumrad says. All of which raises this question: how do so many stupid creatures add up to make something so smart?

To answer this question, Krulwich consults Harvard biologist E.O. Wilson. Wilson recounts his discovery that ants have a part of their body that emits smells that organize and coordinate other ants. “So that was the first clue, smell,” Abumrad notes; “ants may not take orders from above, but they can exchange information.” “Sounds simple enough, ants follow sent trails, sort of like dogs,” Abumrad continues, “but if you stare at them long enough, you will see that when these ants get together, lots of them, these simple sniffing talents add up to solve complex problems.” To illustrate his argument, Abumrad gives the example of finding food. Abumrad instructs listeners to imagine 500 ants exploring a space, and “ant 411” finds sugar completely by accident. Princeton University biologist *Iain* Couzin underscores this point as critical to emergent systems; “error is architecture,” he asserts. After the first ant finds the sugar, another ant bumps into the same discovery, each ant leaving a stronger and stronger sent trail, which attracts more ants. Abumrad explains that before the ant finds sugar, the picture is “vintage Jackson Pollack, lots and lots of squiggly lines.” Once sugar is discovered, these disparate lines snap together into bumper to bumper ants “not unlike midtown during rush hour” Abumrad explains. A loud car horn interrupts the end of Abumrad’s sentence—another musical sting—and directs listeners to consider the relationship between cities and ant colonies. This auditory space provides a moment of reflection for

the listener to draw connections between ants and cities. If the listener is skeptical, then it draws out their concerns into the purview of consciousness so they can be evaluated and potentially adjusted.

After a brief musical interlude, a new male voice tells listeners “when I first saw the ants in person, the first thing I thought it was it looked like a small little city,” Steven Johnston explains. He continues,

A lot of what the ants do is positive feedback loops ...where they lay down a kind of pheromone chemical signal to recruit other ants to something they are working on and those ants lay down more of the same scent, very quickly you can have a bunch of ants working on the same problem, that’s the same way city neighborhoods form.

Linking ants and humans is the idea of the “swerve,” which occurs when a person walks from Point A to Point B, and a whim prompts them to swerve and explore. Sidewalk stores are premised on the idea that, if you’re going to Boutique A, you may swerve to go into Boutique B or Boutique C just because they are near each other. Over time, these swerves accumulate into neighborhoods.

To illustrate Johnston’s argument, Krulwich gives the example of 28<sup>th</sup> Street in Manhattan: the New York City flower market. The buzzing of traffic, an unknown voice welcoming listeners into the flower market, and muffled background voices whisk the listener into this busy shopping area. Krulwich asks, “How did this begin?” He asks the listener to suppose someone came down to 28<sup>th</sup> street to start a flower shop and found moderate success. Another flower shop owner notices her success and decides to open his own next-door in the hopes some of the customers will visit his shop. Johnston pipes in,

“location, location, location.” The second store starts attracting more traffic, and then a third store opens which attracts even more people. “That’s the key, traffic is everything” Krulwich explains; “Once a neighborhood becomes [...] the place for flowers, what began an accident then becomes a neighborhood.” This underscores Johnston’s broader point that cities are built by everybody and nobody at the same time. No single action dictated that 28<sup>th</sup> street became a flower market, but the accumulation of incidents made it so.

### *Exemplary Interpreters*

After interviewing a litany of experts, Abumrad and Krulwich pause and restate their central problematic: “where does organization come from?” Abumrad asks, “How do we get a neighborhood, a district, or a city? How do you get the complexity of an ant colony if there is no leader and everyone in town is stupid?” Abumrad then turns to the evidence to answer this question, “Steve Johnson proposes a city is an emergent quality of the swerve—that’s a series of accidents you know is always going to happen, you multiply the swerves and you get a neighborhood.” Krulwich chimes in,

Deborah Gordon is arguing that you look very closely at the ants and you watch them smelling and you multiply the smells, then you get the complexity of the ant colony. But buried in the system both of them say is a rule or a sense of direction, so how do you see that rule?

Here, Abumrad and Krulwich act as exemplary auditors who instruct the listener in how to interpret the evidence, draw links between the stories, and generate inferences. More than the acquisition of new knowledge, *Radiolab* teaches listeners to coordinate multiple

pieces of evidence and relate them to the problematic. More specifically, they teach the audience to collapse distinctions between animal/human and mind/body.

Abumrad and Krulwich identify common links between species. The comparison between ants and humans invites us to consider ant colonies akin to cities: both are manifestations of localized, unintentional decisions that accumulate into something irreducible to any single action. The commonality between ants and humans is made more pronounced through the discussion of the swerve, which explains how ants find food and how cities develop neighborhoods. In other words, Abumrad and Krulwich infer a commonality between both stories that renders ant colonies and cities equivalent: both are emergent formations.

This is another common trope in *Radiolab* episodes: the relationship between human and animal is perpetually troubled, blurred, and collapsed. In fact, the second collection of anecdotes organized under the header, “The Invisible Hand,” argues that both Google and the stock market follow the same logic as an ant colony. The story about ox guessing suggests that humans have the same collective intelligence as ants.

Collapsing the distinction between animal and human, Nikolas Rose and Joelle M. Abi-Rached explain, is “epistemologically, ontologically, and technologically crucial to the rise of neuroscience.”<sup>77</sup> Rose and Abi-Rached explain that the lack of access to live human brains makes it difficult to test theories. As a result, neuroscientists increasingly rely on animals as testing subjects to generate their claims. For neurological models to

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<sup>77</sup> Nikolas Rose and Joelle M Abi-Rached, *Neuro: The New Brain Sciences and the Management of the Mind* (Princeton: Princeton University Press, 2013), 10.



gain epistemological purchase, scientists require equivalence between humans and “the most basic aspects of [other] living organisms, including their brains.”<sup>78</sup>

For Krulwich, this evidence raises another question: what or who directs these emerging systems? Gordon’s voice chimes in to say, “that’s the wrong question” and tells Krulwich that the answer resides in the material relationships between ants. This is another pedagogical moment because it shows listeners the right questions to ask. For Gordon, the answers to questions reside in an empirical and observable reality instead of some ethereal space. Dismissing the transcendental author in favor an organism’s materiality is homologous to how neuroscientists approach the problem of thought and the brain. A point that Gordon makes to illustrate her argument:

Where is the thought in your brain? Is it in a neuron? Is a piece of thought in a neuron? If you took the neuron out and lay it on the table could you see the tiny bit of the thought in the neuron? No, it’s not in there, in the neuron, it’s in the way neurons interact with one another.

Beyond reifying the previous trope of collapsing the animal/human binary, her observation inculcates another coordinate of neurological reason: the reduction of all processes to their materiality. If the brain is divided by the Cogito, the mind/body division, the conductor would reside in the mind. Instead, neuroscience surpasses the cogito by arguing that the mind reduces entirely to its material circuits. *Radiolab* narrows “the ‘explanatory gap’ between the process of brain and the process of mind they

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<sup>78</sup> Ibid., 83.

somehow produce.”<sup>79</sup> Abumrad characterizes this fact as his exploration into formation of thought as a search for “whatever circuits are responsible for human consciousness.”

### *Exemplary Arguers*

After reviewing, interpreting, and evaluating the evidence, Abumrad and Krulwich return to the theoretical question posed at the beginning of the episode: is there an author to these complex formations? Krulwich answers,

I think it is not just fascinating that there are these hidden patterns and hidden rules, I think...its...um...this is going to change the whole tone...I think it is holy...I know there is no scientific evidence behind this it is just instinct. I think when you look at the way ants work [...] I think you're looking at an author.

“See, see,” Abumrad interrupts, “when you say that all the air gets let out of the balloon for me. It’s like... the magic is gone.” “Really?,” Krulwich asks. “Yeah, I think so,” Jad replies. “Well, see,” Krulwich argues, “what you’re left with then is everything you see in the morning is beautiful, and we all agree it is beautiful, is empty of purpose. Is that ok with you?” Abumrad retorts, “Yeah, in a way it makes it more mysterious to be alive.”

When Abumrad and Krulwich debate the morals of believing that something spontaneously emerges out of nothing, the question of God arises. For Krulwich, a divine spark catalyzes the process of emergence. Abumrad disagrees, claiming it is more beautiful to believe that order emerges from chaos. When Krulwich adduces his argument, listeners can identify with him and understand his position on its own merits. When Abumrad retorts, they consider his view. Because they never adjudicate their debates or decide who wins, the listener is encouraged to provisionally accept both

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<sup>79</sup> Ibid., 4.

propositions. Abumrad and Krulwich take turns being a debater, teaching listeners different perspectives available on a controversial topic. The banter functions to insulate the listener from a rush to judgment that automatically declares one position as victor. Instead, it inculcates the disposition that all truth claims are contestable.

Here, Abumrad and Krulwich's argumentative instruction hedges against a popular critique that podcasts enclose people into digital echo chambers. This argument dictates that digital media allows users to read only blogs and listen to podcasts that conform to their beliefs. There are also the opaque, recursive programs that accumulate users' previous queries, clicks, and temporal investments to guide future searches. These techniques sort and insulate citizens into digital enclaves that can incubate extremism.

Cass Sunstein explains

the Internet is serving, for many, as a breeding group for extremism, precisely because like-minded people are deliberating with greater ease and frequency with one another, and often without hearing contrary views.<sup>80</sup>

Even if extremism does not manifest in violence, it undermines liberal modes of democracy. If citizens are unwilling to entertain opposition positions, then they cannot be governed by reasoned disagreement. However, by inculcating a provisional disposition into the listener, *Radiolab* prevents convictions from intensifying into extremism. They inspire people "viscerally to the risks and pleasures of diversity."<sup>81</sup>

Abumrad and Krulwich's banter serves a pedagogical purpose by positioning them as exemplary debaters. Kuhn enjoins educators to teach "the argumentative

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<sup>80</sup> Cass Sunstein, *Republic 2.0* (Princeton: Princeton University Press, 2007), 69.

<sup>81</sup> Connolly, *Pluralism*, 31.

framework of alternative theories, counterarguments, and rebuttals.”<sup>82</sup> Their process of argumentation mirrors the kind of thinking that should accompany the assimilation of new content into convictions. Abumrad and Krulwich demonstrate the ways listeners can learn from different perspectives. Each host offers a potential interpretation of the evidence and a possible conclusion. However, instead of favoring one proposition over another, banter ensures that both sides remain provisionally true. While neither Abumrad nor Krulwich can escape their convictions, the process of banter performs “a critical function in relation to reflective claims; to preserve uncertainty despite the appeal of complacency.”<sup>83</sup> This locates the listener inside the controversy, where they explore the localized linkages and connections, rather than outside adjudicating it.

*Radiolab*’s inquiry is not neutral. It operates as a mode of critique that reflects neurological and pluralist commitments. However, there is a degree of violence implicit in *Radiolab*’s critique. If conviction is an affective attachment, then it should be painful to cleave it. This becomes very clear in the recent episode, “Yellow Rain,” which investigated a mysterious yellow substance that surfaced in Southeast Asia, after the United States left Vietnam. The intent of the segment was to indict the Reagan administration’s dubious pretenses for labeling yellow rain a chemical weapon. However, making everything contestable courts epistemological injustice.<sup>84</sup> The Hmong identity is

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<sup>82</sup> Kuhn, “Science as Argument: Implications for Teaching and Learning Scientific Thinking,” 334.

<sup>83</sup> Langsdorf, “Argument as Inquiry in a Postmodern Context,” 323-324.

<sup>84</sup> Miranda Fricker, “Forum on Miranda Fricker’s *Epistemic Injustice: Power and the Ethics of Knowing*,” *Theoria* 61 (2008): 69-71.

wed to yellow rain's status as a chemical weapon. By instructing listeners to consider eye witness accounts as merely provisional, *Radiolab* enacts a "hermeneutical injustice" that handicaps marginalized groups from making claims and codifies a structurally prejudice against their claims.<sup>85</sup> Thanks to *Radiolab*'s prominence as a podcast, this story raised many questions about the ethics of podcasting and its circulation. For example, what is the responsibility of podcast producers? And, what options are available to them to remedy a transgression? I will address these questions in my next chapter.

