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The use of public radio as a tool in qualitative geographic research

Brian Pompeii

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Abstract In this article I detail the use of regular radio broadcasts as an experimental tool in qualitative geographic research. I detail a case study that offers examples of the use of public radio while in the field. The case study is based on research I conducted in Ocracoke, North Carolina that examines the relationships amongst local environmental knowledge, cultural practices, and socioenvironmental change. The criteria used to evaluate the use of public radio as a qualitative tool involves assessing the techniques ability to enhance credibility, transferability, dependability, and confirmability. These categories are borrowed from a comparison study conducted by Baxter and Eyles (Trans Inst Br Geogr, 22(4):505–525, 1997) that evaluated rigor in qualitative geographic research. I close by considering how my project addresses some of the recent calls in human geography to include phonographic methods alongside visual and textual modes of inquiry (e.g. Gallagher and Prior in Prog Hum Geogr, 38(2):267–284, 2014). The major claim of this paper is that the use of audio media has the potential to contribute to qualitative geographic research in ways that visual and textual representations cannot.

B. Pompeii (✉)
California Polytechnic State University, San Luis Obispo, CA, USA
e-mail: brianpompeii@gmail.com

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Introduction

The collection of qualitative data in geographic research can involve varying degrees of systematic and creative techniques. In today's hyper-connected world the manner in which information is understood and received is rapidly changing. This has resulted in qualitative researchers adopting a plethora of communicative media platforms as tools to aid in the collection of data (Sade-Beck 2004; Beaulieu 2004; Sveningsson 2004; Markham 2003; Leander and McKim 2003; Hine 2000; Wittel 2000). These tools include the use of social networking websites, blogs, digital videos, and online message boards, to name a few. Within this trend of innovative and provocative techniques I consider the use of radio—broadcast locally and streaming online—as a tool in conducting qualitative geographic research. I start by briefly reviewing the use of other media tools used in qualitative geographic research. I then provide a case study that offers examples of the use of public radio while in the field. The case study is based on research I conducted in Ocracoke, North Carolina that examines the relationships amongst local environmental knowledge, cultural practices, and socioenvironmental change. The criteria used to evaluate the use of public

radio as a qualitative tool involve assessing the techniques ability to enhance credibility, transferability, dependability, and confirmability. These categories are borrowed from a comparison study conducted by Baxter and Eyles (1997) that evaluated rigor in qualitative geographic research. I close by considering how my project addresses some of the recent calls in human geography to include phonographic methods alongside visual and textual modes of inquiry (e.g. Gallagher and Prior 2014). The major claim of this paper is that the use of audio media has the potential to contribute to qualitative geographic research in ways that visual and textual representations cannot.

This Island Life

Ocracoke community radio (OCR) was granted status as a non-profit radio station under the Federal Communications Commission (FCC) in 2007, and 90.1 WOVV officially went live on-air in the summer of 2010. The primary impetus for applying for the FCC special non-profit license was the ability to broadcast information during a state of emergency (e.g. a hurricane). With the help of a dedicated group of volunteers, the station has grown into a local medium for entertainment, education, culture, local news, and civic discourse. In May 2011 I approached the station manager about producing a program that would work in tandem with my overall dissertation research project, while also showcasing other local events and board meetings. In mid-June 2011 the first episode of *This Island Life* aired. I would go on to write, produce, and host over 40 h-long original episodes. I approached the program as a unique, creative, and interesting way to engage with the community. The program covered local cultural and environmental related events. The tagline for the program was "covering issues of nature and culture as they aurally unfold." I covered a wide-range of important and not-so-important issues, including but not limited to, noise ordinance debates, frog disappearance, garbage pick-up controversies, occupancy tax expenditures, baby pelican rescues, National Oceanic and Atmospheric Association (NOAA) research projects, hurricane preparedness, fig harvest season, commercial fishing issues, preservation society events, and country commissioners meeting updates.

The production of the program resulted in the collection of a great quantity of qualitative data in the form of recordings and field journal notes. Within my overall research project these data were collected under the broader characterization of participant observation. My overall research project was an examination of the history of socio-environmental change on Ocracoke, and the subsequent influence on the local vulnerability to hazards. This involved an examination of varying land and water management regimes through time, paired with an analysis of changing local knowledge. In this article I consider and evaluate how the regular production of a radio program influenced the qualitative geographic research undertaken and the corresponding results.

