Technological Negotiation in Media Activism:
Critical Resistance, Selective Adoption

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Abstract

This paper examines activism around independent community media. It uses as a case study a U.S.-based activist group who since the mid-1990s have advocated for greater citizen access to low power FM (LPFM) radio. I follow the activists' assessments of not only FM radio but emerging Internet-based technologies, including webcasting and wi-fi networks, and argue that the significance of new and emerging communication technologies can be grasped most effectively when emerging technologies are considered in a dynamic field that includes older technologies. In practice, the activists circumspectly negotiate expanding their efforts to encompass community wi-fi networks, while trying to retain the vision, flavour, and organizing strategies from their LPFM campaigns. They consider the implications of this shift for their emphasis on a 'grassroots mandate', for their policy work versus hands-on technical work, and for their identification with and affinity for FM radio technology versus their attitudes towards computer and wi-fi technology. By attending to the interplay of old and new technical options, it is possible to better understand the trajectory of technological adoption without relying on deterministic or revolutionary explanatory mechanisms.

Introduction

This paper is concerned with mediation of technical possibilities. Specifically, it examines a case study of media activists who negotiate between 'old' and 'new' technical choices, leading to selective adoption of some technologies and critical resistance to others. I argue that the political identifications already possessed by members of the activist group help to shape their choices, informing which technological options may best align with their identities and goals. As communications scholar Pablo Boczkowski states, 'Most of what ends up becoming unique about a new technology

usually develops from how actors appropriate it from the starting point of established communication practices.'[1] I attempt to make sense of how the activists prioritize political and technical concerns as they negotiate their choices about which technologies are most appropriate to help them realize their goal of a more democratic media with significant citizen access to media production. (I do not wish to imply that political and technical domains are ever separate, of course.) This paper addresses how some values the actors impute to radio technology are interpreted vis-à-vis other technologies.

Activism surrounding citizen access to the airwaves in the United States emerged during the 1980s and 1990s. In 1978, the Federal Communications Commission (FCC) ceased to grant licenses to not-for-profit educational and community groups, and people took to the airwaves in 'electronic civil disobedience'.[2] In the 1996 Telecommunications Act, entities that owned radio stations were given permission to consolidate, allowing unlimited ownership of stations across the nation and up to eight per broadcast market, which allowed Clear Channel Communications to acquire over 1200 stations.[3] This further stoked activist efforts to secure the rights of small-scale community broadcasters. During the 1990s, the FCC experienced difficulty enforcing their regulations against unlicensed broadcasting due to the presence of a number of groups and people on the air,[4] including some well-publicized lawsuits,[5] and in the late 1990s, then-Chairman William Kennard began to consider reinstating some form of license option. In 2000, in a major policy victory for advocates, the FCC initiated the legal designation of 'low power FM' (LPFM), stations that operate at 100 watts or less (reaching at most only a few miles from the site of transmission) and are not-for-profit, and allowed groups who desired radio stations to apply for licenses. By 2006, approximately 650 new LPFM stations were on the air. The activist group whose activities are the subject of this paper were active as a pirate broadcasting collective in Philadelphia in the mid-1990s, which was raided and shut down by the FCC in 1997. They subsequently re-focused their efforts away from broadcasting and towards advocacy and technical assistance to community groups, forming a non-profit organization called Pandora Radio Project. (Names of field sites are pseudonyms.)

Media activism is sometimes viewed as an end itself, but often people interested in media activism are involved in other social justice issues, and then identify media access as a key component of work on any issue; sociologist William Carroll and communications scholar Robert Hackett write that 'media activist groups tend not to respect existing [social] movement boundaries, but to exceed them'.[6] This was the case for the Philadelphia group, whose members were active in various causes, including ACT UP, the AIDS activism group, before concluding that their work was essentially futile without a media system that gave them time to air their views and cover the work they did. One person stated:

> A big problem [for] a lot of activists is that the more you get involved, the more you see how fucked up everything is, and how you really have to change everything in order to change one thing (…) and I thought that instead of choosing one thing I could choose media democracy and help all these people get their voices heard, have their own outlet. A big problem of oppressed groups and activists is that they don't have any access to the media (…)[7]

This is a fairly representative viewpoint among left-wing people whose goal is media reform, though opposition to media consolidation unites groups across the political spectrum.