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<sup>85</sup> Ibid., 69.

## **CHAPTER FIVE: YELLOW RAIN: *RADIOLAB* AND THE ACOUSTICS OF STRATEGIC MANEUVERING**

*Radiolab* recently found itself embroiled in a controversy for its podcast segment “Yellow Rain.” Released on September 24, 2012, the podcast recounted the Hmong genocide following the Vietnam War. During the war, the Hmong helped the Central Intelligence Agency (CIA) perform covert missions in the jungles of Southeast Asia. After American troops withdrew, the Viet Cong and their Laotian Communist allies, the Pathet Lao, took revenge on the Hmong, eradicating villages and blanketing populations with a sticky, yellow substance. As a result, some of the Hmong fled into the jungle and while others escaped across the border into Thailand. Those who made it into Thailand brought with them leaves covered in the yellow stuff, which they gave to local aid workers. These workers then shipped the samples back to the United States where labs diagnosed it as a chemical agent known as “yellow rain.” A concerned Reagan administration reasoned that only the Soviet Union had the technical capacity to produce such a weapon. As a result, Reagan restarted the United States’ dormant Chemical and Biological Weapons (CBW) program. In the segment, Jad Abumrad and Robert Krulwich take issue with this narrative; they challenge the assertion that yellow rain was in fact a chemical weapon and insinuate that Reagan used the Hmong incident as an excuse to start producing CBWs.

“Yellow Rain,” appeared in the episode entitled “Facts of the Matter.” The episode’s central theme suggests that truth cannot be circumscribed to the “facts,” but lies somewhere between and beyond them. The episode’s stakes were nothing less than the nature of epistemology and its potential cascading consequences for history, politics, and everyday life. To tackle this “big question,” Abumrad and Krulwich critically engage three narratives that trouble conventional understandings of truth. The first story, “In the Valley of the Shadow of Doubt,” suggests that truth can be discerned in the fissures between facts. It follows Errol Morris and his attempt to rectify two photos taken from the same spot on the same day with one significant difference in the landscape. Instead of discounting one picture as false and anointing the other as true, *Radiolab* argues that the set of images are both true and record an event that intervened between the two images. The second story, “Yellow Rain,” focuses on the Hmong genocide following the Vietnam War and asks if yellow rain, the supposed agent used against the Hmong, was in fact a chemical weapon. This story decouples observation from fact to suggest that Ronald Reagan used the yellow rain incident to restart the United States’ chemical weapons program. The last segment, “Secret Skelly” recounts the story of a friend who always lied. “Secret Skelly” illustrates that biographical facts do not tell us the truth about a person. Rather, truth resides in the interactions and experiences between people.

While the first and last stories discover truth between and beyond facts, “Yellow Rain” throws the whole idea of truth up in the air. Abumrad and Krulwich interview survivors, talk to the scientists, and speak with advocates to question what yellow rain

was. For the hosts, yellow rain informed a controversial and potentially deadly decision and thus requires close scrutiny. Yet, many critics suggest that *Radiolab* discredited the Hmong experience in the process of investigation. These concerns were amplified by Krulwich's interview with a survivor and documenter of the genocide, Eng Yang (E. Yang), and his niece, Kao Kalia Yang (K. Yang).<sup>1</sup> Krulwich took a harsh tone, poked holes in E. Yang's story, and called his recollection hearsay during the interview. Listeners took to message boards to share their displeasure with Krulwich's conduct. Shortly after the episode's release, K. Yang penned an op-ed to challenge the context of the critical discussion by alleging that *Radiolab* ambushed her and her uncle and reduced E. Yang's experience to a political pawn. Her objection drew attention to the norms of argumentation, the nature of digital media, and journalist ethics. In response to the mounting pressure instigated by K. Yang's arguments, both Abumrad and Krulwich apologized for their conduct while reaffirming yellow rain's dubious status as a chemical weapon. A revised podcast that addressed some of the criticisms accompanied each apology.

Yet, *Radiolab*'s revisions frustrated K. Yang who saw them as further discounting of the Hmong. This raises the question: if the initial podcast was pernicious, then was *Radiolab*'s decision to revise justified? For some, the answer is yes because a revision is the last step in a critical discussion. It represents that logical telos of an argumentative encounter as one side succumbs to better reasons and updates beliefs. For others, the answer is no because it robs K. Yang of her voice and allows *Radiolab* to obscure their

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<sup>1</sup> For the purpose of clarity I will refer to Eng Yang as E. Yang and Kao Kalia Yang as K. Yang



transgression. To adjudicate these competing claims, we must turn to the problematic of revision.

Revision traverses both argumentation and digital culture. Whereas argumentation concerns non-violently inducing changes in beliefs, digital culture is characterized by the constant updating of information. As a democratic mechanism used to point out errors in reasoning, argumentation requires interlocutors who commit to the deliberative process and risk their beliefs.<sup>2</sup> In the pragma-dialectical tradition, revision occurs in the last step of a critical discussion when parties revise their beliefs to accommodate the better reason.<sup>3</sup> As an emerging digital practice, revision adapts new media to a rapidly changing terrain. In fact, this ability to quickly acclimate gives digital media a “real time” feel.<sup>4</sup> Unlike analog formats that can visually or audibly testify to a change—perhaps in a skip or a scratch—digital technology can erase all evidence of a revision. Through the manipulation of code, producers can change content without scarifying quality or leaving a mark. Thus, digital argumentation adds an additional wrinkle to the already ambiguous resolution stage of critical discussion by allowing interlocutors to revise their current beliefs as well as all their previous commitments. The revisions surrounding “Yellow Rain” demonstrate how content producers can

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<sup>2</sup> Douglas Ehninger, “Argument as Method: Its Nature, Its limitations, and Its Uses,” *Speech Monographs* 37 (1970): 101-110.

<sup>3</sup> Frans H. van Eemeren, *Strategic Maneuvering in Argumentative Discourse* (Amsterdam: John Benjamins Publishing Company, 2010); Frans H. van Eemeren, and Peter Houtlosser. “Managing Disagreement: Rhetorical Analysis within a Dialectical Framework,” *Argumentation and Advocacy* 37 (2001): 150-157.

<sup>4</sup> Geert Lovink, “MyBrain.net: The Colonization of Real-Time and Other Trends in Web 2.0,” *Eurozine*, March 18, 2010, accessed January 10, 2013, <http://www.eurozine.com/articles/2010-03-18-lovink-en.html>.

strategically use this new capability to advance a standpoint, and thus require closer scrutiny.

To make argumentation theory responsive to emerging digital practices, one must reflect on revision in the mediated context of the podcast. This is because the podcast is a driving force of our contemporary digital culture, allowing users to receive new content and instant updates without having to search. The podcast acts as a crucial vector that enables digital technology to penetrate “society to such an extent that they have become one and the same.”<sup>5</sup> Previous digital argumentation research paints new media as a neutral instrument that aids the exchange of reasons. For example, Damien Smith Pfister’s analysis of the controversy surrounding institutional media’s silence following Trent Lott’s 2002 segregationist toast to Strom Thurmond argues that a group of bloggers generated enough attention to garner mainstream coverage.<sup>6</sup> According to Pfister, blogs provide a space for the rapid production of new reasons that challenge institutional media’s monopoly on information. Yet in offering a robust account of the different topoi generated by people, Pfister cleaves the content from the container and misses how different technologies affect argumentation. This project provides an alternative approach to digital argumentation that extends beyond the podcast as a neutral site for the exchange

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<sup>5</sup> Geert Lovink, “MyBrain.net: The Colonization of Real-Time and Other Trends in Web 2.0,” *Eurozine*, March 18, 2010, accessed January 10, 2013, <http://www.eurozine.com/articles/2010-03-18-lovink-en.html>.

<sup>6</sup> Damien Smith Pfister, “The Logos of the Blogosphere: Flooding the Zone, Invention, and Attention in the Lott Imbroglia,” *Argumentation and Advocacy* 47 (2011): 141-162.

of reasons by accounting for the podcast's culpability in critical discussions. As such, this project views media as "the milieu that conditions human action."<sup>7</sup>

I contend that "Yellow Rain" was a critical discussion between *Radiolab* and the Yangs to resolve yellow rain's status as a chemical weapon. Both sides have a stake in the outcome of the conversation. For the Yangs, yellow rain represents a pivotal moment in the Hmong narrative of persecution. For *Radiolab*, yellow rain's false designation as a chemical weapon underscores the political perils of facts and the need to question taken-for-granted assumptions. In resolving this disagreement, both parties wish to appear reasonable while still maintaining their standpoints. *Radiolab* and the Yangs, in other words, engage in "strategic maneuvering." Strategic maneuvering asks interlocutors "to harmonize their rhetorical and dialectical aims."<sup>8</sup> Strategic maneuvering revolves around three *topoi* outlined by Frans H. van Eemeren and Peter Houtlosser: 1) (re)define problem space for the discussion (topical potential); 2) appeal to the audience's views and beliefs (audience demand); and 3) present their standpoint in a voice that could affect listeners (presentational devices). Strategic maneuvering also occurs around the higher-order conditions of argumentation.<sup>9</sup> Gordon Mitchell demonstrates that the second order condition of argumentation which he calls a "discussion minded attitude"—the risking of one's beliefs in an argumentative process—can be the locus of strategic maneuvering.

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<sup>7</sup> Muriel Combes, *Gilbert Simondon and the Philosophy of the Transindividual*, trans. Thomas La Marre, (Cambridge: MIT Press, 2013), 78.

<sup>8</sup> Gordon Mitchell, "Higher-Order Strategic Maneuvering in Argumentation," *Argumentation* 24 (2010): 321.

<sup>9</sup> Frans H. van Eemeren, and Peter Houtlosser. "Managing Disagreement: Rhetorical Analysis within a Dialectical Framework," *Argumentation and Advocacy* 37 (2001): 150-157.

The discussion minded attitude rests on a moral economy of conviction. An arguer with too much conviction—a naked persuader—precludes argumentation because they refuse to ascent to the better reasons. Someone lacking convictions, or a neutralist, is also not an appropriate interlocutor because she or he lacks the commitments to advance. In his study of former U.S. President George W. Bush’s actions preceding the 2003 invasion of Iraq, Mitchell highlights a tension between Bush’s public call for dialogue on Iraq and his private commitments to invade. Mitchell argues that the invitation for debate performed a “discussion minded attitude” that gave Bush’s declaration of war democratic legitimacy. In this way, Bush used the appearance of the discussion minded attitude to achieve his goals.

In what follows, I argue that the second order condition of argumentation served as a site for “strategic maneuvering” in *Radiolab*’s podcasting argumentation. The revision became a proxy debate about each side’s willingness to accommodate the others’ reasons. “Yellow Rain” extends Mitchell’s analysis by considering how the performance of the second order condition of argumentation helps an arguer advance a position in a digital context. However, my argument goes beyond the tactical deployment of reasons to account for the ethical agency of the podcast itself. I argue that *Radiolab*’s revision evidences the culpability of technologies in the formulation of attitudes and dispositions. Thus, the revision represents a tweaking of views by circumventing intentionality and targeting the networked memories that reside below conscious reflection.