Media in qualitative research

Recently there has been increased attention given to the use of innovative media for conducting qualitative geographic research (Morley 2007). There are many examples of ethnographic research of the internet (Sade-Beck 2004; Sveningsson 2004; Markham 2004; Beaulieu 2004; Hine 2000; Wittel 2000), but very few examples of using the internet or other media as a tool to accompany the ethnographic research of a place (Leander and McKim 2003). Hine (2000) develops the concept of "connective ethnography" which expands current methodological practices for online interactions, and also other types of mediums in which people interact remotely. Leander and McKim (2003) build on the concept of "connective ethnography" while researching the everyday behavior of adolescents. They (2003, 211) examine how the qualitative research constructs of place, identity, and participant observation are destabilized on the internet and therefore require the researchers to "move beyond place-based ethnography and develop ethnographic methodologies that follow the moving, traveling practices of adolescents online and offline." Murthy (2008) examines the use of digital technologies in ethnographic research claiming that social research is not utilizing the full potential of available digital methods, and that these methods when used with physical ethnography have the ability to "demarginalize the voice of respondents." Garrett (2011) in a review of how human geographers use film and video encourages the use of "videographic geographies"

that have the potential to move ethnographic research "from analysis to production."

Researchers interested in sound and human geography have identified the need to incorporate more sonic or phonographic methods as a means to enrich the practice of geographic inquiry that often relies on visual or textual interpretations (Gallagher and Prior 2014; Kanngieser 2012; Pinkerton and Dodds 2009). In a call for more phonographic methods in geography Gallagher and Prior (2014: 269) suggest that "methods associated with phonography—listening, recording, playback, editing, distribution, broadcast, performance, installation and so on—deserve more attention, development and critical discussion." Their argument is that the use of audio—both in the process of recording and playback—is capable of capturing data inaccessible through formats of visual, textual, or numerical collection (Gallagher and Prior 2014).

One question of this call for integration of audio within geographical inquiry is: how exactly would that work and what would it look like, or sound like? Gallagher and Prior (2014) suggest collaborations with sonic artists, audio embedded online journal articles, and advanced audio training workshops within geographical education. Pinkerton and Dodds (2009) address the lack of attention to sound in geographic inquiry by analyzing radio as a substantive empirical topic. Pinkerton and Dodds (2009) detail the neglect of radio-focused projects in geopolitics and suggest that radio should be contextualized within other sonic geographies like music and sound. The bridge to this contextualization within geographic inquiry is the process of recording, listening, and playback. Therefore, listening is paramount in this process. Through a review of the use of radio during wartime and for propaganda purposes they (Pinkerton and Dodds 2009, 15) highlight the contingent nature of "the geographies of broadcasting and listening." This means that (17) "radio is often imbued with an aura of accessibility and democratizing potential (listeners can be contributors and thus no just passive receivers)."

The literature regarding previous works of radio as a method or as an object of study in geographical inquiry is limited. Most radio centered research stems from a broader subject of study in sound geography, or what R. Murray Schafer termed "soundscapes" (Schafer 1993). The practice of collecting and broadcasting soundscapes has found particular zeal in the art world (Butler 2006). Butler (2006) reviews the use of "sound walks" by artists to explore ideas of landscape, memory, and place. Within this review Butler wanted to move beyond the way oral histories are usually presented, like published transcripts or playing clips in a museum, by borrowing techniques from sound artists conducting sound walks. He does this to display how the medium of the sound walk can be "useful for presenting site-specific cultural geography to the public in an accessible and inclusive way (1)." Similarly, I hope to show how the radio can achieve similar success as a methodological tool by considering how it can provide another platform or medium for geographic inquiry.

Flickers (2012) focuses on how the technological and design features of the actual radio, specially the radio dial, have mediated spatial practices. He further states that (2012, 412), "the appropriation of the radio involved the appropriation not only of a technology of communication but also of an imagined space: the ether." The space that Flickers terms the 'ether' does not need to be imagined, but has a real physical existence. Focusing specifically on radio, Black (2010) reviews art installations that utilized the technological aspect of radio art and radio transmission, to create original, ephemeral, and fleeting, public sculptures of space. Here is an example used by Black (2010, 201) to better explain these sculptures of space:

> In the 1990s, artists and conceptual artists such as Gottfried Bechtold and Lawrence Weiner, exploring the notion of 'electronic/digital space', developed the idea of the locations that received the transmission of their radio art (the interrupted/dislocated acoustic space) as a radio sculpture, and that these radio sculptures only existed while the work was being transmitted; further to this, they asserted that any audio recording of the work was only documentation of the radio sculpture (Grundmann n.d.). These and other artists made it possible, according to Grundmann, 'to consider the radio (broadcast) space as a public sculptural space in which music, sound and language are the material of sculptures' (Grundmann 1994: 137).