Advocacy for greater availability of FM radio in the late 20th and early 21st centuries may seem a curious phenomenon, given the availability and supposed desirability of newer, global media technologies. The continuing interest in the viability of FM radio demonstrates the need for a nuanced understanding of the uses and impacts of communication technologies, as well as the interplay between established and emerging technologies. Careful examination of this interplay may provide insight into the process of adoption of new technologies that extends beyond revolutionary rhetoric or deterministic modes of explanation (see Boczkowski 2004; Marvin 1988). This paper follows radio activists' assessments of not only FM radio but emerging digital technologies, primarily wi-fi networks.[8] The activists' quest to find appropriate solutions to the perceived need for greater citizen access to the media has led to not only an intense policy battle over LPFM availability but the consideration of an array of technical solutions, some of which the activists largely reject

(such as webcasting) and others of which they cautiously embrace (such as community wi-fi networks).

It is significant to note that the activists are quite reflexive about this process. They view their activities as important for the present but also for the future, and they also exhibit a strong awareness of the past. Many communications scholars have argued that the policies implemented in the 1920s and 1930s profoundly affected the media landscape many decades hence (see for example Douglas 1999; McChesney 1999; Smulyan 1994; Slotten 2000; Streeter 1996). The activists are familiar with these arguments and cultivate a deliberate historical awareness; as noted above, they believe the contemporary period in which they seek to make reforms to media policy and secure technopolitical choices about media technologies is important because of its implications for the future. One media reform policy advocate said, 'I think we are at a good point in telecommunications policy and technology (…) It hasn't been this way since the 1920s, we have an opportunity to secure spectrum for people beyond businesses. The window will close again within two to three years and be closed for at least another 70 years.'[9] The activists simultaneously seek to secure greater access to FM radio while arguing that its future is uncertain, and they understand the present as a struggle to understand and define new technologies that will potentially outlast terrestrial radio broadcasting as it is traditionally understood, in ways that preserve and promote their vision of media. As one activist stated, 'The idea of spectrum scarcity is changing fast, and it's up to us to understand technologies, knowledge will help us win this race, the ideological struggle is whether Verizon [a major telecommunications corporation, formerly Bell Atlantic] will own the spectrum and sell it to people, or whether the spectrum will be unlicensed and available.'[10] In particular, the activists realize that both the demand for LPFM radio, or even terrestrial radio,[11] is not endless. In thinking about the future, one activist indicated that FM radio per se would possibly be less relevant to the organization:

> [Pandora] is working for social movements we believe in and to democratize technologies. Wherever there's a communications technology that needs to be democratized is where we should be. It's not the boxes that deliver [media content] that is important, but the idea of community media.[12]

Another activist simply stated, 'I love radio, but it's not going to be the same in ten years',[13] indicating his awareness that the activists' concerns were navigated in the midst of a shifting technopolitical media landscape; his affection for radio itself was not necessarily sufficient to support organizing around it over the long term. These statements underscore the fact that technological artifacts and their meanings are contingent and result through negotiations between groups.

The Telecommunications Act of 1996 ushered in a massive wave of consolidation of media companies. A main rationale for the permissibility of consolidation had to do with the supposed availability of new media, mainly the Internet; traditional media were thought by some regulators and broadcasters to be subject to greater (economic) threats by new media, necessitating the permissibility of merging of traditional media. In addition, democratic values were also supposed to be supported by new media such that regulations to protect the public interest with regard to traditional media were less important.

Negotiating the Internet and associated practices

During this period, unlicensed broadcasters continued to defy the FCC, and many activists and citizens were concerned about the wave of consolidation, increasing their advocacy for legal access to low power FM radio stations, as radio in particular was greatly affected by the 1996 Act. Activists and citizens who sought greater access to FM radio considered the possibility of using the Internet for 'webcasting', but were critical of it as an equivalent alternative to FM. One activist stated plainly, 'If Clear Channel [a large corporate owner of radio stations] wanted to trade me my website for their 1200 radio stations, I'd do it tomorrow (…) A lot of people think we're crazy for focusing on this dinosaur technology, that some new pie-in-the-sky technology will come along and eclipse everything (…) but people didn't expect radio to last after 1950.'[14]

