

➤ Chapter 7

Emergent Digital Ethnographic Methods for Social Research

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Digital ethnography, which applies new media technologies to ethnography, presents exciting possibilities for richly descriptive research, as well as potential pitfalls (especially in terms of ethics). The literature on the subject (e.g., Dicks, 2005; Dicks, Soyinka, & Coffey, 2006; Coffey, Renold, Dicks, Soyinka, & Mason, 2006; Hine, 2000; Howard, 1988; Masten & Plowman, 2003) has grown significantly over the years in response to the implementation and development of these new media technologies. Though much of this work discusses methodological implementation, it is largely limited to Web 1.0 and first generation digital technologies (most of which are over a decade old). Building on my previous work on the subject (Murthy, 2008), this chapter is designed to introduce cutting-edge research technologies—both that are used and could be used—in digital ethnography. Four emergent technologies—Blogs/Wikis (as fieldnotes and research Web sites), digital pens, CMS Groupware, and embedded technology (the “cyborg ethnographer”)—will be discussed in-depth. The aim of this chapter is to equip social researchers in academia and industry with the knowledge to understand these technologies and their methodological applications to digital ethnographies. Ethical considerations relevant to digital ethnography such as informed consent, “lurking,” privacy, and intellectual property will also be introduced by examining specific digital ethnographies and existing ethical frameworks/guidelines.

What Is “Digital Ethnography”?

Every day, we witness mobile professionals at work—on the subway, at the park, in cafés. On mobile phones, they chat with business partners and write text messages. On their laptop computers, they surf the Web and post blog entries. Yet, despite the availability of these tools, many professionals rely on paper notebooks. Yeh et al. (2006, p. 571)

Norman Denzin (2004, p. 4) explains that online qualitative research is an: “interdisciplinary, transdisciplinary, and sometimes counterdisciplinary field... [which] is inherently political and shaped by multiple ethical and political positions.” Like any other “field”

method, successful online digital ethnography is Denzin introduces absolutely “in, of and through” face-to-face ethnography, is not limited to communities and social formations”). Rather, digital ethnography includes, but is not limited to, observation, blogs/wiki, this definition suggests, line and online groups, rather than merely the chapter is focused on digital ethnography and I will also examine

The emergent literature on digital ethnography (e.g., Teli, Pisanu et al., 2007; Teli, Pisanu 2008, pp. 151–170) introduces it. The questions about the ability of the methodology to be vulnerable or more inaccessibility rather than virtual ethnography. This literature also highlights the virtual ethnography. For example, it observes and analyzes the writers... [with] ethnography.” This critique

What Does Digital Ethnography Do and What Are Some of Its Challenges?

“Virtual reality” is not a new concept, but rather a part of their research on the basis of excluding one arena or the other.

An ethnography, as a data-gathering method, is not new. In digital ethnography, the face-to-face ethnographic field is on one end of the spectrum of observation and

Digital ethnography is a new multimedia form (i.e., an array of data-gathering n

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ethnography, presents potential pitfalls (especially 2005; Dicks, Soyinka, & 2000; Howard, 1988; in response to the implementation of this work Web 1.0 and first generation building on my previous introduce cutting-edge in digital ethnography. research Web sites), digital ethnographer"—will be archers in academia and and their methodological evant to digital ethnog- al property will also be ing ethical frameworks/

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method, successful online qualitative research is critically reflexive and socially rooted. Digital ethnography is a component of the online/digitally mediated qualitative research Denzin introduces above. However, it is different than virtual ethnography, which is completely "in, of and through the virtual" (Hine, 2000, p. 65); in other words, it does not involve face-to-face ethnographic work. Digital ethnography, unlike "virtual" or "cyber" ethnography, is not limited to ethnographic accounts of cyberspace and its concomitant communities and social networks (or what Latham and Sassen (2005) refer to as "digital formations"). Rather, digital ethnography is ethnography mediated by digital technologies. It encompasses virtual ethnography, but is broader in its remit. Digital ethnography includes, but is not limited to, the use of digitally mediated fieldnotes, online participant observation, blogs/wikis with contributions by respondents, and online focus groups. As this definition suggests, digital ethnographies can be ethnographic accounts of both offline and online groups. The "digital" in this mode of ethnography stems from the methods rather than merely the target ethnographic object. This distinction is important as this chapter is focused on digital ethnography. That being said, the two are not mutually exclusive and I will also examine some aspects of virtual/cyber ethnography.