Black (2010) posits that through the physical passing of radio waves a type of sonic sculpture is created in space. Foreman (2014) takes this idea further by suggesting the power of sonic memorials as

a way to elucidate the "intimate connections between sound and place." That rather than a sculpture made of stone, sonic memorials draw visitors into a type of "poetic suspension" as they connect with the place being memorialized. Here then, this previous work of radio as art or sculpture helps contextualize radio as a method in geography by detailing how the very transmission of radio is a spatial practice, a practice that temporarily inscribes itself in space.

The use of radio can be thought of in regards to its technological implications of space and its social implications on space. Technologically, radio is transmitted by the production of waves that radiate through space and require a certain technological device (a radio) to be heard. In other words, in order to experience the 'sonic sculpture' produced a radio is required. On the other side of the same coin, radio is a social experience with the power to incite and engage ideas of place, memory, and landscape—like a sound based memorial exhibit. In this instance, it is not necessarily the raw material aspects of radio transmission that engage, but the actual message being delivered—whether that message comprise of language, sound, music, or noise. From this perspective, the technical and social assemblages of radio are intertwined. Whereas the nature of radio transmission is ephemeral, the phonographic undertakings of radio are an inscriptive practice. However, as Grundmann (1994) stated in the Black (2010) quote above, that any recording of their radio sculpture was simply documentation of the sculpture, and not the actual sculpture. This same line of thought can be applied to qualitative geographers undertaking interview-based methods; that the limited power of recording and transcribing produce a documentation or a re-presentation the of phenomena in space. Perhaps conducting interviews through the medium of radio allows for the 'sculpture' created by interviewee and interviewer to exist as a type of a public sculpture of space.

There is a small precedent for geographic research conducted via radio broadcast. In their review of geographic research methods with children, Barker and Weller (2003) use a radio broadcast as a means to produce children-centered research spaces. In an investigation of spaces of research, they consider the differences that qualitative research has when conducted in participants homes, school, and on the radio. They used a local commercial radio program as a tool to conduct research geared at understanding the behavior and needs of children. The use of the radio proved helpful to demonstrate some of the difficulties in conducting children-centered research. The researchers sought children's opinions on local issues without the influencing power of a near-by parent, but while also attaining anonymity for the participants. However, even the space of the radio was shown to be dominated by adults, whether by the radio DJ, call-ins, or the researchers themselves.

In this article I am not advocating for the use of one methodological approach over another, but suggesting that the deployment of a diversity of techniques (textual, visual, sonic, etc.) expands the ability of qualitative research to observe, describe, and analyze social phenomena. Where most connective ethnographies have focused on the use of the internet, I would like to call attention to the under-utilized abilities of public radio in qualitative research. In a review of literature regarding ethnographic and qualitative methods I found only one example (Barker and Weller 2003) of the radio as a research tool, and more recent articles suggested the potential for more phonographic methods within qualitative geographic inquiry (Gallagher and Prior 2014; Pinkerton and Dodds 2009). Within this article I build on the precedent set by Barker and Weller (2003) by evaluating the radio as a qualitative research tool and how the use of radio can advance the recent calls for the experimentation of more phonographic methods in geography.

Radio and qualitative triangulation

Qualitative research is "concerned with how the world is viewed, experienced, and constructed by social actors. They provide access to the motives, aspirations and power relationships that account for how places, people, and events are made and represented (Smith 2000, 660)." Therefore, when in the field, researchers are welcoming of the expanding and redirecting scope of projects, and creativity is embraced (Bailey et al. 1999). Upon returning to their home institution to synthesize the collected data into results, a rigorous method of analysis is expected to be applied to the often overwhelming quantity of oral and textual data collected (Crang and Cook 2007). This analysis is used to validate how the organization of presented material is an accurate construct of reality, while also an authentic representation of the experience (Lincoln

and Guba 1985). This validation is important, as Baxter and Eyles (1997, 506) state:

> Qualitative researchers are encouraged to allow the research situation to guide research procedures in order that they may gain access to human experiences. Yet for the research to be evaluated, there must be clarity of design and transparency in the derivation of findings.