Activists cited webcasting's shortcomings as numerous. Webcasting was an undesirable alternative to FM because it was less accessible, requiring Internet connectivity and literacy to produce or receive. Using computers to 'broadcast' was not inexpensive to transmit, and far more

expensive to receive than FM. But expense was not the only consideration. One activist said in 2003: 'Everybody has a radio, not everybody has a computer. You don't need any skill at all to be able to turn on the radio. Webcasting, anybody can get it, you can be in Oslo and listen to West Philadelphia radio. In a way, that's cool, if I'm a West Philadelphian in Oslo, that's great, [but] it makes it less somehow cohesive for the community (…) If you webcast, it doesn't seem like a community resource any more.'[15] Thus, she stresses the importance of localism in community media.

The case of community wi-fi networks present another opportunity to examine the radio activists' attitude towards the Internet's role in broadcasting or in community media. Short-range transmission between wireless devices in both portions of spectrum designated for unlicensed use and some spectrum ordinarily designated for licensed use is permitted by the FCC. These devices are commonly referred to as 'Part 15 devices', which include everything from extremely low-power FM radio broadcasting to wi-fi cards to baby monitors.[16] Wi-fi was a later technical innovation that, like garage-door openers, cordless phones, and baby monitors, uses RF to communicate short distances between devices.[17] One application is wi-fi networks that dynamically change frequencies to rout around obstacles and communicate bi-directionally (transmit and receive) in order to network between computer users and share Internet service, and this is the application that most excites the activists.

While the activists deem FM radio as appropriate and desirable for community groups both domestically and internationally, due to the limitation placed by Congress in 2000 on the number of available frequencies for LPFM stations, LPFMs are virtually impossible to license in cities in the U.S., because the spectrum is perceived to be too scarce and it is not possible to meet the spacing requirement for new LPFM stations. Partly due to the unavailability of LPFM as an option, then, the Pandora organizers have considered the utility of municipal and community wi-fi networks in cities. On a level that they characterize as partly symbolic, they have an interest in taking up projects in cities to complement the work they have done building radio stations in rural areas, to stake a claim in cities. One activist stated: 'We care about radio, but we believe in appropriate

technology. If wireless is the best way to support community and social justice needs, we need to get them that. If people can't get radio, they need this now instead.'[18]

As noted above, the radio activists are aware that the technopolitical terrain in which their work on LPFM occurs is constantly shifting. The longevity of their mission as an organization solely devoted to LPFM is not debated; they understand that the mission for which they founded the organization is finite. But their understanding of technology, of political organizing, and of policy work has led them to consider other ways in which their general mission of promoting a democratic media environment may be consonant with their more narrow focus on radio.

One of the activists' intentions in challenging the dominant media institutions is to create alternative discourse, media 'content' that is produced by ordinary citizens, which stands in contrast to the content provided by commercial media outlets. Yet they have other goals too. A main strategy they employ in challenging the dominant media institutions is to teach people to build and use technical artifacts. They want to teach people to be unafraid of technology and to challenge 'expert' expertise; they feel that if people are taught some technical skills, they will extend this confidence to non-technical matters and become critical of expert-based, technocratic decision-making. A Pandora organizer discussed this goal:

> Culturally we have a very expert-oriented society (…) You have all these people who are 'experts', and just because they're talking at you about these different things, doesn't necessarily mean they're right. The big part of the barnraisings,[19] about not having the engineers do it [and having non-experts participate in technical work], it is a demystification. (…)[20]

Materially, there are certain links between wi-fi and FM radio that the activists highlight. The notion of the spectrum is crucial, symbolically, politically, and materially. Like FM radio, wi-fi uses RF as the technical means by which data signals are transmitted, and so there is continuity between FM and wi-fi. The material link between wi-fi and radio was actually used to explain what wi-fi is and how it works. This was made clear in a graphical representation of a wi-fi node, which showed RF

radiating from a tower that looks like a radio tower, thus drawing on a familiar technology to indicate how the newer technology should be understood.