## Yellow Rain

The Hmong are an Asian ethnic minority indigenous to the mountainous region of Southeast Asia. During the Vietnam War, the CIA recruited them as the Royal Laos Army to disrupt supply lines into Ho Chi Minh City (or Saigon). After American troops withdrew from the war, the communist Pathet Lao ascended to power in Laos and attacked the Hmong for aiding the US, as part of what he called a “pacification campaign.” Chong Pha Thao, a Hmong veteran of the Vietnam War, recalled “the Vietnamese joined forces with the Laos communists and hunted us like animals in the jungle, leaving our people’s corpses to rot when they killed them.”<sup>10</sup> The attacks followed a consistent pattern; they occurred on “sunny afternoons with gentle wind conditions and were conducted by slow-flying aircraft that dropped bombs or launched air-to-surface rockets.”<sup>11</sup> Jonathan Tucker reports that 260 separate attacks resulted in at least 6,500 fatalities from 1975-1981.<sup>12</sup> To escape systemic annihilation, some of the Hmong receded into the jungle where many still reside today while others escaped into neighboring Thailand.<sup>13</sup> Those who were able to make it across the border into Thailand brought strange wounds, stories of planes dropping yellow liquid that sounded like rain,

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<sup>10</sup> William Lloyd George, “The Secret Army Still Fighting the Vietnam War,” *The Independent*, February 17, 2010, <http://www.independent.co.uk/news/world/asia/the-secret-army-still-fighting-vietnam-war-1901755.html>.

<sup>11</sup> Jonathan B. Tucker, “The ‘Yellow Rain’ Controversy: Lessons for Arms Control Compliance,” *The Nonproliferation Review* 8 (2001): 26. Tucker continues, “Other reports described attacks with crop-dusters carrying spray tanks similar to those used to apply pesticides on fields.”

<sup>12</sup> *Ibid.*, 26.

<sup>13</sup> George, “The Secret Army Still Fighting the Vietnam War,”

and leaves covered in the yellow stuff. Concerns grew that this yellow rain may be a chemical weapon.

Fred, the pseudonym of an American aid worker in the Hmong refugee camps in Thailand, provides a first-person account of the devastation. Although he initially arrived to help the sick, the *Chemical Biological Weapons Information Project* asked him to interview any Hmong who claimed to experience a yellow rain attack once word circulated about possible chemical weapons. Fred interviewed hundreds of Hmong: he split them up, asked questions, and recorded their responses. According to Fred,

many of them [the Hmong] described nausea, vomiting, diarrhea, and in severe cases, hemorrhages and death. Some of them could recall the particular fixed-wing planes they had seen just prior to the attack.<sup>14</sup>

And when he showed them pictures of different planes, “a majority pointed at the same one.”<sup>15</sup> The wounds too, Fred explains, were “unusual-looking and startling.” He admits, “You couldn’t diagnose it quickly. It wasn’t scabies, even infected scabies.”<sup>16</sup>

Interestingly, the refugees also told aid workers that “after Yellow Rain attacks, Soviet troops entered the affected area to conduct surveys, collect samples of soil and tissue, and capture survivors for medical examination.”<sup>17</sup> Based on these accounts, US intelligence speculated that the Soviets were using the Hmong to test a new chemical weapon.

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<sup>14</sup>Quoted in Olivia LaVecchia, “Behind Laos’s Yellow Rain and Tears,” *City Pages*, November 14, 2012, <http://www.citypages.com/2012-11-14/news/behind-laos-s-yellow-rain-and-tears/>

<sup>15</sup> Ibid.

<sup>16</sup> Ibid.

<sup>17</sup>Tucker, “The ‘Yellow Rain’ Controversy: Lessons for Arms Control Compliance,” 27.

US intelligence officers shipped samples of the yellow substance to the US for processing and analysis.<sup>18</sup> Initially, US scientists were baffled because no known chemical weapons matched the reported effects. Sharon A. Watson, a toxicologist at Fort Detrick, finally suggested yellow rain may be a weaponized fungal toxin grown on grains known as a mycotoxin. In particular, Watson believed that these poisons were trichothecenes, which are “non-protein toxins that are stable enough to survive boiling.”<sup>19</sup> Chester J. Mirocha, an expert in trichothecene mycotoxins, received a leaf sample of the toxin to test this hypothesis. Mirocha’s test yielded three non-local, synthetic toxins, confirming yellow rain was a chemical weapon. On September 13, 1981 the US Secretary of State Alexander Haig reviewed the recently published National Intelligence Estimate, which contained Mirocha’s findings. He announced to the Berlin Press Association that

we now have physical evidence from Southeast Asia which has been analyzed and found to contain abnormally high levels of three potent mycotoxins—poisonous substances not indigenous to the region and which are highly toxic to man and animals.<sup>20</sup>

Haig claimed that use of these particular toxins violated the 1972 *Biological and Toxin Weapons Convention*, and he suggested that only the Soviet Union had the technical capacity to produce such a weapon. Haig’s claim was buttressed by a number of factors

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<sup>18</sup> Ibid., 28. Concerns of Communist chemical warfare grew when reports coming out of Cambodia after Vietnam invaded. Pich Cheang, the Cambodian ambassador to China claimed “the Vietnamese fire poison gas with 80mm and 105mm artillery shells. The gas is visible and makes a white-colored cloud. People who are close to it bleed from the mouth and nose. They die almost immediately. Others who are farther away die more slowly.”

<sup>19</sup> Ibid., 29.

<sup>20</sup> Jane Hamilton-Merritt, *Tragic Mountains: The Hmong, the Americans, and the Secret Wars for Laos, 1942-1992* (Bloomington: Indiana Press, 1999), 432.

including yellow rain's similarities to other suspected Soviet-led chemical attacks (in Cambodia and Afghanistan), Pathet Loa defectors' accounts of Soviet advisors aiding in the acquisition and deployment of such weapons, and the compound's resemblance to a biological agent that ravaged Russia after World War II. As a consequence, the Reagan administration restarted its CBW program.<sup>21</sup>

Despite Reagan's decision to manufacture and stockpile CBW, there was not a scientific consensus that yellow rain constituted a chemical weapon. Matthew Meselson, a Harvard biochemist and expert in CBW, was suspicious of the official explanation. He recruited Tom Seeley, a professor at Yale and a honeybee expert, to investigate the Reagan administration's claims. Meselson and Seeley evaluated the evidence, examined the yellow spots, and poured over the State Department's findings. They found that the shape, size, color, texture, and pollen content of the yellow spots appeared "nearly identical to droppings left by Southeast Asian honeybees."<sup>22</sup> This observation led to Meselson and Seeley's bee feces hypothesis, which suggests that the yellow rain is actually a mass honeybee defecation that accompanies hibernation and migration. According to Seeley, "North American bees take 'cleansing flights,' where they swarm from the hive and defecate en mass," and yellow rain may be the Southeast Asian honeybees' equivalent.<sup>23</sup> In 1984, Meselson and Seeley went to Thailand to test their

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<sup>21</sup>Ibid. Interestingly, it was not until 1980s that the Reagan administration even speculated about a Soviet CBW program. This is because there "was the institutional bias of a single CIA analysis, Julian Hoptman, whose power among the intelligence community's tiny group of BW (biological weapons) experts was supreme."

<sup>22</sup> Tucker, "The 'Yellow Rain' Controversy: Lessons for Arms Control Compliance," 32.



hypothesis. They discovered in the forest just north of Bangkok, in the words of an eye witness, “the bees pooped en masses,” meaning they “watched yellow rain.”<sup>24</sup> This confirmed their belief that yellow rain was not a chemical weapon but rather bee feces.<sup>25</sup> Concomitant with Meselson and Seeley’s investigation, other labs around the world sought to confirm yellow rain’s status as a chemical weapon by testing new samples.<sup>26</sup> In contrast to earlier reports, these tests determined that yellow rain was “almost certainly natural in origin.”<sup>27</sup> These new tests, in conjunction with his findings, led Meselson to conclude that “there’s not a single shred of objective evidence [that yellow rain was a weapon...] deep inside the United States government I think they know it was a mistake, but unfortunately they have never admitted it.”<sup>28</sup>

Mirocha disagrees with the bee feces hypothesis. “The honeybee fecal matter explanation is a red herring,” he argues. “If the Hmong people were told that they were not really the victims of chemical warfare, then that is nonsense.”<sup>29</sup> Similarly, Mirocha

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<sup>23</sup> LaVecchia, “Behind Laos’s Yellow Rain and Tears.”

<sup>24</sup> Ibid.

<sup>25</sup> Ibid. Buttressing their theory that yellow rain was really just bee feces, Meselson cites similar yellow rain phenomena that occurred in China. According to Meselson, Chinese villagers reported a similar mysterious yellow substance they believed to be poisonous, but when this substance was analyzed it turned out to be pollen.

<sup>26</sup> Ibid. Meselson and Seeley suggested Mirocha’s lab tainted the samples. Meselson remarked that to evaluate toxins “you have to be sure that your lab is very, very clean [...] preferably that it’s a lab that has never seen those very same substances.”

<sup>27</sup> Ibid.

<sup>28</sup> Ibid.

<sup>29</sup> Ibid.

found that Meselson and Seeley performed their work well yet suggests they offer nothing more than a first-person account of bee droppings, adding that “the natives had known this [the bee migration] for hundreds of years!”<sup>30</sup> For him and many Hmong activists, the bee feces hypothesis discounts the Hmong people, their story, and their experience.

The science surrounding yellow rain is far from settled. New findings, tests, and studies seeking to prove or disprove yellow rain’s status as a chemical weapon arise even today. For example, Olivia LaVecchia cites recent studies conducted at Princeton and George Washington University that reaffirm Mirocha’s initial findings.<sup>31</sup> Deep emotional investments underwrite both sides of this controversy. For the Hmong, yellow rain is a critical component of their narrative of genocide and abandonment. To deny the truth of chemical weapons is to discount their experience. In contrast, dissenters view yellow rain as another instance of the US government distorting facts to justify restarting its chemical weapons programs. This controversy includes all the trappings that attract *Radiolab* to a story; it represents a mystery with historical consequences that can be solved with science. However, one always risks getting entangled when weighing into a decades-old skirmish.

### **The Fact of the Matter**

“The Fact of the Matter,” the hour-long podcast that aired on September 24, 2012, consists of three stories that trouble empiricism and truth. The episode’s byline asserts,

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<sup>30</sup> Ibid.

<sup>31</sup> Ibid.

“getting a firm hold on the truth is never as simple as nailing down the facts of a situation.”<sup>32</sup> “The Fact of the Matter” promised to “go after a series of seemingly simple facts—facts that offer surprising insight, facts that inspire deeply different stories, and facts that, in the end, might not matter at all.”<sup>33</sup> At stake in this episode was nothing less than the nature of truth. *Radiolab* asks, what counts as the truth? Is it externalized and measurable like in a photograph? Or, does the truth reside in subjective experiences that accumulate into a thought? Does the truth even matter?

To trouble conventional truth, “Facts of the Matter” offers three stories: Errol Morris’s inquiry into an early war photograph, an investigation into a mysterious yellow substance rained down the mountains of Laos, and a narrative about a friend who never tells the truth. The episode begins with “In the Valley of the Shadow of Doubt” which details Morris’s obsession with a pair of photos taken during the Crimean War dubbed “The Valley of the Shadow of Death.” Both photos feature a dirt road winding between two slopes, but only one of them shows the road littered with cannonballs. *Radiolab* asks which photo came first? And “why did the cannonballs move?” Conventional wisdom suggests that the photo with the cannonball came second and was staged. Morris agrees that the cannonball picture came second though not because it was staged. He asks listeners to go beyond the truth of a single photograph to explore the space between

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<sup>32</sup> Jad Abumrad and Robert Krulwich, *The Fact of the Matter*, podcast audio, Radiolab, MP3, 63, accessed September 24, 2012, <http://www.radiolab.org/2012/sep/24/>; Jad Abumrad and Robert Krulwich, *The Fact of the Matter*, podcast audio, MP3, 63, Radiolab, accessed October 30, 2012, <http://www.radiolab.org/2012/sep/24/> 2; Jad Abumrad and Robert Krulwich, *The Fact of the Matter*, podcast audio, Radiolab, MP3, 66 accessed November 14, 2012, <http://www.radiolab.org/2012/sep/24/>.

<sup>33</sup> “The Fact of the Matter,” *Radiolab* (blog), September 24, 2012, <http://www.radiolab.org/2012/sep/24/>.

images. Morris suggests that troops moved across the landscape in the intervening time between pictures, jostling rocks and dislodging cannonballs. These movements and disruptions resulted in the second photo. While the cannonballs came second, they reflect another part of the war—not a battle, but the troop movements.