The use of public radio as a technique assists in achieving research design clarity and transparency. Data gathered from the regular broadcast of a radio program served as one point in a triangulation of other data collection techniques, including participant observation and semi-formal interviews. Triangulation in qualitative research—much like its quantitative-based namesake—involves the validation of information in relationship to at least two other known points; although in qualitative research sometimes only two total data points are necessary (Baxter and Eyles 1997). This approach can include a triangulation of data sources, methods, investigators, analysis, or any combination of these (Lincoln and Guba 1985; Denzin 1978). Although the geometric calculation of radio broadcast location is not pertinent to this study I cannot help but draw parallels between qualitative researchers practicing data triangulation, and the radio origins of triangulation. As Lincoln and Guba (1985) state:

> The technique of *triangulation* is the third mode of improving the probability that findings and interpretations will be found credible. It seems likely that the term "triangulation" had its origins in the metaphor of *radio* triangulation, that is, determining the point of origin of a radio broadcast by using directional antennas set up at the two ends of a known baseline. By measuring the angle at which each of the antennas receives the most powerful signal, a triangle can be erected and solved, using simple geometry, to pinpoint the source at the vertex of the triangle opposite the baseline.

I use the triangulation of three different data collection methods—interviews, participant observation, and the production of a radio program—to insure that my conclusions meet rigorous methodological standards. In this manner any shortcomings of each method are absorbed by the strengths of another (Lincoln and Guba 1985).

Baxter and Eyles (1997)—borrowing from Rose (1982) and Lincoln and Guba (1985)—provide criteria for evaluating the validity of qualitative research. The criteria involve assessing an analysis for credibility, transferability, dependability, and confirmability. Credibility is defined as "the degree to which a description of human experience is such that those having the experience would recognize it immediately and those outside the experience can understand it" (Baxter and Eyles 1997, 512). Lincoln and Guba (1985) state that credibility can be satisfied by practicing purposeful sampling, prolonged engagement, persistent observation, and triangulation. Transferability is defined as "the degree to which findings fit within contexts outside the study" (Baxter and Eyles 1997, 515). Transferability can be satisfied by practicing purposeful sampling and "thick description" (Geertz 1994; Lincoln and Guba 1985). In terms of the four criteria listed transferability is the least addressed in qualitative research (Lieberson 1992). In spite of the difficulty of satisfying transferability in a case-specific qualitative assessment, Baxter and Eyles (1997, 516) suggest that through "thick description" (as coined by Geertz 1973) other readers can extrapolate findings to other places and people:

> The original researcher must describe the study context as completely as possible because, at root, transferability, involves the degree to which constructs are meaningful to other groups (as yet unstudied or not yet compared with the original group. Detailed, thick description (Geertz 1973)—as a methodological as well as interpretive strategy—of how constructs/hypotheses are developed and what they mean, will be of use to the researcher or layperson who wished to determine the degree to which they may be transferred to other contexts.

In this sense, the "thick" or detailed descriptive nature of the radio provides potential transferability to other groups or places that have yet to be studied.

The third criterion to evaluate qualitative analysis is dependability. Dependability is the ability of the results to be applied to similar processes through space and time (LeCompte and Goetz 1982). For example, if someone else was to conduct the research using the same methods and analysis, would their findings be similar? To satisfy this criterion research designs should include mechanically recorded data,

participant research, peer examination, and triangulation (Lincoln and Guba 1985). To fortify the dependability of qualitative research, it is recommended to keep detailed field notes and audio recordings of all research activities and events (LeCompte and Goetz 1982); both of which are necessary to successfully produce a radio program. Finally, confirmability is the "extent to which biases, motivations, interests or perspectives of the inquirer influence interpretations (Baxter and Eyles 1997, 512)." To satisfy this criterion, research designs should include paper trails, thick description of the paper trail, and the keeping of a journal (Lincoln and Guba 1985). Confirmability is an account of all other criteria, including "how decisions were made regarding the determination of credibility, transferability and dependability" (Baxter and Eyles 1997, 517).