The radio activists also noted other similarities between FM and wi-fi. A Pandora activist commented on the material and symbolic value of wi-fi that she found to be complementary to her radio activism agenda. She discussed the organizing strategy of holding workshops to build directional antennas ('cantennas') for use in wi-fi networks using coffee cans:

> The cantennas [are] an organizing tactic. It's an easy piece of technology to build. It's a useful piece of technology. In the ten or twenty minutes it takes someone to learn to use a cantenna, you learn RF, you learn DIY sharing of a public resource, like public airwaves stuff, you handle a drill, you handle a soldering iron, you have them handle a component, you learn about cabling, it's a fucking barnraising in a ten-minute package, it's the best tool for that. (…)[21]

The Pandora activist also makes reference to the material linkage to radio when she says that a cantenna workshop teaches people 'about RF', as well as when she talks about teaching people to use soldering irons and become familiar with cabling while building cantennas. But the main significance of the cantenna workshop is that it is 'like a barnraising' in that it combines Pandora's technical and political mission, raising awareness about citizen ownership of, access to, and use of the spectrum.

But incorporating wi-fi into their technical practice and organizing mission has not been seamless. The work the activists put into developing an understanding of radio as ideally suited to transfer of knowledge and the demystification of technical expertise did not necessarily translate to other technologies and technical practices. In spite of the use of cantennas for workshops, radio is still an easier technology to 'demystify'. One Pandora organizer stated, 'With radio it's easier to have a real 'Eureka!' moment, like when you realizing you're broadcasting from a [radio transmitter mounted inside a lunchbox]. This is harder with computers'.[22] A Pandora intern echoed this: 'The barrier to access to radio is so much lower. You have to know relatively little [technically] to produce or use radio creatively, but with computers it's much higher.'[23] An activity like soldering a transmitter board is a good opportunity for novices to participate as far as the

activists' goals are concerned. It is relatively simple, as the board comes with instructions and can be assembled in a 'paint-by-numbers' fashion, as long as the instructions and schematic are closely followed. It takes several hours of work and is a social activity; each small board can accommodate a couple of people soldering and at least a few more observing or guiding at a time. And when the board is complete, if it has been assembled correctly, the instructor and volunteers can enjoy the fruits of the labour by testing the board and hearing that it works, using the transmitter, a portable receiver, a power source, and an audio source. A cantenna, however, has a less obvious function when it is complete: it is an artifact that can be integrated into a network of other technologies in order to produce a wi-fi signal and link computers, but the computers themselves are still complex and essentially black-boxed, and so the cantenna is arguably a more abstruse end-product than a voice or musical sample being heard over speakers. This is not due to any inherent properties of these artifacts, but the stabilization of the use and meaning of radio as an artifact enables a transmitter's function to be readily grasped by novices. Radio's common understanding as a medium of sound transmission may also make it more easily understood as having democratizing implications. In the case of radio, I argue that the idea of a 'voice' is salient, not only as an aural phenomenon but in terms of the idea of 'having a voice' or 'being heard' as components of discourse surrounding democratic participation.[24] To illustrate this point, one activist stated that to her, barnraisings are part of an 'international movement for people to own their own voices'.[25]

Efforts to make wi-fi similarly understood as transparent, utilitarian, and democratic as radio have somewhat stymied the activists. While they largely understand it in these terms themselves, they have had difficulty translating their vision for community wi-fi as being more than just Internet connectivity. The other already-stabilized uses of the Internet for purposes besides uploading locally-produced content interfere with the activists' ability to promote their vision, thus inhibiting their ability to seamlessly link artifacts and practices surrounding computers connected via wireless Internet connections to the ideas that have crystallized around the use and meaning of radio. This is not to say that radio is inherently a more democratic technology than wi-fi, or even that it is anything 'in-

herently' at all. But the radio activists perceive that they are swimming upstream in their attempts at promotion of an interpretation of community wi-fi that diverges from how many people already understand the uses of Internet connectivity.

This can be illustrated by looking closely at the notion of the use or meaning of wi-fi networks. The reasons often cited by municipalities and non-profit groups for building wi-fi networks do not identically match the activists' interest in wi-fi networks. In early 2005, a Pandora organizer met with a representative from a non-profit group in Philadelphia, HOMESpace, a former homeless shelter that provides other services such as computer access and job training, and built a wi-fi network in the neighbourhood in which they are located. In the meeting, the HOMESpace staff member stressed the use of the wi-fi network for services such as downloading forms for social services requests of the city. It is admirable that these groups promote 'digital inclusion'; in many areas, including the one in which HOMESpace is located, the provision of wi-fi networks also requires the provision of personal computers and training to use Windows, since many of the families and individuals receiving the wi-fi access have never before owned computers.