The emergent literature on digital/cyber/virtual/Internet ethnography (e.g., Domínguez et al., 2007; Teli, Pisanu, & Hakken, 2007; Dicks & Mason, 1999; Bryman, 2008; Davies, 2008, pp. 151–170) introduces this distinction for those interested in further understanding it. The questions and conclusions that have emerged from this work emphasize the ability of the methodology to document virtual communities and organizations, engage vulnerable or more inaccessible groups/respondents, and—in the case of digital ethnography rather than virtual ethnography—efficiently conduct face-to-face ethnographic work. This literature also highlights the shortcomings of some of these methods, especially virtual ethnography. For example, Gobo (2008, p. 110) claims that "the internet ethnographer merely observes and analyzes the texts which appear on the screen, without being able to meet their writers... [which makes it] difficult to associate this research technique with ethnography." This critique and others will be evaluated in the following section.

What Does Digital Ethnography Contribute to the Field of Ethnography and What Are Some of Its Weaknesses?

"Virtual reality" is not a reality separate from other aspects of human action and experience, but rather a part of it. Therefore, ethnographers should define the field or setting of their research on the basis of their research topic, rather than arbitrarily or prematurely excluding one arena or the other. Garcia, Standlee, Bechko, & Yan (2009, p. 55).

An ethnography, as discussed in the previous section, is a "digital ethnography" if its data-gathering methods are mediated by computer-mediated communication (CMC) or digital technologies. In digital ethnography itself, there is a spectrum. For example, face-to-face ethnographic fieldwork that is documented using wiki-based fieldnotes would be on one end of the spectrum, while a cyber ethnography conducted wholly online (both in terms of observation and fieldnotes) would be at the other end.

Digital ethnography not only presents the possibility of the written ethnography in a new multimedia form (i.e., the ethnography is presented online), but it also adds a new array of data-gathering methods, many of which draw respondents into your project or

potentially make them "stakeholders." However, digital ethnographic methods also have their inherent weaknesses and your research design process should take these into account. The most powerful critique is not against digital ethnography per se, but rather virtual ethnography's elimination of face-to-face observation and interviewing. Gobo's claim, mentioned above, exemplifies this critique.

Gobo's charge is a valid and very powerful attack against cyber ethnography (though not digital ethnography per se), as one of the pillars of "traditional" face-to-face ethnographic work is being able to record and represent the studied individuals, groups, and communities through thick description. A key aspect of ethnographic work has been the attempt to represent the "authentic" speech acts of respondents. Gobo's argument is founded upon the argument that one cannot accurately represent "speech" from respondents without physical face-to-face interaction. That being said, all ethnographic accounts are abstractions and selective representations. As Clifford (1986, p. 118) notes, the mere "textualization" of ethnographic interviews has been considered by some logocentric theorists to be "corrupting," as there is "a loss of immediacy, of the face-to-face communication [...], of the presence and intimacy of speech." Following Clifford, Gobo's argument can apply to "traditional" physical ethnography as well in that the written account abstracts and potentially misrepresents the speech of respondents.

Furthermore, virtual worlds, for example, are social worlds dependent on cyberinfrastructure and "speech" within these spaces is always technologically mediated (whether communicating through text, digitally encoded voice, or image). Boellstorff (2008, p. 61) argues that a failure to realize this equals the rendering of virtual worlds ethnographically inaccessible:

To demand that ethnographic research always incorporate meeting residents in the actual world for "context" presumes that virtual worlds are not themselves contexts; it renders ethnographically inaccessible the fact that most residents of virtual worlds do not meet their fellow residents off-line.