Using radio in qualitative research: a case study

A 2013 Nielsen report found that 92 % of Americans listen to the radio each week, and that the average listener tunes into the radio over 2 h per day (Nielsen 2013). On average, National Public Radio (NPR) estimates their weekly audience to be about 27 million listeners to just their most popular programs like *Morning Edition*, *All Things Considered*, or the hourly newscast (Robins 2011). Radio is still the most common and available form of media worldwide; that is, more people receive news and information from radio than any other media (Pinkerton and Dodds 2009). Radio has the ability to reach both illiterate and geographically isolated audiences. Radio has also been a vital tool for communicating information during and after disasters (Quarantelli 1990). Other types of media, like television, newsprint, and even commercial radio, have been criticized for engaging in information "gatekeeping" during disasters (Quarantelli 1990, Waxman 1973). Gatekeeping is the practice of editing or filtering information presented in media to form a desired representation of the story being broadcast (Waxman 1973). The use of public or community radio to broadcast information before, during, and after a disaster provides the ability to broadcast unedited and unfiltered information to the public in a timely manner. Studying the coverage of disasters by local community radio stations Waxman (1973, 758) found that during disasters: (1) "gatekeepers were replaced by an emergent norm that opened all gates", (2) "during normal operations news was what newsmen [sic] made it, during local disasters news was what the public made it", and (3) during normal operations there was little feedback between public and station, during local disasters there was massive and instantaneous public feedback." The use of radio as a tool helped me to observe and participant in social practices of Ocracoke, NC in a way that other visual or textual methods were incapable.

Flickers (2012) has stressed the importance of the mediating power of various radio technologies, and these elements are not lost on this analysis. The production of *This Island Life* involved stitching pre-recorded elements into the live broadcast. Pre-recorded elements sometimes involved recordings of local board meetings, interviews with people unable or unwilling to come into the studio, and other community events. These recordings were collected with my relatively lo-fi digital voice recorder, edited for clarity and cohesion, and then spliced into the live broadcast. The live broadcast also consisted of in-studio guests and listener call-ins via the telephone.

The information derived from the production of my radio program contributed to an overarching research project aimed at building a community-based profile of hazards vulnerability. Vulnerability, from a political ecology tradition, is defined by Wisner et al. (2004, 11) as "the characteristics of a person or group and their situation that influence their capacity to anticipate, cope with, resist and recover from the impact of a natural hazard." A community-based vulnerability assessment recognizes that the conditions that shape exposure and sensitivity to a hazard are community-specific, and therefore works from the bottom-up to identify these conditions from the community itself (Smit and Wandel 2006). The practice of community-based research necessitates in-depth and active participation with stakeholders, a long-term commitment to collecting information on relevant local human-environmental processes, the use of multiple sources of information, and requires a continuous relationship with decision-makers and members of the community (Smit and Wandel 2006; Ford and Smit 2004; Sutherland et al. 2005). In the following section I briefly describe the study area, and then provide examples of how the use of radio provided community insights that otherwise would have remained hidden, and thus absent from my community-based vulnerability assessment. I

specifically focus on my dual role as radio journalist and researcher with two program examples: the aftermath of Hurricane Irene and the implantation of national park service special regulations.

Before proceeding with the case studies it is important to provide some basic descriptive information about Ocracoke Island. Ocracoke Island is located in the outer banks region of North Carolina, and is separated from the mainland by thirty miles of the Pamlico Sound. The year-round population of the island is approximately 948 (US Census 2010), but as a tourist destination the number of people on the island can swell to 15,000 in the summer months (NC Ferry Division). The island is un-bridged, and only reachable by public ferry, private boat or plane. There are three state-operated ferry routes that provide public access to the island: the Hatteras–Ocracoke ferry, the Cedar Island–Ocracoke ferry, and the Swan Quarter–Ocracoke ferry. The Cedar Island and Swan Quarter ferries originate from the mainland across the Pamlico Sound and transport on average 132,000 people per year to Ocracoke (NC Ferry Division). The Hatteras ferry originates from Hatteras Island to the north and serves as the primary route of tourists, transporting on average 885,000 people per year (NC Ferry Division). The only transportation access route to the Hatteras–Ocracoke ferry terminal is highway 12. During periods of overwash from storms, or other types of road damage to highway 12, the tourist economy on Ocracoke suffers.

Case 1: Hurricane Irene recovery

On August 25, 2011 a mandatory evacuation was declared in preparation for Hurricane Irene, but an estimated 350 people remained on the island. The hurricane made landfall approximately fifty miles south of Ocracoke as a Category 1 storm on August 27. On August 31, Hyde County—the county in which Ocracoke is located—was declared a presidential disaster zone. The physical impact of the storm on Ocracoke included the loss of electricity, very minimal structural damage, and the overwash of sections of highway 12 by the Atlantic Ocean. With sections of highway 12 completely devastated on Hatteras Island to the north, and without a reliable electricity source, the local tourism economy collapsed. A majority of Ocracoke residents depend on the tourism industry for their socioeconomic well-being and the destruction to electric and transportation infrastructure by Hurricane Irene shortened the tourist season by 6 weeks.