And yet this emphasis on basic computer literacy and the use of connectivity to primarily *download* material, or to eventually use connectivity for purposes such as commerce / running one's own business website, represents a paucity of vision as far as the activists are concerned. It is also paternalist; I argue that notions commonly expressed by lawmakers and some non-profit organizations tend to imagine the 'users' as wards of the state. For example, during a 2006 City Council session, one Philadelphia City Council member said that the benefits of a municipal wireless network would be to provide 'high speed Internet to all citizens and businesses, to take advantage of the new digital society. [We can] bridge the digital divide in 12–18 months, provide access and opportunity for all, prepare children for the future, empower low-income families by providing access to information and social services at home, [and] level the playing field for small businesses (…)'[26] Rather, the Pandora activists and others who favour community wi-fi see the potential use of wi-fi networks as extending beyond the provision of Internet service; instead, their interest

in wi-fi networks flows from their vision of wi-fi networks as *platforms for community media*. Stated differently, the activists envision the use of these networks for transmission of community media created by citizens; significantly, they emphasize uploading content, multi-directional transmission, as opposed to mainly downloading news, entertainment, forms related to services, etc. One document distributed by Pandora stated:

> People just like you have been using inexpensive wireless transmitters to shoot high-speed internet from home to home and neighborhood to neighbourhood (…) They've expanded wireless networking from a way to get the tangles of cables out of your home office to a way for communities to get the connectivity they need for cheap or free. In some cases—like right here in [this town]—they are *redefining the internet altogether*![27]

To the radio activists, community wi-fi is appealing due to its potential for unrestricted and multi-directional transmission of citizen-created content. One email sent by a Pandora organizer expressed her concerns about the city of Philadelphia's plan, which had not yet been fully outlined: 'will the important community content—like the videos produced at [a community] video centre, the content hosted at the IMC [Independent Media Center], and the community newspapers and websites scattered across the city—be marginalized or promoted to users of the network[?]'.[28] Sascha Meinrath writes that a major advantage to community wi-fi is that it is 'cheaper, more reliable and flexible, and offers end users access to more bandwidth, services, and applications' than do profit-driven corporate models.[29] He goes on to state that participants in a community wireless network may decide to create such resources as streaming media servers—which represents a major difference from a model where users of broadband are assumed to primarily or exclusively be 'consumers', thus arguing that community wi-fi 'redefines' the established pattern of use of Internet connectivity as it is commonly understood. A document prepared by a Chicago non-profit, Neighbourhood Access to Technology, echoes this statement: 'It's important to understand that a connection to the Internet is just one of the many services a [wireless community network] provides. Because a WCN creates a very high-speed network local to your neighbourhood, you'll be able to receive interesting content

that your community produces while sharing content that you produce (…) The WCN achieves speeds higher or comparable to DSL or cable modem. Additionally, a WCN is community-based and delivers content and applications that are community-created and community-specific.'[30] In a document prepared by Philadelphia activists with whom Pandora often collaborates, this sentiment was expressed even more strongly: 'Communities across Philadelphia are *fighting to tell their own stories*. The city's wireless plan could give thousands of us a new way to do just that, but we need to let the city know that, when it comes to technology, the public interest is the criteria [sic] for success.'[31] Lastly, a Pandora organizer stated, 'It's time to take back unlicensed airwaves—wireless community networks are not to just receive content but to create and transmit it.'[32]

One organizer said that Pandora's work is harder than that of other groups that do media reform work, because in her words, 'Unlike Free Press [an advocacy group founded by communications scholar Robert McChesney], we don't carpetbag organize [act like opportunistic outsiders]. We have to pay attention to the grassroots.'[33] For her, this was particularly important in charting a course for the future of the organization; they have to listen to 'the voices of the people'. Pandora organizers were very uneasy about making the decision to pursue a policy agenda in their organizational mission without a grassroots mandate. One of the organizers captured this sentiment, saying 'No one goes around with signs that say 'Free the Spectrum!'—and another chimed in, 'Except us!'[34]