Following the Hmong segment comes “Secret Skelly,” which tells the story of Skelly, who never told the truth. Skelly’s friends viewed his fibbing as innocent gestures used to obscure regrettable realities. But when Skelly died, his friends found that they did not really know him at all. This final narrative asks whether truth resides in public performance or private actions. Ultimately, they opt for a more complicated view of truth in which the details of Skelly’s life seem irrelevant to the truth of friendship.

*Radiolab* billed “Yellow Rain” as “one of the strangest stories to come out of the Cold War [which] hinges on evidence that turns out to be deeply entangled with a little-reported tragedy, and a history-shaping accusation.”<sup>34</sup> The controversy besetting yellow rain’s status as a chemical weapon became the site to explore the way facts accumulate into truth and the nature of evidence. “Yellow Rain” follows *Radiolab*’s story telling formula: they start with the prevailing narrative (in this case, yellow rain was a chemical weapon deployed against the Hmong), and they subsequently use science to challenge that explanation. Like many other episodes, this move creates a tension between subjective experience and external, replicable observations. A survivor’s experience is interrogated and discounted in favor of a “verifiable” bee feces hypothesis. The resulting story challenges our common sense experience through a scientific discourse of

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<sup>34</sup> Ibid.

chemicals, neurons, and particles. While *Radiolab* may have intended to demonstrate the polyvalent relationship between observed facts and truth, they became ensnared in the debate surrounding yellow rain.

“Yellow Rain” begins with Pat Walters, a *Radiolab* producer, interviewing Merle Prebbenow, a retired CIA officer stationed in Southeast Asia after the US withdrew from Vietnam. Prebbenow explains that once US soldiers evacuated the region, the communists—both the Viet Cong and the Pathet Lao—sought retribution against US allies. Listeners are introduced to Eng Yang, a Hmong refugee and historian, who recounts in his native language his experience fleeing from Pathet Lao prosecution. Kao Kalia Yang, his niece (and an award-winning author), translates the horrors witnessed by her uncle. Through a montage of news reports and speeches, listeners are told that the Reagan administration blamed the Soviet Union for chemical attacks against the Hmong, and later restarted the United States’ CBW program. Yet, Walters disputes yellow rain’s designation as a chemical weapon by citing a number of reports that contradict the state department’s findings. He also interviews two of yellow rain’s most prominent skeptics: Meselson and Seeley.

After interviewing Meselson and Seeley, Walters returns to the Yangs to confront them with his scientific findings. “I have a clarifying question before I interpret that,” K. Yang inquires, “so they found toxins initially, but when they looked again at the samples the toxins were no longer there?” Walters responds, “that’s right.” K. Yang retorts, “How do you explain the kids dying? The people and the animals dying?” Abumrad’s voice cuts

in and tells listeners that Walters “asked Kalia to tell Eng what the scientists had told us that the Hmong were definitely dying.” “The Hmong were under real attack,” Meseleson’s voice assures the listeners; “they were being fired at from airplanes and by soldiers.” “But more importantly,” Abumrad cuts back in,

even if they weren’t being killed by those direct attacks, they were on the run through the jungle. They were malnourished, drinking from contaminated streams, diseases like dysentery and cholera were rampant, and the way a lot of people see it, they might have misattributed some of those mysterious deaths to this cloud of bee poop that looked like it could have been a chemical weapon. But Eng said no, not a chance.

The Yangs rebut, “I speak to what I’ve seen, and there is no inkling in my mind that those deaths were not caused by starvation, [or] dysentery, there was [sic] chemicals that were killing my people.”

*Radiolab*’s high production and music fades as Krulwich enters the scene and starts questioning the Yangs “as if he were a cross-examining attorney.”<sup>35</sup> Krulwich presses, “Was there always a plane and then rain? A plane and then rain? Or did sometimes the rain happen without a plane?” “We never saw what it was,” K. Yang responds while becoming audibly frustrated; “it was always being dropped on them, and it was always being dropped where there were heavy concentrations of Hmong people.” “But,” Krulwich continues, “we don’t know whether there was a plane causing it, or did you just see the dust?” Again, K. Yang counters,

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<sup>35</sup>Bob Collins, “Why the Radiolab Interview Went Wrong,” *Minnesota Public Radio News*, September 27, 2012, [http://minnesota.publicradio.org/collections/special/columns/news\\_cut/archive/2012/09/why\\_the\\_radiolab\\_interview\\_went\\_wrong.shtml](http://minnesota.publicradio.org/collections/special/columns/news_cut/archive/2012/09/why_the_radiolab_interview_went_wrong.shtml).

everybody runs when you hear the planes, so Hmong people didn't watch bombs coming down. You came out, you sneak your head out, and you watch what happened in the aftermath. You saw broken trees, you saw yellow in the aftermath of what had been bombed.

K. Yang's voice quivers as she translates, "with my own eyes I saw pollen that could kill grass, could kill leaves, could kill trees." Krulwich does not let up. Rather, his voice hardens as he pushes for clarification: "but he himself is not clear whether it's the bee stuff or whether it's other stuff, because there was so much stuff coming down from the sky?" K. Yang's voice frays and cracks:

you know that there were chemicals being used against the Hmong in the mountains of Laos. Whether this is the chemicals from the bombs or yellow rain, chemicals were being used. It feels like to him like this is a semantic debate, and it feels like, um, like there's a sad lack of justice that, that, that the word of a man who survived this thing must be pitted against a professor from Harvard whose read these accounts.

As the interview climaxes, Krulwich's tone stiffens while he repeats a similar line of questioning: "But, as far as I can tell," Krulwich asserts, "your uncle didn't see the bee pollen fall, your uncle didn't see a plane, all of this is hearsay." K. Yang sobs as she explains:

My uncle says for the last twenty years he didn't know that anyone was interested in the deaths of the Hmong people. He agreed to do this interview because you were interested. What happened to the Hmong happened, and the world has been uninterested for the last twenty years. He agreed because you were interested. That the story would be heard and the Hmong deaths would be documented and recognized. That's why he agreed to the interview, that the Hmong heart is broken and our leaders have been silenced, and what we know has been questioned again and again is not a surprise to him, or to me. I agreed to the interview for the same reason, that *Radiolab* was interested in the Hmong story, that they were interested in documenting the deaths that happened. There was so much that was not told. Everybody knows that chemical warfare was being used. How do you create bombs if not with chemicals? We can play the semantics game, we can, but I'm

not interested, my uncle is not interested. We have lost too much heart, and too many people in the process. I, I think the interview is done.<sup>36</sup>

K. Yang was through reasoning with Krulwich; she was no longer interested in engaging in a “semantic debate” because that exercise only caused more pain. Krulwich’s use of “gotcha journalism” and Western science to discredit indigenous knowledge added to her frustration.

At play in this debate are two different “games of truth,” meaning rules and procedures that dictate whether a claim is valid, or true.<sup>37</sup> The particular game of truth that gains the most purchase is contingent upon historical circumstances and power relations. The Yang’s statements reside in a particular constellation of practices and procedures that allow them to cite personal experience as sufficient evidence. However, Western epistemology discounts indigenous knowledge as superstition in this particular conjuncture. The Yangs were not authorized to make truth claims about yellow rain because they lacked adequate credentials to evaluate the substance falling from the sky; they had neither the right training nor the correct procedure for making an argument. After all, how can they determine if the substance was really a chemical weapon? What counts as data is an accumulation of reports that analysts can quantify and calculate.

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<sup>36</sup> Kao Kalia Yang, “The Science of Racism: Radiolab’s Treatment of Hmong Experience,” *Hyphen*, October 22, 2012, <http://www.hyphenmagazine.com/blog/archive/2012/10/science-racism-radiolabs-treatment-hmong-experience>.

<sup>37</sup> Michel Foucault, “The Ethics of the Concern of the Self as a Practice of Freedom.” In *The Essential Foucault*, eds Paul Rabinow and Nikolas Rose (New York: The New Press, 1994), 38. I am gesturing to Foucault’s concept of game of truth. He explains “The word ‘game’ can lead you astray: when I say ‘game,’ I mean a set of rules by which truth is produced. It is not a game in the sense of an amusement; it is a set of procedures that lead to a certain result, which, on the bias of its principles and rules of procedure may be considered valid or invalid, winning or losing.”



Truth then is tied to different regimes of power that sanction who can speak on what issues.

In such a situation, K. Yang's cry interrupts the critical discussion and operates as an objection. Kathryn Olson and G. Thomas Goodnight explain,

absent a common agreement as to the means of reaching consensus, debate over the 'truth' of an asserted claim is set aside, in whole or in part, and challenges are raised as to the acceptability of the communicative context within which the argument is offered as secure.<sup>38</sup>

That is, when deliberation occurs within a shared context—agreed upon values, goals, rules, and facts—the argument progresses smoothly. When a disjunction appears between interlocutors, as in “Yellow Rain” where both parties disagree on basic facts, hegemonic beliefs take precedence. These conventions can implicate who is sanctioned to speak, the problem space being debated, the conversation's stakes, and so on. Objections evidence this differential, making both parties (and often an audience) aware of this gap.

Once K. Yang ends the interview, fifteen seconds of radio silence follow to allow the listener to sit in the uncomfortable and awkward affect. “Yellow Rain” then cuts to Abumrad, Krulwich, and Walters ruminating on the interview. This is the first attempt to represent the interview as an encounter that demands reflection. Walters and Abumrad sympathize with the Yangs. Abumrad thinks that he should have “quit focusing on this

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<sup>38</sup> Kathryn M. Olson and G. Thomas Goodnight, “Entanglements of Consumption, Cruelty, Privacy, and Fashion: The Social Controversy Over Fur,” *The Quarterly Journal of Speech* 80 (1994): 251.

yellow rain stuff, because when you do that, you're shoving aside a much larger story, namely that my people were being killed." Krulwich, however, was less convinced.

Right, that's exactly what she's saying. And that is wrong. That is absolutely, to my mind, that is not fair to us. It's not fair to ask us to not consider the other stories and the other frames of the story. The fact the most powerful man in the world, Ronald Reagan, used this story to order the manufacture of chemical weapons for the first time in twenty years, I mean, that is not unimportant, that's hugely important, but it's not important to her, so should that not be important to us?

He acknowledges that K. Yang's reaction was "very balancing" but proceeds to suggest that "her desire was not for balance, her desire was to monopolize the story, and that we can't allow." Abumrad responds that yellow rain is a huge part of the Hmong genocide narrative; if "yellow rain isn't a chemical weapon, it does not just invalidate yellow rain, it negates their whole loss." Maybe there are three truths, Abumrad postulates: the Hmong truth, the bee feces hypothesis, and the potential for the Reagan administration to exploit a situation. So Abumrad asks, "What do you do when three truths are right?" Krulwich's tone lightens as he chuckles and says "which I think that's the situation we are in." Krulwich, Walters, and Abumrad conclude this segment in a hushed laughter as they transition to break.

### **Objectivity and Transparency**

"Facts of the Matter"'s postmodern flare and epistemological stakes risk further marginalizing Hmong voices. For K. Yang, this is irresponsible journalism with real-world implications. She told *Current Magazine's* Andrew Lapin that "the Hmong are not in the media very often—when we are, how we are portrayed is so critical to our own

understanding of ourselves and our place in America.”<sup>39</sup> In an editorial for *Hyphen* written shortly after the release of “Facts of the Matter,” K. Yang responds to *Radiolab* by steering the problem space away from yellow rain towards journalistic ethics by redefining objectivity and transparency.<sup>40</sup> Whereas *Radiolab* defines objectivity as a replicable inquiry, she defines it as a fair representation of all sides of a controversy. Under K. Yang’s interpretation, any process that discounts contrary views represents an unfair bias. Additionally, she defines transparency as being forthright with intentions. This differs from *Radiolab*’s definition of transparency as making data and method publicly available. While the gap between these two interpretations of transparency is smaller, it is still significant because *Radiolab*’s definition does not preclude surprise as a tactic. For K. Yang, ambush discredits the entire process because it violates consent. If she and her uncle were surprised, then they were not really participating in the critical discussion. Thus, K. Yang strategically maneuvers by redefining the topical potential of the controversy; *it was no longer* if yellow rain was a chemical weapon but if *Radiolab* engaged in the proper procedures to make their claims.