In the days immediately following the storm, I rode my bicycle around the island in an attempt to document the local sentiment and to survey the damage. I asked residents about changes to their livelihoods, whether they needed any assistance, and if they had any unanswered questions regarding local recovery. The information gathered from this research excursion served as the basis for my post-hurricane radio episode of *This Island Life* that aired 3 days after the storm. Concerns of the community following the storm focused on the availability of federal assistance programs, especially in regard to unemployment benefits, and the current status of highway 12 reconstruction. Assessing these immediate concerns of the community were addressed through the practice of recording, listening, and playback of audio media, and these practices increased my research visibility, and subsequently my access, with the community.

My status as a radio volunteer covering current events allowed me access to situations and meetings that were crucial to my overall research project and would have otherwise been off-limits. Perhaps the best example of this is the manner in which I was able to gather local knowledge following Hurricane Irene. In the aftermath of the hurricane I was granted access to emergency service council meetings as an unofficial member of the media to report bi-daily on the progress of recovery. These emergency service council meetings included representatives from the county, the local police department, the local fire department, the national park service, the electric company, the Ocracoke Water and Sanitary District, the local grocer, the ferry division, the school, paramedics, and the local real-estate agencies (to communicate information to tourists). It is within these meetings that I posed questions collected from the pubic regarding the recovery process to later be broadcast on the radio.

A major component of political ecology based hazards vulnerability assessments is concerned with the ability of people to access resources that sustain their daily livelihoods. This includes access to employment, and in the wake of Hurricane Irene nearly two-thirds of the Ocracoke workforce was unemployed. Residents were grateful that the physical damage to the island was minimal, but feared for their financial security. Within the emergency service council meetings the assistance and expected arrival

of the Federal Emergency Management Agency (FEMA) was discussed. Important for residents of Ocracoke the presidential disaster declaration stated that FEMA would be able to "help with unemployment payments for up to 26 weeks from the date of the disaster declaration for workers who temporarily lost jobs because of the disaster (FEMA news release, August 31, 2011)." On September 8, FEMA setup a workshop at the local community center to communicate possible routes for federal assistance for citizens negatively affected by the disaster.

This information could have been gathered without the use of a public radio program, but the process of surveying public sentiment, observing political and bureaucratic process, participating in political and bureaucratic process, and then re-presenting these intertwined narratives on-air, allowed for a type of reflexivity that benefited the research project. For example, one call-into the radio program asked how during Hurricane Isabel in 2003 the previous electricity generator on Ocracoke was able to transport power to Hatteras Island as they were experiencing a power outage while still meeting the entire needs of Ocracoke, but now with a newer generator the electric company cannot even produce enough energy to power Ocracoke? This information was news to me, and I encouraged other listeners to respond if they could provide some insight on the situation. A longtime employee of the local electric plant assured me that this was in fact not the case. Ocracoke had rolling blackouts in the aftermath of Hurricane Isabel and did not send power to Hatteras. This example of reflexivity as obtained through recording, listening, and playback, displays a benefit similar to those of a group interview, but with the potential to reach the entire community as an audience.

In this example, the radio broadcast, or the sonic space, became a place of coming together for people and information. In the aftermath of the hurricane, people were physically dislocated throughout the island or evacuated to the mainland. The use of radio allowed for sonic space to be a space for people to come together to hear information that in a state of emergency can be difficult to access and not always accurate. In a discussion on the geography of voice Kanngieser (2012, 2) asserts the "co-creation of space and sound." This is not an abstraction, but has material implications as Kanngieser (2012, 2) explains, "The utterances of speakers open up spaces for different ways of being through dialogue, through their anticipation of a response." Furthermore Kanngieser (2012, 3) shows that "the social, the oral, and aural are intertwined and that the dialogical processes of utterances may enact different collective and public spaces." It is the 'utterances' broadcast on the radio that alter public spaces—both physical through the air waves and socially through the dialogic process. In this sense, the radio broadcast creates an entry point into sonic space, which, precisely because of its sonic nature was more widely available to the general population when the electricity went out.

The radio station has a gas-powered generator that allows for continuous broadcast during storms, and hurricane preparedness literature often suggests people living in hazardous regions own a battery powered radio. During the days following the hurricane the radio station was a source and conductor of critical disaster information. Residents of the island called into report information, public officials stopped into report updates and inquire about resident's needs, and all of this activity was broadcast in real time. This is an example of the radio station, both in physical and sonic space, serving as a facilitator of community recovery in the wake of a disaster. It is also an example of the breakdown of gatekeeping that influences other regional or national media outlets. Examples of gatekeeping at different scales of reporting include the sensationalizing of hurricanes by weather reporters, or the delay in reporting from regional newsprint and online media. The community radio was nearly instantaneous, democratic, and focused on local steps to recovery. *This Island Life* was broadcast locally and online. The number of online listeners was minimal; typically 1–15, but over 100 following Hurricane Irene. There was a heightened demand for information via the sound-space of public radio, whether it was broadcast via the public airwaves or online. The majority of listenership was local. I do not have numbers for actual public airwave listeners, but residents often approached me in public to comment on broadcasts.