In another meeting, one organizer said that his main problem with the group's work on wi-fi was that unlike radio, which he considered to be an issue people were willing 'to go to jail over,'[35] he didn't know how Pandora could convince anyone to 'fall on a bayonet' for wireless.[36] He said that the early lawless origins of LPFM made it 'a hell of a story, it captured people's imaginations (…) [But with regard to wireless], we need to take it into people's hearts [and make them see that] it's not about getting a cheaper cable bill [from an Internet service provider] (…) we need to seek danger.'[37] The activist group clearly had passionate opinions about wi-fi and spectrum management, but they could not

assume that the members of the public shared their sentiment; certainly without outreach and education efforts, the grassroots demand for community wi-fi was less easily identifiable than that for radio stations, which was high.

The interplay of older and emerging technologies

For the activists, LPFM is a technical choice that is held to be compatible with localism, democracy, and community, whereas wi-fi networks are less obviously compatible with these values. They strongly believe in the importance of media technologies for maintaining or challenging social arrangements having to do with power[38] and community,[39] not merely for transmission of information.[40] In fact, they are quite critical of some ideas espoused by digital utopianists.[41] In this, they seem to have perhaps arrived at a similar conclusion to that of Langdon Winner, who argues that '[A] serious misconception among computer enthusiasts is the belief that democracy is largely a matter of distributing information (…)'[42]

Pablo Boczkowski states that the potential for consequences of new media adoption appear to be so significant that it is necessary to examine the often more evolutionary processes whereby they may or may not arise.[43] The radio activists provide a unique site for analysis of the significance of discourses around information and information technology, because they represent a savvy group of technological mediators, who distance themselves from groups who have more unabashedly embraced digital technologies and the Internet. They are not dismissible as mere Luddites nor nostalgic radio hobbyists, for their high profile in the media justice / media reform movement indicates that they are taken seriously by their advocacy peers. Indeed, they represent a major success story in the movement, having achieved (with other groups) a major policy goal, the 2000 implementation of the LPFM radio service by the FCC, and having won a 2003 lawsuit against the FCC over proposed rulemaking to allow further telecommunications consolidation.

Thus I argue that this site bears out Boczkowski's statement that: 'In contrast with the discourse about revolutionary effects that have been prevalent in the dominant modes of understanding online technologies

and the web, (…) innovations [unfold] in a more gradual and ongoing fashion (…) shaped by various combinations of initial conditions and local contingencies.'[44] The radio activists' attitudes towards webstreaming and community wi-fi demonstrate that processes of technological adoption may include critical and reflexive attention to social practices. Over time they cautiously expanded their definition of 'appropriate technology' in order to include community wi-fi networks, but their identification of what is valued in the newer technology has been heavily informed by what they perceive to be valuable in radio, in particular, the ability to locally 'broadcast' citizen-created content. One could even argue that for the analyst, the value of radio for these actors emerges in part in comparison with the other technologies that the actors reject or embrace.

Returning to Boczkowski's statement that 'Most of what ends up becoming unique about a new technology usually develops from how actors appropriate it from the starting point of established communication practices,'[45] it is clear that the radio activists are circumspect. They did not advocate the acceptance of new technologies until they could locate and articulate continuities between radio and community wireless networks. I do not claim to know how these artifacts nor issues about community media will 'settle', as there are many issues involved. But I argue that it is useful to look at the early uncertain stages of these negotiations, in order to better understand the trajectory of technological adoption without relying on deterministic or revolutionary explanatory mechanisms. Use, not only technical innovation, must be understood as critical in understanding technical adoption or resistance. The challenge to promote community wi-fi networks as platforms for community media versus Internet connectivity poses a challenge for the activists, whereas with radio, the citizen demand for radio stations was largely consonant with the activists' vision for radio stations.