### *Objectivity*

Much like the science it employs, *Radiolab* utilizes positivism to craft its arguments. This method uses empirical observation, expert testimony, hypothesis, and testing to craft tempered truth claims. While *Radiolab* does not actually conduct

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<sup>39</sup> Andrew Lapin, “Search for ‘Truth’ results in *Radiolab* apology,” *Current Magazine*, October 24, 2012, <http://www.current.org/2012/10/search-for-truth-results-in-radiolab-apology/>.

<sup>40</sup> Yang, “The Science of Racism: Radiolab’s Treatment of Hmong Experience.”

experiments, they feature others' works and conclusions. *Radiolab* then subjects these ideas to cross-examination as Abumrad and Krulwich take opposing sides by advocating, doubting, and questioning "in a way that often reflects what the listening audience is likely to be thinking."<sup>41</sup> That is, the audience participates in the scientific process by identifying and drawing conclusions with the hosts. Andrew Bottomley suggests, "these elements all work together to make *Radiolab* sound like the process of intellectual discovery – it is the research and problem-solving process manifested audibly."<sup>42</sup> Positivism's cultural purchase bestows an air of objectivity upon its users because the assumption that an experiment can be replicated elides concerns of subjective bias. It infuses *Radiolab*'s claims with credibility because they have adhered to the proper procedures of knowledge production. Yet, K. Yang argues that the show maintains a Western bias through its language choices, evidence selection, and editing techniques.

This bias appears explicitly in Prebbenow's description of Southeast Asia as "the sticks," "the boonies," and the "jungle backwater"; each label imports connotations of uncivilized and backward societies. *Radiolab*'s data is also colored by Western bias beyond particular language choices. Anelisa H. Shourt, a doctoral candidate at New York University, argues the "Yellow Rain" controversy and the bee feces hypothesis are

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<sup>41</sup> Andrew Bottomley, "On Radio: *Radiolab* and the Art of the Modern Radio Feature," *Antenna*, January 11, 2012, <http://blog.commart.wisc.edu/2012/01/11/on-radio-radiolab/>.

<sup>42</sup> Ibid.

anchored in racist assumptions.<sup>43</sup> To warrant her argument, she points to Meselson's discounting of Hmong eye-witness testimony because they were not Western. While *Radiolab* does not explicitly suggest that some views are more valuable than others, "the arc of Krulwich's interview with the Yangs reinforced that paradigm."<sup>44</sup> As K. Yang argues at the end of the interview, *Radiolab* pits her uncle's testimony as a survivor and documenter against the word of university scientists. In their view, E. Yang turns into the ignorant Other who requires Western expertise to correct his views. This becomes clear in Krulwich's allegation that E. Yang's experience was hearsay, which supposes that Western reports carry greater weight than eye-witness testimony. This ethnocentric framing favors Western science over uncivilized, indigenous knowledge.

Moreover, K. Yang asserts that Western bias crops up in *Radiolab*'s editing choices. For example, the debate about the bee feces hypothesis only featured Meselson and Seeley's observations. Bracketing the argument that *Radiolab* did not consider more recent studies that challenge the bee feces hypothesis, they omitted E. Yang's cultural knowledge of Southeast Asian honeybees. K. Yang points out,

my uncle explained Hmong knowledge of the bees in the mountains of Laos, said we had harvested honey for centuries, and explained that the chemical attacks were strategic; they happened far away from established bee colonies, they happened where there were heavy concentrations of Hmong.<sup>45</sup>

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<sup>43</sup> Anelise H. Shourt, "Disastrous Truth," last modified October 5, 2012, <http://anelisehshourt.com/2012/10/05/disasterous-truth/>. Meselson said that the accounts were not creditable because, "none of the *alleged* attacks was witnessed by a Western observer."

<sup>44</sup> Ibid.

<sup>45</sup> Yang, "The Science of Racism: Radiolab's Treatment of Hmong Experience."

The resulting interview does not allow the audience to consider Eng's expertise; rather, listeners encounter "the stereotypes of an old man who 'doesn't know better.'"<sup>46</sup> In short, K. Yang demonstrates that *Radiolab* is not a disinterested observer but rather a biased interlocutor. As a result, *Radiolab* should be disqualified from adjudicating truth claims.

Implicit in this debate are two different definitions of objectivity. *Radiolab* adduces objectivity as set of procedures for knowledge production including the externalization of findings, testing results, and the corroboration of data. As a consequence, inquiry requires the elimination of some views and the discounting of others. If a mode of inquiry is deemed sound—and more importantly another person in a different place and time can replicate its results using the same assumptions, data, and method—then it is considered objective. In contrast, the Yangs define objectivity as fairly representing each side of a controversy. It promises to neutrally *present* different perspectives and asks reasonable people to adjudicate competing claims. Failing to represent all perspectives *fairly* undermines objectivity because it distorts how an audience draws conclusions. If *Radiolab* suppresses some data that they deem irrelevant or rhetorically discredits them, then the episode is not objective: "Yellow Rain" would amount to more of a polemic. Here, objectivity is a procedure for the *presentation* of facts. The impasse created by these divergent interpretations of objectivity draws transparency into relief.

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<sup>46</sup> Aaron Hokanson, September 26, 2012 (2:26pm), comment on "Yellow Rain," *Radiolab* (blog), September 26, 2012 (2:43pm), <http://www.radiolab.org/blogs/radiolab-blogland/2012/sep/26/yellow-rain/>.

## *Transparency*

*Radiolab* works hard to cultivate an ethos of transparency in part through its use of sonic embellishments. Rob Walker notes elements “pop up that are sliced away in most radio productions, like interviewees spelling their names during a microphone volume-level check.”<sup>47</sup> When asked why he includes these digressions, Abumrad says he is “trying to capture the rhythms and the movements, the messiness of the actual experience [...] that create a sense of transparency.”<sup>48</sup> “This is how ‘Radiolab’ address the tension between authenticity and artifice,” Walker notes, “capturing raw, off-the-cuff moments (or trying many times to get them right) and editing them in a gripping pastiche.”<sup>49</sup> *Radiolab*’s self-conscious editing renders production audible and grants audience access to the show’s interworkings.

At the end of the interview, K. Yang calls foul by arguing that she met with *Radiolab* under the pretense of telling the Hmong story. K. Yang writes that

my uncle and I were contacted by Radiolab because they said they wanted to know the Hmong experience of Yellow Rain. Ronald Reagan and the American politics were not at all mentioned in any of the correspondences between me and *Radiolab*.<sup>50</sup>

The questions disclosed prior to the interview gave no indication that the bee feces hypothesis was the primary focus. As Mathew Salesses, a prominent blogger, points out, only 2 of 17 questions had anything to do with bee poop. “And that was supposed to

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<sup>47</sup> Walker, “On ‘Radiolab,’ the Sound of Science.”

<sup>48</sup> Ibid.

<sup>49</sup> Ibid.

<sup>50</sup> Yang, “The Science of Racism: Radiolab’s Treatment of Hmong Experience.”

indicate to K. Yang that the episode's focus was that the yellow rain was really bee poop?," asks Salesses.<sup>51</sup> Similarly, K. Yang requested a transcript after the interview but was told that she would need a court order.

Again, this debate pivots around two different definitions of transparency. *Radiolab* describes transparency as the externalization of reason. Emerging from objectivity as procedure, transparency makes inquiry susceptible to an audit, evaluation, and even replication. Brooke Gladstone suggests that, "transparency is the new objectivity" because it gives media consumers a tool to wade through data.<sup>52</sup> In particular, transparency refers to disclosure of information, like evidence, editing techniques, transcripts, among others, in order for media consumers to audit a story and formulate their own opinions. "Why should we trust what one person—with the best of intentions—insists is true when we instead could have a web of evidence, ideas, and argument?" Gladstone asks.<sup>53</sup> Thus, he considers shows that are willing to disclose their production techniques, their sources, and other insider information as more trustworthy.<sup>54</sup> Perhaps more importantly, this mode of transparency allows people to internalize *Radiolab*'s findings as their own because elucidating the reasoning and warrants for their conclusions enables listeners to rearticulate those arguments to others. This is different,

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<sup>51</sup> Matthew Salesses, "Radiolab Update: Privilege in the Podcast, Hope in the Comments," *The Good Men Project*, October 25, 2012, <http://goodmenproject.com/good-feed-blog/radiolab-update-privilege-in-the-podcast-hope-in-the-comments/>.

<sup>52</sup> Brooke Gladstone, *The Influencing Machine* (New York: W.W. Norton & Company, 2011), 113.

<sup>53</sup> *Ibid.*, 113.

<sup>54</sup> David Weinberger, "Transparency is the New Objectivity," *Journal of the Hyperlinked Organization*, August, 2009, <http://www.hyperorg.com/backissues/joho-aug18-09.html#transparency>.



for example, from simply hearing about the conclusion from scientific findings like “chocolate is good for your health.” By equipping the audience with the reasons that underwrite a conclusion, they facilitate the internalization and recitation of those reasons in the future.

The Yangs define transparency procedurally. For them, it is a matter of consent: both parties should openly display their commitments and intentions before entering into a critical discussion. *Radiolab*’s opaque practices did not allow the Yangs proper time to prepare an adequate response. In this way, the Yangs equate transparency with a condition for the “obligation to defend” in the rules of critical discussion. This rule of critical discussion stipulates that the other party is required to defend a standpoint only if s/he is prepared to do so.<sup>55</sup> If they are not prepared to defend, then the conditions for a critical discussion have not been satisfied. Consequently, the conversation ends or is postponed. So, *Radiolab*’s ambush did not give the Yangs adequate time to prepare a proper defense for their standpoint. This definition of transparency indicts *Radiolab*’s definition of objectivity as a mode of inquiry by challenging the procedure’s fairness. Even if *Radiolab*’s findings were correct, they would be illegitimate because they did not adhere to normative rules that should guide research. Put differently, *Radiolab*’s findings are *fruit of the poisonous tree*. Beyond the conditions that enable the defense of a standpoint, the appeal to transparency highlights *Radiolab*’s moves as fallacious. By changing their standpoint as they began to argue, *Radiolab* was not forthright in the

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<sup>55</sup> Frans H. van Eemeren and Rob Grootendorst, *A Systematic Theory of Argumentation* (New York: Cambridge University Press, 2004), 137-138.

confrontation stage. The Yangs did not wish to debate the legitimacy of an experience; thus, the critical discussion emerged from a deception.

The public lambasted *Radiolab* for its clumsy coverage and its unfair treatment of the Yangs. On *Radiolab*'s "Yellow Rain" blog, listener Robert scolds them because they "made pawns of the interviewees who trusted *Radiolab* to actually be frank, fair, and balanced (like we all did)." <sup>56</sup> Minnesota Public Radio correspondent Bob Collins worries that "the story appeared [...] to invalidate the Hmong loss and suffering in Laos." <sup>57</sup> Aaron, a commenter on *Current Magazine*'s coverage of the controversy calls the episode "inexcusable science, nothing close to journalism, and if only 'a story,' one that cements erroneous ideas in the minds of its listeners." <sup>58</sup> Kirti Kamboj, writing for *Hyphen*, describes "Yellow Rain" as "heartbreaking," "utterly infuriating," and an exemplar of "Orientalist, ethnocentric framing" designed to privilege Western knowledge. <sup>59</sup>

### **The Acoustics of Strategic Maneuvering**

In the wake of vitriolic responses to *Radiolab*'s coverage of yellow rain, both Abumrad and Krulwich wrote responses on the show's blog. Moreover, "Yellow Rain"

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<sup>56</sup> Robert, September 27, 2012 (7:19am), comment on "Yellow Rain," *Radiolab* (blog), September 26, 2012 (2:43pm), <http://www.radiolab.org/blogs/radiolab-blogland/2012/sep/26/yellow-rain/>.