Case 2: National park service beach regulations and Ocracoke residents

A major topic of public debate on the Cape Hatteras National Seashore (CAHA) since 2006 is the regulation of off-road vehicle (ORV) driving on the beach. In

2007 the Audubon Society and the Defenders of Wildlife filed a lawsuit against the NPS for improper management of ORV use. The plaintiffs claimed that poorly managed ORV use on the seashore was damaging migratory bird and sea turtle habitat, especially that of the piping plover. The social issues involving the NPS, driving on the beach and the piping plover is a convoluted process that has exhausted local communities. Therefore, it was an often discussed issue on episodes of *This Island Life*. While attending local board meetings or casually talking to residents it was evident that there were a lot of unanswered questions or misinformation that was creating a strain on the relationship with the NPS. This strain was exacerbated with the announcement of a fee and permitting system to be implemented for driving on the beach. In January 2012 I invited the CAHA Ocracoke district ranger to be an in-studio guest to answer questions that I had previously gathered from local residents.

Through a 30-min conversation each one of these issues, and many others, were addresses by the district ranger. In this instance, I have an official representative of the national park service on my radio program. This interview is different than the other semi-formal interviews conducted in my research, because he is not talking to me, he is talking through me, to the community. Simultaneously, in the physical and literal sense, he is talking to me. The act of a public interview produces different information than a private interview. The broadcast interview has no impression of anonymity, which could arguably serve as a mechanism to increase the credibility of interviewee's responses. The idea being that since this is a public conversation the interviewee must give his/her most accurate account of reality. However, the opposite could also be argued, that since the interview is public the interviewee might withhold information that is not very popular. In the instance of a public official however, they are not necessarily representing their viewpoints on a subject, but are rather explaining their institutions viewpoints on a subject.

This example also provides insight into my dual role as a researcher and journalist. It was because of my role as a local radio host that I was able to arrange an interview with a public official in a public capacity, rather than in a private capacity where most qualitative research interviews take place. The task of publically investigated local issues of concern legitimized my role as researcher in the community. All of the participant observation tasks of my research—attending meetings, on-the-job experiences, and volunteering—were recorded, edited, and rebroadcast to the community on a weekly basis. This proved helpful for pushing forward a research timeline and provided an extra sense of necessity to attend and participate in any available event. Gradually the program morphed into a thing-in-itself which helped me establish a positive presence in the community and opened dozens of other community doors that I feel otherwise would have remained shut. I leveraged my radio program to insert myself in the research positions that I needed to be. My visible positionality during participant observation tasks was accompanied by an audible presence within the research site.

One of the issues with trying to make a claim about the use of aural representations in geography is that the final product is nearly always textual. The paradox here is that I want to make the claim that through this radio interview example, accents, ambiences, and acoustics were present in a sonic space that aided in the production of a "thick description" of the place and the phenomena being discussed. The interviewee is a multi-generational Ocracoker with an Ocracoke Brogue accent, a dialect found only on Ocracoke (Wolfram and Schilling-Estes 1997). Hearing this dialect gives the speaker more credibility from the local listener's perspective. The aurality of the medium, which cannot be reproduced or represented visually or textually, was of immediate and direct benefit to my research. Kanngieser (2012) has also engaged the aurality of geography by focusing on the importance of understanding 'utterances.' Stating that (Kanngieser 2012, 5), "[t]hese processes are sounded out by the qualities of voices, which are often neglected in discussions of speech acts and communication. These qualities, however, can reveal much of sociopolitical conditions and contexts." In the format of this journal article the only way to transmit these 'sociopolitical conditions and contexts' is from a transcription of the interview, which turns my example of a phonographic method into a dry textual account; herein lays the dilemma. In the interview transcript, inflections, compassion, and concern is reduced to text, and subsequently lost. The very format of this article is a limiting factor for aural representation in geography.