As Carolyn Marvin writes, 'New media, broadly understood to include the use of new communications technology for old or new purposes, new ways of using old technologies, and, in principle, all other possibilities of the exchange of social meaning, are always introduced into a pattern of tension created by the coexistence of old and new, which is far richer than any single medium that becomes a focus of interest because it is

novel.'[46] This episode in early 21st-century radio activism serves to high-light the complex negotiations by actors between not only differing tech-nological options, but between definitions of desirable use limited by even a single technical option. This interplay is suggestive, demonstrating the continuing viability an old communications technology, radio, as central in understanding emerging technological options. Wi-fi's material con-nection to radio may be partially responsible for the activists' interest in it. Most interestingly, they expand their purview to include wi-fi only as they can make an argument that it may be used in the same empowering, community-building ways that they understand radio. A statement by a Pandora activist indicates that there may yet be room for the Internet in his understanding of radio: 'Ten years from now, the Internet won't have much to do with computers. The coffee cup will talk to the coffeemaker which will talk to Nicaragua—it will be like the Jetsons. The future of the Internet is not to use the cables but to use the airwaves.'[47]

Notes

[1]   Boczkowski (2004, 3). See also Edgerton (2006).

[2]   Soley (1998).

[3]   Klinenberg (2007, 62).

[4]   Coopman (1999).

[5]   See Shields and Ogles (1995); Coopman (1999).

[6]   Carroll and Hackett (2006, 86).

[7]   Interview, July 2003.

[8]   Wi-fi is wireless broadband Internet connectivity. A wi-fi network is essentially a network of individual wireless transceivers.

[9]   Fieldnotes 3/1/05.

[10]   Fieldnotes 2/6/05.

[11]   'Radio' has traditionally referred to telephonic broadcasting that uses the electro-magnetic spectrum, though the expansion of this term to encompass Internet radio (also known as webcasting) clearly privileges the telephonic, aural qualities and downplays the means of transmission using the spectrum.

12   Fieldnotes 2/6/05.

13   Interview 7/5/06.

14   Fieldnotes 3/16/05.

15   Interview 6/19/03.

16   See Sandvig (2005) on the regulatory expansion of 'open' use of spectrum.

17   Wi-fi was initially intended to network homes or businesses, but increasingly it has been seen as a means by which to network municipal areas (Tapia et al. 2006, 362).

18   Fieldnotes 2/23/06.

19   A radio 'barnraising' is Pandora's concept for a weekend-long hands-on workshop where Pandora and volunteers gather to put a new radio station on the air and learn about the technical aspects of radio and media reform / media democracy politics.

20   Interview 7/5/06.

21   Interview 9/26/06.

22   Fieldnotes 3/2/05.

23   Fieldnotes 3/2/05.

24   See also Joy Hayes (2000), who draws on Roland Barthes for her discussion of the qualities of 'voice'. Don Ihde (1976) also discusses the characteristics of sound, listening, and voice from a phenomenological perspective. However, I do not argue that the 'voice' is an essential characteristic of an aural medium, rather that the notion of 'voice' is associated with discourse about democratic participation. On the other hand, radio is fundamentally an aural medium, while computers use a visual interface.

25   Fieldnotes 1/13/05.

26   Fieldnotes 3/10/06.

27   'What is Community Wireless?' Undated flyer, received in spring 2006. Emphasis added.

28   Email, --- to basement, 4/25/06.

29   Meinrath (2005, 228).

30   [NAT]. 'Wireless Community Networks User's Guide'. Undated, distributed March 2005.

31   Media Tank. 'Our Neighborhoods Need Access Today!' Undated document. Emphasis in original.

32   Fieldnotes 3/3/05.

33   Fieldnotes 2/6/05.

34   Fieldnotes 2/6/05.

35   Fieldnotes 2/6/05.

36   Fieldnotes 2/24/06.

37   Fieldnotes 2/24/06.

38   See Horkheimer and Adorno (1991); Starr (2004).

39   See Carey (1989); Schiller (2007).

40   See Schiller (1988); Winner (1988); Bowker (1994); Webster (2002); Kline (2004); Kline (2006).

41   See Turner (2006). The radio activists actively critique open source programmers and hackers (see Turkle 1984; Coleman 2005; Dunbar-Hester 2008).

42   Winner (1988), 'Mythinformation'.

43   Boczkowski (2004, 3).

44   Boczkowski (2004, 4).

45   (2004, 3)

46   (1988, 8).

47   Fieldnotes 3/7/05.

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