Boellstorff's argument is critical in that virtual worlds are built and maintained through the implicit notion that residents will not meet each other off-line. Therefore, off-line participant observation and interviewing would not truly capture the experiences, communities, and interactions of virtual worlds. Additionally, contemporary society is highly digitally mediated and our identities, communities, and relationships are increasingly enacted through virtual spaces. Garcia et al. (2009, p. 53) argue that ethnographers need to take stock of these marked changes and "must incorporate the Internet and CMC into their research to adequately understand social life in contemporary society."

In some cases, much of one's life can occur in a virtual world. For example, there are highly developed economic systems in three-dimensional virtual worlds such as Second Life, which, at the time of writing, has a population of over 20 million residents,¹ clearly illustrating that certain individuals dedicate a significant amount of their time actually engaging in virtual "living." Therefore, ignoring the powerful role of the virtual in our social lives ultimately creates extremely selective ethnographic accounts. In the case of Second Life, residents have even constructed virtual graveyards to remember people who have died off-line. As Hughes, Palen, Sutton, Liu, & Vieweg (2008) observe, a virtual graveyard and virtual memorial for victims of the Virginia Tech shooting in 2007 were put up in Second Life. These spaces of mourning resembled off-line memorial sites on the

Virginia Tech campus highlight, distinctions subsumes the former,

Another question: Gulia (1999, p. 331), is or hear each other [ca Boellstorff (2008) imr nographia" and event: ethnographic interview storff, 2008, pp. 76-78 ethnographic interview Even his informed co potential respondents nographic and that Se researcher can conduct other ethnographic re

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Virginia Tech campus and included candles, poetry, flowers, and music. As these examples highlight, distinctions between a virtual life and "real life" ultimately collapse as the latter subsumes the former, blurring any difference between the two.

Another question surrounding cyber ethnography, which is evaluated by Wellman and Gulia (1999, p. 331), is whether "online relationships between people who never see, smell, or hear each other [can] be supportive and intimate." In his ethnography of Second Life, Boellstorff (2008) immersed himself in Second Life, "constructing" a house called "Ethnographia" and eventually conducting 30 formal ethnographic interviews, 30 informal ethnographic interviews, and a series of focus groups with Second Life residents (Boellstorff, 2008, pp. 76–78). He never meets any of his respondents off-line. Rather, all his ethnographic interviews, observation, and focus groups are done wholly in Second Life. Even his informed consent forms are presented by Boellstorff's avatar to the avatars of potential respondents (Boellstorff, 2008, p. 77). He concludes that his work is firmly ethnographic and that Second Life is firstly a social "world" (albeit a virtual one) in which a researcher can conduct participant observation, focus groups, questionnaires, and employ other ethnographic research methods.

That being said, Boellstorff (2008) is careful to highlight some of weaknesses of this type of ethnographic work. A key shortcoming, from his perspective, is that the ease in which researchers are able to obtain data from online sources (e.g., copy and pasting text-based conversations or recording webcam sessions) is also a double-edged sword. Specifically, he believes that handwriting is an important part of the ethnographic field experience in that researchers are "forced" to record a lot of observations, which they may not feel to be important at the time, but may end up being consequential (Boellstorff, 2008, p. 75). Boellstorff's observation is an important one and reminds us that some of the "productivity advantages" generated by digital ethnographic methods can have real consequences in limiting the qualitative data gathered.

Another weakness may be that virtual ethnography cannot be combined with face-to-face ethnographic work. Hine (2000, p. 49), for example, argues that face-to-face ethnographic interviews with online respondents can "threaten the experiential authenticity that comes from aiming to understand the world the way it is for informants." Hine's question is an important one in that the social worlds respondents inhabit online are, in some ways, best understood by participating, observing, and interviewing online. However, if Hine's argument holds, a weakness of accounts exclusively gathered online is that they present only one side of that respondent's life—their online one.