<sup>57</sup> Collins, "Why the Radiolab Interview Went Wrong."

<sup>58</sup> Aaron, October 24, 2012 (6:11pm), commented on Andrew Lapin, "Search for 'Truth' Results in *Radiolab* apology," *Current.org*, October 24, 2012, <http://www.current.org/2012/10/search-for-truth-results-in-radiolab-apology/#comment-691571463>.

<sup>59</sup> Kirti Kamboj, "Deliberate Distortions: 'Radiolab' and the Hmong Story," *Hyphen*, October 10, 2012, <http://www.hyphenmagazine.com/blog/archive/2012/10/deliberate-distortions-radiolab-and-hmong-story>.

was revised and rereleased twice. *Radiolab*'s apologies and revision were strategic maneuvers that balanced a "resolution minded dialectical objective with the rhetorical objective of having one's own views accepted."<sup>60</sup> According to van Eemeren and Houtlosser, strategic maneuvering manifests in three different ways: 1) topical potential—the way a problem is framed and debated; 2) audience demand—moving around the audiences expectations; 3) presentational devices—the use of rhetoric and style effectively.<sup>61</sup> By tactically conceding some of K. Yang's arguments, *Radiolab* steered the critical discussion away from journalistic transgressions and back to yellow rain (topical potential). The immateriality of the podcast allowed *Radiolab* to use Abumrad and Krulwich's apologies as presentation devices that managed the audience's memory of the event (presentational devices). The revision also projected a discussion-minded attitude that made *Radiolab* appear reasonable (audience demand).

On September 26, 2012, just two days after the podcast's initial release, Abumrad issued a statement to contextualize and clarify "what we were thinking...and what we were not thinking."<sup>62</sup> He explains that his intention was not to discount the experience of a genocide survivor but to demonstrate that forensic investigations often "miss and sometimes even obscure hugely important realities. Like a genocide."<sup>63</sup> This, Abumrad

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<sup>60</sup> van Eemeren and Houtlosser, "Managing Disagreement: Rhetorical Analysis within a Dialectical Framework," 151.

<sup>61</sup> Ibid., 152.

<sup>62</sup> Jad Abumrad, "On Yellow Rain...." *Radiolab* (blog), September 26, 2012 (2:43pm), <http://www.radiolab.org/blogs/radiolab-blogland/2012/sep/30/robert-krulwich-yellow-rain/>.

<sup>63</sup> Ibid.

admits, is something the *Radiolab* crew was guilty of during the interview with the Yangs and why they “included the lengthy and painful exchange with Kao Kalia Yang, even though it may not have been flattering to us.”<sup>64</sup> However, Abumrad continues, “if we gave the impression that we approached the ending conversation causally, without much consideration or sensitivity, that’s on us.”<sup>65</sup> For Abumrad, the stakes of the episode pivot around Regan’s decision to restart the United States’ CBW program. But to assuage listeners’ concerns, he “inserted a line in the story that puts our ending conversation in a bit more context.”<sup>66</sup> Accompanying this statement, *Radiolab* uploaded a revised “Yellow Rain.”

The first revision of “Yellow Rain” included three major changes. First, it reframed the story. While the first iteration uses “Yellow Rain” as a foil to trouble the existence of Truth, the revised podcast introduces the story by noting that sometimes getting to *a* fact of the matter can be “tricky” as stories become complex, messy, and unexpected. Second, in the initial episode between the radio silence and the *Radiolab* producers’ soul searching, Abumrad tells listeners that “we were all really troubled by the interview, we talked about it for weeks, we had arguments about it for weeks. What does it mean for the story? What does it mean for us personally? So at a certain point we decided to have this conversation on tape.” However, this transition differs substantially in the amended version: “Now, um, now...that was not the end of the interview...they

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<sup>64</sup> Ibid.

<sup>65</sup> Ibid.

<sup>66</sup> Ibid.

kept on talking, Robert and Pat explained to K. Yang that, ya know, we are reporters and we are just trying to figure out what happened...one thing I do want to make clear...we informed the Yangs in advance that we wanted to talk about the controversy surrounding yellow rain. We were very clear about that. We did not intend to ambush them. But this interview troubled us..." and it fades back to Abumrad's original transition. Third, and finally, Abumrad removes the hushed laughter at the end of the segment.

Two days later, Krulwich uploaded an apology on *Radiolab*'s blog. "It was not my intention—it's never my intention—to make the people we interview uncomfortable or angry," Krulwich explains.<sup>67</sup> He acknowledges his tone "was oddly angry" and that it was not acceptable, "especially when talking to a man who has suffered through a nightmare in Southeast Asia that was beyond horrific."<sup>68</sup> However, he defends his line of questioning by arguing that the Yangs "were informed about we were looking for: our goal was to find out if President Regan's statement was true or false."<sup>69</sup> But Krulwich agrees he "should have listened harder, and been more compassionate," and he wishes that he had done his part "more gently and with more consideration for their [the Yangs] suffering."<sup>70</sup> Perhaps most importantly, he recants his accusation that K. Yang was trying to monopolize the story. "Obviously," Krulwich explains, "we at Radiolab had all the

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<sup>67</sup> Robert Krulwich, "From Robert Krulwich on Yellow Rain," *Radiolab* (blog), September 30, 2012 (4:51pm), <http://www.radiolab.org/blogs/radiolab-blogland/2012/sep/30/robert-krulwich-yellow-rain/>.

<sup>68</sup> Ibid.

<sup>69</sup> Ibid.

<sup>70</sup> Ibid.

power in this situation, and to suggest otherwise was wrong.”<sup>71</sup> Krulwich’s apology was followed by an October 5<sup>th</sup>, 2012 revision to the podcast. In place of the hushed laughter in “Yellow Rain’s” first iteration, *Radiolab* inserted a one minute statement from Krulwich that explained and apologized for his actions. He clarifies that he

had no idea what they [the Yangs] were going to say and when they got angry, I was embarrassed, and when I got angry in my conversation with Jad and Pat that was not right and for that I apologize to Kalia and Mr. Yang in particular.

The audience response, at least on the *Radiolab* blog, was mostly positive. Many commended Krulwich for his poise and his willingness to engage such difficult issues.

The podcast’s immaterial nature makes it difficult to register these revisions. Unlike print magazines that leave material traces, sound “exists only when it is going out of existence.”<sup>72</sup> While some sonorous inscriptions are intelligible (such as sheet music), most are not: record grooves, indented foil, and magnetic tape are all illegible and require technical instruments (record player, gramophone, Walkman) to render them meaningful. Podcasts differ from these analogic formats because they rely on MP3s, which reduce sound into “binary information, into data, which tells a sound producing system how to *reconstruct*, rather than *reproduce* it.”<sup>73</sup> For many, this language is impossible to discern. Even for those with the proper training, accounting for a change is still difficult. A revision on an older format, like a cassette tape, may announce itself in a skip or a mark.

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<sup>71</sup> Ibid.

<sup>72</sup> Walter Ong, *Orality and Literacy* (New York: Routledge, 1989), 32.

<sup>73</sup> Chris Cutter, “Plunderphonia,” in *Audio Culture: Reading in Modern Music*, eds. Christoph Cox and Daniel Warner (New York: Continuum, 2010), 149.

A digital file, on the other hand, is silent. This grants editors the power to make alterations without accounting for the change.

However, *Radiolab* notes the revisions throughout their website. An asterisk next to “Facts of the Matter” and “Yellow Rain,” indicates revision. Abumrad writes in his apology that he “inserted a line in the story that puts our ending conversation in a bit more context.”<sup>74</sup> Yet while he tells listeners that he added to the podcast, he makes no mention of his deletions. The rhetorical use of revision allows *Radiolab* to manage the audience’s memory; it instructs them in what is new in the episode. It draws attention to some changes while obscuring others. Invoking revision, then, is a presentational device that helps the audience interpret the difference between revisions. Missing from the updated episode are some of the problematic assumptions that instigated criticism. The most prominent example is the removal of the hushed laughter that punctuates the segment and underwrote K. Yang’s anger. This allows *Radiolab* to capture the cosmetic benefit of accommodating criticism while removing some of their problematic choices. The result ennobles *Radiolab* and makes them appear reasonable.

The ambiguity surrounding what Abumrad added is also important to note here. In his apology, Abumrad leaves it to the audience to determine what he added. However, listeners receive some guidance since the most recent version of “Yellow Rain” explicitly marks a revision with Krulwich’s apology. Krulwich announces that “this is where we stop” and indicates that the preceding content was part of “our original conversation and when the podcast went out a lot of people are upset by me in particular, so if I could add

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<sup>74</sup> Abumrad, “On Yellow Rain...”.

a couple things here...” This self-aware change would seem to put the ending “conversation in a bit more context” while masking Abumrad’s significant and new caveat that the Yangs were not ambushed. Krulwich’s apology drew attention to some revisions while obscuring others, such as Abumrad’s claim that the Yangs were notified of the questions prior to the interview. This caveat is significant because it makes K. Yang appear unreasonable; if she was notified of the questions prior to the discussion, then she should not have presented such a strong response. Abumrad’s revision inoculates listeners against K. Yang’s potent objection of ambush and misconduct because it answers her argument before she makes it. Indeed, her response becomes seen as the product of Krulwich’s rather crude manner. It then appears as though Krulwich’s apology adequately answers K. Yang’s objection, redirecting the topic back to yellow rain.

While “Yellow Rain’s” specific revisions are hard to identify, the fact it was changed is clear. The tension between the rhetorical invocation of “revision” without identifying all of the changes allows *Radiolab* to bolster their position vis-a-vis K. Yang in the critical discussion. The revision makes it appear that *Radiolab* is committed to the argumentative process because they are willing to acknowledge and accommodate their interlocutor’s claim. Simultaneously, the opaque podcast revisions make K. Yang appear unreasonable and reduce her argument to a contention with Krulwich’s interview style. The tactical removal of *Radiolab*’s more problematic conduct further buttresses their position. As a result, K. Yang’s attempt to redefine the problem space towards



journalistic ethics loses its force and becomes more of a momentary derailment than a significant threat to *Radiolab*.

In the specific context of podcast argumentation, revising the podcast to respond to K. Yang's strategic maneuver was a derailment because she was not afforded an opportunity to rebut. That is, *Radiolab* violated the freedom rule.<sup>75</sup> Denying K. Yang access to this new, edited podcast shuts her out of the critical discussion and prevents her from advocating new standpoints. K. Yang is forced to maintain her previous commitments while *Radiolab* manipulates the audience's memory of the critical discussion to bolster their position. While this imbalance is inherent when only one party can edit, it becomes more pronounced through *Radiolab*'s revision. If Abumrad and Krulwich were interested in continuing the critical discussion, they could have revised by bringing her back and adding her retorts to the podcast. Or, they could have adhered to her wish by inserting a statement from her uncle at the end of the episode. If revision allowed them to put the conversation "into more context," surely they could extend it to accommodate a response. "Facts of the Matter"'s digital publication means that *Radiolab* would not even have to worry about externally imposed time constraints. No such gesture was made. It is hard to read the revisions any way other than as tactical derailments to save face.

*Radiolab*'s revisions go beyond a rational audience evaluating these different moves. To truly understand the nature of podcast argumentation, we must go beyond these traditional argumentation analytics and evaluate the media itself. *Radiolab*'s ability

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<sup>75</sup> van Eemeren, *Strategic Maneuvering in Argumentative Discourse*, 7.

to strategically pivot around the audience's memory gestures towards the materiality of a podcast. It imports concerns about the nature of intentionality and the future of argumentation. In the next section, I will offer a more robust account of the relationship between podcasting and memory and start to theorize its potential implications for argumentation scholarship.