Evaluating radio as a tool in qualitative research

Credibility is arguably the most important criteria in terms of evaluating qualitative research (Lincoln and Guba 1985). All research contains degrees of interpretation, practicing methods that are explicit about the interpretations being constructed is crucial to establishing credibility. One way to do this is to represent research—and the inherent interpretations—to the participants of the study for comments. This practice is known as "member checking" (Baxter and Eyles 1997). The weekly broadcast of *This Island Life* constituted an on-going and real time "member checking" where information was collected from the community through participant observation then represented for subsequent commentary. There were plenty of episodes where there were no call-ins or comments made on the broadcast material, but the outlet was available. For example, when discussing generator power issues during the hazard responses to Hurricane Isabel and Hurricane Irene. The correction made regarding electric recovery following Hurricane Isabel was "member checked" by another resident. The exchanging of written research with other academics and also the participants being studied enhances the credibility of results (Borland 1991). If this stage of sharing interpretations is absent from the qualitative research design then "we are in danger of merely fitting data into the preconceived theories/frameworks with which we are comfortable (Baxter and Eyles 1997: 515)." In this regard, the radio is a highly effective tool for member checking and thus enhances research credibility.

How then, could information derived from the practice of producing a radio program apply to areas outside of Ocracoke? Although it is often difficult to make generalizations regarding transferability in qualitative research one suggested technique involves describing the research as explicitly as possible, what Geertz (1973) calls "thick description." Transferability is enhanced when through the transmission of "thick description" constructs become meaningful to other unstudied places (Baxter and Eyles 1997). The radio is a useful medium for which the transmission of thick description can take place, in tandem with other traditional textual outlets (e.g. journal articles). The recording of radio programs and publicly accessible online storage also serves as a repository of possible transferability, much like a publicly shared dataset of a quantitative-based study. In this regard, the radio has the potential to enhance transferability, but further attention is needed that explicitly seeks to address issues of transferability from the start of the research project.

Dependability, as previously mentioned, is concerned with consistency in research constructs through space and time. Two interrelated strategies outlined by LeCompte and Goetz (1982) for enhancing dependability involves the use of low-inference descriptors and mechanically recorded data. These two strategies work together to demonstrate that other people's interpretations would be similar if drawn from the same data. Baxter and Eyles (1997: 516) state that "[t]he most common types of low-inference descriptors are fieldnotes and audio recording which include verbatim accounts and narratives of behaviours, activities, and events." This quote is a good description of what I attempted to produce with *This Island Life*. Episodes of *This Island Life* were a montage of recorded events and meetings throughout the week interlaced with my commentary and others as read through my field notes. This explicit type of field work accounting on a weekly basis is a unique type of "inquiry audit." An inquiry audit in qualitative research is usually conducted by someone other than the researcher, and in most cases is informally conducted by an academic adviser or colleague (Baxter and Eyles 1997). I posit that regularly broadcasting the research audit trail opens the process of dependability examination to a wider audience. Whereas the auditor is traditionally an expert in the field or the area of study, the broadcast of the audit trail can potentially reach these typical 'auditors' and other less empowered persons to guide the research decision-making processes.

Measuring the confirmability of a research project involves reflection on the research and the researcher's interpretations. Whereas claims of objective truth are passé, the concept of confirmability in qualitative research requires an assessment on the quality of the data, and how the researchers own personal biases influence that assessment. This is done not to prove objectivity, but to demonstrate that the constructs presented are reliable and have the ability to be confirmed by factual-based accounts of reality. Enhancing confirmability involves addressing the other criteria of evaluation—credibility, transferability, and dependability—in concert. As presented

above, the use of a regular broadcast radio program has the ability to strengthen each one of these criteria if explicitly stated in the beginning stages of field work. This retrospective evaluation has revealed that certain criteria where addressed more fully than others. The credibility of the research was enhanced through the regular member-checking of interpretations as presented on-air. There is potential for improvements in transferability in qualitative research that can be addressed through the use of radio broadcast, but these agendas should be laid-out prior to entering the field. The weekly production of *This Island Life* enhanced the dependability of the research by creating regular inquiry audits that detailed local events, placed them within local contexts, presented interpretations on-air, included a mechanism for constant feedback, and then detailed future research routes ("Tune in next week for a discussion of…").

Moving forward, I believe there is a rich potential for the use of radio in qualitative research that moves beyond the ability to maintain participant anonymity as originated in Baker and Weller's (2003) work with children. I suggest the use of radio as one tool within a triangulation of data collection techniques has the ability to enhance qualitative geographic research. Although not appropriate in all situations the production of research radio broadcasts, or podcasts for those who do not have access to a local community radio station, requires further attention as an exploratory tool in qualitative geographic research.

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