### **The Podcast-Subject Revisited**

"Facts of the Matter" explores the relationship between memory and truth. Each story features a different mnemonic device: "In the Valley of the Shadow of Doubt" complicates the status of the photo as a historical index. It demonstrates that even something as "objective" as a photo can still be misinterpreted and fail to capture the entire scene. "Yellow Rain," questions the reliability of first-person accounts of traumatic events. It raises concerns about the ability to verify embodied memory as the bases of a fact. "Secret Skelly" celebrates the fissures between truth and memory by suggesting that affinity and kinship do not require honesty. This last story is *Radiolab's* answer to the problem of memory and truth: even if memory is a problematic base for truth, we can still maintain meaningful relationships. Each of these perspectives contributes to the episode's larger argument that truth is tied to perspective. Yet despite the subjective nature of these different memories, they still influence politics. Whose truth gets told is the product of different power relations that sanction some to speak while silencing others.

The "Yellow Rain" controversy foregrounds the importance of podcasts for forming attitudes and dispositions. The podcast, as a yoking of RSS feeds and a portable

MP3 player, adopts two functions—inquiry and memory—typically ascribed to a discrete, rational subject and delegates them to automated processes. The RSS feed was invented as an aid to manage the glut of data on the internet. It is a proxy for inquiry because it mechanizes the act of searching out information. RSS feeds ask users to “subscribe” to a blog, podcast, or anything they deem relevant, and they will be automatically delivered. However, this is not a passive process. It is the product of different technological capacities (search and memory) along with human proclivities towards externalization and delegation. Clicking subscribe, then, enters the subject into relation with podcast networks and catalyzes the creation of the podcast-subject. As I discussed in “Duking the iPod,” the podcast-subject brings together heterogeneous elements into an emergent system. For *Radiolab*, that means the revision is always *already* accepted because the subscriber’s externalization of inquiry ascends to the changes. Since the MP3 player acts as a repository for our memories, the decision to appropriate a particular view resides in the option to subscribe. In other words, podcasts externalize the discussion-minded attitude.

K. Yang’s objection highlights the importance of podcasts for the creation of cultural memory. *Radiolab* is not passively reporting on “Yellow Rain” but actively constructing how people remember the Hmong genocide. While not everyone has the means to acquire an iPod, its procurement encourages the depositing of memory. The iPod offers a portable, user-friendly, expansive hard drive to store information. In contrast to its cumbersome counterparts, the iPod accompanies people anywhere and

everywhere. The podcast's software programs enable the externalization and delegation of functions. Sarah Kember and Joanna Zylinska explain that the consequence of our digital ecology "has led to the exteriorization of memory, in all its forms, by technology."<sup>76</sup> They cite the familiar example of how, in the contemporary moment, most people delegate remembering phone numbers to phones. Moreover, recent studies indicate that people are less likely to remember specific information if they believe they can find it later.<sup>77</sup> As a result, people remember the location of content more than the content itself. If they want to remember a podcast episode, they can simply replay it.

The iPod's potential for memory storage snaps into relation with the human proclivity to externalize memory, and the podcast-subject emerges. This subject is reducible neither to its flesh nor to its technical components, but it emerges from their dynamic relations. Podcast episodes are the memories that circulate through different podcasts subjects. Thus, tweaking an episode changes the podcast-subject's disposition. Because the podcast directly links into our mnemonic circuitry, the podcast demands that your MP3 player be "open" to revision and, by extension (because the MP3 player is a mnemonic device), that you be open to revision.

Risks arise, however, because the subscription allows the provider to bypass rational processing. The podcast presents a vexing conundrum because it can instigate changes in disposition without conscious reflection. Podcasts externalize and perform

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<sup>76</sup> Sarah Kember and Joanna Zylinska, *Life after New Media: Mediation as a Vital Process* (Cambridge, MA: The MIT Press, 2012), 165.

<sup>77</sup> Patricia Cohen, "Internet Use Affects Memory, Study Finds," *The New York Times* July 14, 2011, [http://www.nytimes.com/2011/07/15/health/15memory.html?\\_r=0](http://www.nytimes.com/2011/07/15/health/15memory.html?_r=0).

what was thought to be internal and attitudinal phenomena: our disposition to argumentation. Conceptualizing the podcast as an agent that exerts influence on humans invites us to reconsider the broader relationship between argumentation and technology. While previous research has graphed older argumentation theory into digital environments, I suggest that we adopt a different approach that takes the intrinsic relationship between humans and technology as its starting point. Future research should approach digital media as dynamic agents in an argumentative encounter, affecting and being affected by human agents.

## **CHAPTER SIX: CODA: SOUND REASON AND NEUROGOVERNANCE**

I began this dissertation by asking three questions: 1) what is the cultural history of podcasts? 2) what are podcasts' political potential? and 3) what are the ethics of critical podcast argumentation? To answer these questions, I approached podcasts as an assemblage and wrote a history of the podcast present. I found that the political promises of podcasts reside in a liberal neurogovernmentality that constitute proper neurological functioning as a key condition for democracy. Neurogovernmentality surfaces in the podcast's articulation to the neurological problem of attention blindness and it appears in the kinds of reasoning podcast audition inculcates. I also identified the podcast as a site of democratic reasoning. I found that podcasts can induce collaboration, teach people how to evaluate claims, and provide a site for debate. I will review my findings and suggest future directions below.

### **A Cultural History of the Podcast**

One of the major goals of this dissertation was to write a history of the podcast present. In "Podcast Presents," I argued that podcasts are an assemblage: an articulation of disparate practices, relations, and instruments into a social whole. As such, critics must theorize the podcast in specific historic contexts to account for the conditions that enable its use. To this end, I endeavored to write a history of the podcast present. I began by asking how podcasts became understood as a pedagogical medium. While there are a

number of answers, a consistent trope throughout the pedagogy literature was a reference to the Duke iPod experiment. In “Duking the iPod,” I returned to this historical event to explore the myriad of practices, relations, instruments, and discourses surrounding the Duke iPod experiment.

I claimed that iPods inculcated a networked mentality into students by interrupting deep reflection, encouraging loose convictions, and providing a receptacle to delegate memory. Moreover, I argued that the iPod operated as a technique of relation that traversed heterogeneous peoples to prompt the podcast-subject. After the iPod experiment, Davidson held a “podcasting” conference to evaluate what the students and professors accomplished with their podcasts. The iPod experiment provided some of the material conditions for the circulation of podcasts. For instance, DukeCast, the iPod experiment’s distribution infrastructure provided the foundation for iTunes U—the largest digital archive of educational podcasts. The University of Wisconsin, the University of Michigan, Harvard, and the University of Washington started testing podcasting’s pedagogical benefits soon after Duke’s experiment finished. The uptick in pedagogy studies developed new tools and instruments that gauged podcasts’ effects, measured use, and informed future policy proscriptions.

“Emergence” explored the podcast’s pedagogical purchase in the context of National Public Radio. I charted the historical maturation of one of its most popular programs, *Radiolab*. I found that podcasting emerged in a thorny legal terrain where the Record Industry Association of America (RIAA) pressed for tighter regulations on the

circulation of digital content. The RIAA was concerned that nascent file sharing platforms, like Napster and Limewire, would undermine profits. Their successful lobbying codified strict copyright regulations like the *No Electronic Theft Act of 1997* (NET) and the *Digital Millennium Copyright Act of 1998* (DMCA) that suffocated other digital audio formats, like the webcast. However, podcasting's time-shifting capacity excluded it from strict performance regulations. Additionally, the invention of Creative Commons licenses and their centralization in the Podsafe network insulated producers from frivolous lawsuits.

Next, I located podcasting within NPR's broader institutional struggle to secure funding and resources. I argued podcasts provided NPR a technique to extend their brand, collect audience data, and foster deeper connections with listeners. Finally, I traced *Radiolab's* history from a single guy rummaging through audio archives and broadcasting them to almost no one to a critically acclaimed and extremely popular podcast. I also attended to *Radiolab's* connections with the National Science Foundation and its mission of disseminating scientific content to the public. Specifically, *Radiolab's* grant is geared more towards recruiting future scientists by teaching scientific modes of reasoning than simply informing citizens about the latest discoveries.

Finally, I explored some of the potential problems surrounding the deployment of *Radiolab* as a listening technology. In "Yellow Rain," I argued that *Radiolab's* reasoning potentially excludes minority voices. The recent controversy surrounding *Radiolab's* treatment of the Yangs evidences the contested nature of podcasting. The emphasis



*Radiolab* places on interpreting external evidence discounted the experience of a genocide survivor. Additionally, *Radiolab*'s provisional attitude taught listeners to adopt a skeptical stance towards the Yangs' experiences. *Radiolab*'s self-aware revision reified the argument that listeners should adopt a flexible attitude towards new claims. The Yangs became an objection of reflection which prompted a reexamination of their conduct. It made *Radiolab* appear reasonable while discrediting the Yangs as extremists. "Yellow Rain" drew into relief questions about podcasts' ethical relationship with subaltern voices, the correct method to readdress mistakes, and the proper method of inquiry. While the podcasting assemblage may have stabilized into a social whole, the practices that animate its use are still contested and implicated in different regimes of power. The "Yellow Rain" incident, for example, troubles much of the conventional podcast literature that describes it as an ideal site for marginalized voices. The Yangs' experience demonstrates that podcasts centralize power in the hands of the editor and thus may not be an ideal site for them to deliberate. Exploring the controversies that beset the circulation of contemporary podcasts would be a fruitful avenue of future study.

### **Podcasts Political Potential: Towards a Liberal Neurogovernmentality**

Throughout my dissertation, podcasting appeared in the context of neurogovernance. As I argued in "Duking the iPod," neurogovernance describes a rationality that locates that brain as both an object and an instrument of governance. According to Nikolas Rose and Joelle M Abi-Rached, neuroscience has

reshape[d] some of the ways in which human beings, at least in advanced liberal societies, are governed by others [...and provide] those of us who live within their purview with new techniques by which we can hope to improve ourselves, manage our minds, and optimize our life chances by acting on our brains.<sup>1</sup>

Specifically, I found that podcasts emerged from neurologically informed experiments and were sanctioned as techniques for inculcating neurological reason. However, I should note that the prominence of neurogovernance may portend to a limitation in my study. My primary test case, *Radiolab*, has ties to the National Science Foundation and is tasked with the goal of disseminating scientific reason. If I had chosen another podcast, like *On the Media*, I may not have found the same results. However, it should be noted that I was more interested in the practices that underwrite podcast audition than the particular content. That means my appeals to neurogovernance were not entirely tied to the topical nature of my object but encompasses podcast audition. So, it is entirely plausible that *On the Media* instructs the same sorts of inferences as *Radiolab*.

### *Neurologically Informed Policy*

Institutionally, neurology has gained prominence as a method of interpreting events and proscribing solutions. The courts, the family, and even the market are being glossed into neurological terms. The uptick of neuroscience in education was explicitly explored in “Duking the iPod.” Here, Davidson advocates for neuroeducation, which utilizes brain science to improve pedagogical practice. For Davidson, the major problem

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<sup>1</sup> Nikolas Rose and Joelle M Abi-Rached, *Neuro: The New Brain Sciences and the Management of the Mind* (Princeton: Princeton University Press, 2013), 227.

requiring pedagogical solutions is “attention blindness.” This neurological trait dictates that perception is zero-sum, focusing on one part of a problem while ignoring other equally important parts. As a result, people are unable to grasp the full complexity of any given situation. Only by delegating perception to many different people can we robustly conceive of a problem. After reflecting on the Duke iPod experiment, Davidson claimed that one remedy for attention blindness may be found in the digital nativist. The “digital nativist” represents anyone born after the introduction of the internet. Since these students have only known a networked world, their brains have a proclivity towards collaboration. She theorized that by interrupting deep reflection and encouraging the delegation of memory to an externalized device, students could surpass attention blindness. Nicholas Carr concurs with Davidson’s larger point that digital media affects our neurology, but he disagrees with the best method to adapt to our changing digital ecology. While Davidson advocates for a podcast-subject, Carr worries that this will impede individuals’ capacity to critically reason and make good decisions. Instead of the podcast-subject, Carr suggests a process of sustained and deep reflection. Regardless of which side I agree both perspectives are clearly rooted in neurogovernance.

The labor of the digital nativist was instrumental to the invention of the podcast. Reflecting on the Duke iPod experiment, Davidson writes that the “R&D Apple derived from these energetic students was incalculable,” paving the way for the educational use of Apple educational products.<sup>2</sup> Yet outside of their free iPods, the Duke students were not compensated for sanctioning a profitable industry. A future avenue of study will

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<sup>2</sup> Cathy Davidson, “Plug in-But Tune in, Too,” *The Times of Higher Education*, October 13, 2011.

explore neurological labor. The Duke iPod experiment points to how neurological exchanges can generate value. What would the neurological work look like? The digital nativist provides one answer. Indeed, Davidson argues elsewhere in her work that “the science of attention is key to the workplace of the digital future.”<sup>3</sup> This would extend Rose and Abi-Rached’s work on “neuroeconomies” beyond the creation of new drugs to think about the brain as a site of labor.

### *Listening Technologies*

The rise of neuroscience to public prominence was promoted by a burgeoning field of pop-neuroscience that encouraged people to identify as neurological selves. Pop neuroscience is an example of what Rose and Abi-Rached call a “translational platform” where

diverse agents and agencies, practices and styles of thought, discourses and apparatuses, converge in the name of the promissory benefits of translational neuroscientific research.<sup>4</sup>

If citizens are taught that improper conduct resides in inefficient neural synapses, then they are more likely to address the problem neurologically. This is helpful for neuroeconomies that want to sell consumers new drugs. However, it also implicates a mode of self governance where citizens learn to identify problematic neurological conduct and fix it accordingly. Yet, the proliferation of translational platforms does not explain the cultural relevance of neuroscience. People do not apodictically accept the

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<sup>3</sup> Cathy Davidson, *Now You See It* (New York: Penguin Books, 2011), 170.

<sup>4</sup> Rose and Abi-Rached, *Neuro: The New Brain Sciences and the Management of the Mind*, 18.

newest claims. Rather, they must be instructed in the right dispositions and assumptions to ascent to neurological styles of thought.

In “Emergence” I explored how *Radiolab* taught citizens to reason neurologically. I argued that *Radiolab* used a mixture of anecdotes, musical stings, and banter to problematize conventional styles of thought and instruct listeners in the proper way to interpret evidence, evaluate claims, and coordinate new insight with previous beliefs. These aesthetic tools influence listeners far beyond the content of the episode. “Emergence” identified two inferential moves that provide an epistemological condition for neurogovernance. First, *Radiolab* encouraged listeners to collapse the distinction between human and animals because a vast majority of neurological research is conducted on animals and applied to humans. If you believe that animals and humans have fundamentally different brains, then you are less likely to accept neurological styles of thought. Second, *Radiolab* dissolved the mind/body divide by describing conduct as purely material. By removing the mind or “soul” from the equation, *Radiolab* reduces all conduct to chemical exchanges, electrical impulses, and plasticity. These insights come together with a provisional disposition that encourages listeners to accept their views without becoming intensely attached to ideas or beliefs. Listeners are taught in a variety of contexts that the answers to complex questions rely on the materiality of the object of inquiry.

Future research may explore other techniques that secure epistemological conditions for neurological reasoning. For instance, a future project may explore the

controversy besetting the 2007 *New York Times* opinion editorial, “This is Your Brain on Politics.”<sup>5</sup> This article claimed to use neuroscience to predict voting behavior among swing voters in the 2008 election. The article featured some of the earliest images of functional magnetic resonance imaging (fMRI) to warrant its claims. Immediately after its publication, the *New York Times* published a response from other neuroscientists who questioned the op-ed’s conclusions.<sup>6</sup> Rather than adjudicating this debate, this article demonstrates an early instance of citizens learning to interpret and infer from neurological evidence.

### **Sound Reason: Podcast Argumentation**

This dissertation has taken up Damien Smith Pfister’s injunction to “grapple with how new forms of mediation alter the norms and conduct of argumentation.”<sup>7</sup> As I discussed in my second chapter, “Podcast Presents,” the political potential of podcasts thus far has been circumscribed to its relation with corporate broadcasting. By contrasting podcasts to the radio, this line of inquiry identifies two democratic potentials for podcasts. First, the podcast’s lack of cultural gatekeepers means anyone with a microphone and an Internet connection can reach a vast potential audience. This grants

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<sup>5</sup> Marco Iacoboni, Joshua Freedman, Jonas Kaplan, Kathleen Hall Jamieson, Tom Freedman, Bill Knapp, and Kathryn Fitzgerald, “This is Your Brain on Politics,” *The New York Times*, November 11, 2007, [http://www.nytimes.com/2007/11/11/opinion/11freedman.html?pagewanted=all&\\_r=0](http://www.nytimes.com/2007/11/11/opinion/11freedman.html?pagewanted=all&_r=0). For the response see Adam Aron et al, “Politics and the Brain,” *The New York Times*, November 14, 2007, <http://www.nytimes.com/2007/11/14/opinion/1web14brain.html>.

<sup>6</sup> For other responses see Brandon Keim, “This is Your Brain on Hillary: Political Neuroscience Hits New Low in New York Times,” *Wired*, November 12, 2007, <http://www.wired.com/wiredscience/2007/11/this-is-your-br/>; Daniel Engber, “Neuropundits Gone Wild!,” *Slate*, November 14, 2007, [http://www.slate.com/articles/health\\_and\\_science/science/2007/11/neuropundits\\_gone\\_wild.html](http://www.slate.com/articles/health_and_science/science/2007/11/neuropundits_gone_wild.html).

<sup>7</sup> Damien Smith Pfister, “Introduction to Special issue: Public Argument/Digital Media,” *Argumentation and Advocacy* 47 (2010): 64.

subaltern voices the capacity for cultural production. In other words, all citizens can potentially distribute their views all around the world. Second, the popularity of podcasts provides an anecdote to stale, homogenous corporate media. An increase in perspectives circulating around the networked public sphere ensures a robust marketplace of ideas.

As I noted in Chapter Two, while I concur with the conclusions of these studies, I disagree with the method. Outlining the differences between radio and podcasts assumes both are stable entities without history. Instead, I argue that podcasts and radio are both contingent assemblages. From this perspective, my research found three other democratic functions for podcasting: as a technique of relation, a listening technology, and a site for deliberation.

### *Technique of Relation*

One potentially democratic use of the podcast involves the “technique of relation.” My third chapter, “Duking the iPod,” detailed the introduction of the iPod onto Duke University’s campus. I argued that the mixture of iPods, digital nativists subjects, and institutional-enabling constraints provided the conditions for the emergence of the podcast-subject. The iPod experiment merged disparate “expertise, perspective, culture, age, ability, and insight” into a portable network.<sup>8</sup> This mode of collaboration is not simply an accumulation of perspectives (collective intelligence) but something closer to Darrin Hicks and Lenore Langsdorf’s “relational argument,” that combines “preferences and reasons supporting those preferences offered by each of the individuals into a common set of preferences, supported by a common set of reasons that motivate a

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<sup>8</sup> Davidson, *Now You See It*, 101.

decision made together.”<sup>9</sup> The podcast-subject offers a model for collaborative reason that resolves the attention blindness inherent in deliberation. By encouraging people to delegate attitudes to the podcasts, multiple perspectives come together to provide a more robust account of the status quo.

### *Argumentation Pedagogy*

Argumentation requires participants to maintain the correct disposition. As Hicks and Langsdorf remind us, this

rests on an extensive political education; an active ‘democratic paideia,’ which inculcates all citizens with the habits of critical reflection and a democratic ethos. Absent a radically democratic political culture and a well-educated citizenry, a ‘deliberative democracy’ could easily become a ‘formalist’ simulation of democracy.<sup>10</sup>

In “Emergence” I described the way that podcasts instruct listeners in proper modes of reasoning required for argumentation. Specifically, I described how *Radiolab* instructed listeners to evaluate evidence, infer claims from data, and relate them to prior convictions. *Radiolab* guided listeners in the practice of adjudicating competing claims through more than the particular content of each episode. Abumrad and Krulwich act as exemplary debaters who teach the audience to adopt a provisional attitude towards new claims. This observation can broadly apply to other podcasts like another of WYNC’s popular programs, *On the Media*, which instructs listeners to critically interpret media

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<sup>9</sup> Darrin Hicks and Lenore Langsdorf, “Relational Argument: Argumentation within the Affective Dimension: An Inquiry into the Presumptions of Joint Deliberation,” in *Reasoned Argument and Social Change*, ed. Robert C. Rowland (Washington: National Communication Association, 2011), 132.

<sup>10</sup> Darrin Hicks and Lenore Langsdorf, “Regulation Disagreement, Constituting Participants: A Critique of Proceduralist Theories of Democracy,” *Argumentation* 13 (1999):148.



coverage or *This American Life* which guides etho-politics. These programs provide additional fruitful avenues of study in how podcasts can teach the proper democratic modes of audition.

*Podcasts as a site of controversy*

Podcasts offer interlocutors a platform to exchange reasons in the hope of resolving differences of opinion. In “Yellow Rain,” I recounted the debate between *Radiolab* and the Yangs about the infamous yellow rain chemical attacks. This heated exchange sparked a broader controversy that troubled podcasting’s potential as a platform for critical discussion. The podcast’s time-shifting capacity, infinite revisability, and sonority afforded *Radiolab* latitude to maneuver around the Yangs’ objections. *Radiolab* reorganized the exchange, omitted parts of the discussion, and revised their previous position to appear to accommodate the Yangs’ arguments and appear more reasonable. *Radiolab*’s revisions highlight podcasting’s limitations as a platform for debate: podcasts over-centralize power in the hands of producers. In “Yellow Rain,” podcasts removed the check of a live audience, a material inscription, and fair representation that may have existed in a live, unedited interview. We should avoid assuming that just because producers are presented arguing with guests in an audio format that this means it is a neutral representation of events. As Alan Williams explains, sound reproduction “deliver[s] to us not a ‘copy’ of some raw material, but a product already worked over, processed—like predigested foods that are ‘easy on the stomach.’”<sup>11</sup> Audio is always ideological, inviting listeners to adopt a perspective towards the sonorous events. While

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<sup>11</sup> Alan Williams, “Is Sound Recording Like a Language?,” *Yale French Studies* 60 (1980): 64.

*Radiolab* may have engaged in some questionable editing practices, it would be inappropriate to say the hosts silenced the debate. In fact, “Yellow Rain” spilled into the broader, networked public sphere and prompted debate via blog posts, podcasts, news articles, and comments. The little-discussed issue of the Hmong genocide gained increased audibility as commentators voiced their outrage or came to *Radiolab*’s defense. A future line of inquiry should investigate debates occurring *between* podcasters.

### *Denouement*

In closing, my dissertation contributed both to argumentation and digital media studies. For argumentation scholars, I considered the podcast as more than a neutral platform for the exchange of reasons. I demonstrated that podcasts produce novel reasoning subjects, like the podcast-subject, and allow for new strategic maneuvers, such as the sonorous objection and the self-aware revision. For digital media scholars, I explored how emergent digital practices shape the sensibilities that underwrite judgment. I argued that podcast audition teaches citizens *how to* listen and evaluate claims. If citizens are not properly trained in the art of listening, then it becomes difficult to rule through argument or govern at a distance. Thus, podcasts like *Radiolab* perform a micropolitical role by enabling a “thick context of the thinkable and the unthinkable, the habitually expected and the impermissible, the politically acceptable and the morally outrageous.”<sup>12</sup> However, podcasting’s promises and perils are far from settled—more research is needed to explore the other ways podcasts are taken up by citizens and institutions.

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<sup>12</sup> William E. Connolly, *Pluralism*, (Durham: Duke University Press, 2005), 142.

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