An additional shortcoming of some digital ethnographic methods is the inability of researchers to interpret the bodily gestures and other visual cues of respondents. Illingworth (2001) conducted an ethnography of patients undergoing assisted reproduction treatment. She found that respondents would have been reluctant to participate in her ethnography if the interviews were conducted face-to-face rather than online. However, a weakness of this research design, as Illingworth herself notes, is that the lack of physical interviews gave her no visual clues to decipher interview data in nuanced ways. Now (as Illingworth conducted her work in the late 1990s), video chatting and respondent-uploaded videos could help address this weakness but would not totally ameliorate it. Ultimately, the abstractions cyber ethnographers often make can be farther along a spectrum as they are not able to "read" visual cues such as body language. Therefore, we should be mindful of Gobo's argument and take care to triangulate data exclusively gathered from online sources. Despite some of the weaknesses surrounding cyber and

digital ethnography, its collaborative aspects and its ability to transparently present ongoing research findings to respondents and the public are attractive features.

Here are some benefits to consider when evaluating digital ethnographic methods for your research project (specific applications will be detailed in the following section):

1. Respondents can be seamlessly given a greater stake in the ethnographic project through the use of research Web sites/blogs/wikis. This is not to say that digital ethnographies turn researcher/respondent power relations on their head. Rather, digital ethnographies have the potential to at least make the ethnographic process more transparent.
2. Digital ethnographic methods are an efficient means to simultaneously capture heterogeneous data sources such as text, audio, photographic images, and video.
3. Respondents are likely to be more intimate online, as Miller and Slater (2000) have found. Furthermore, Carter (2005) found that digital ethnographers can establish trust and comfort online through sustained dialogic interactions (in much the same way as researchers are able to do with their off-line subjects).
4. Digital ethnographic methods provide an efficient mechanism to triangulate qualitative data due to online databases and programs.
5. The collaborative aspects of digital ethnography represent a major contribution to the field of ethnography. For example, wiki technology, Web pages that permit users to easily edit online, are being used by researchers (e.g., Brown, Lundin, & Rost, 2004) to create fieldnotes, which enabled multiple researchers in their field research groups to share data findings.

What Digital/Cyber Ethnographies Have Been Conducted and What Can Be Learned From These?

I will briefly introduce some select digital and cyber ethnographies and then detail several specific applications. I will begin with early Web 1.0 digital ethnographies and then examine newer cases that utilize Web 2.0 technologies. I will also introduce some cases in which digital ethnography is combined with face-to-face ethnographic methods.

First-generation cyber ethnographies like that of Ward (1999), who examined the Web sites @Cybergrrl and Women Halting Online Abuse (WFOA), highlight the reflexive qualities of online ethnography as well as conceptualizing online fieldsites as a "hybrid" that is neither exclusively physical nor virtual. During this time, ethnographers were also evaluating the strengths and weaknesses of covert versus overt digital and cyber ethnography. Markham (1998), for example, covertly studied chat rooms and Multi-User Dungeons (MUD's), real-time virtual game worlds that are purely text-based, and conducted her ethnographic interviews online (with some chat-based interviews lasting hours). At the time of her study, both her cyber-ethnographic methods and her use of online covert observation were highly contentious. Early cyber ethnographies such as Ward and Markham represent the vanguard of this field.

Hine (2000) researched online reactions to the Louise Woodward "British nanny case," a trial highly covered by the media in which a 19-year-old British au pair was convicted

of involuntarily killing a child. Hine conducted ethnographic observation through e-mail/newsgrping on Louise Woodward's e-mails² asking the questions she obtained a response also kept "fieldnotes" on Web sites as fieldsites. Her notes regarding new me

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of involuntarily killing the 8-month-old baby she was looking after. Hine conducted ethnographic observation through newsgroups and Web sites and ethnographic interviews through e-mail/newsgroups. For example, she contacted authors of Web sites commenting on Louise Woodward (which she found through the search engine Infoseek) and sent them e-mails² asking them to participate in her research. Through these digital methods, she obtained a response rate of approximately 33% (Hine 2000, p. 73). Hine (2000, p. 76) also kept "fieldnotes" on "visits" to Web sites, an act that simultaneously legitimized the Web sites as fieldsites. In these fieldnotes, she kept printouts of pages on the Web site and notes regarding new messages or posts.

Smith (2004) conducted "electronic eavesdropping" in her study of British General Practitioners. She conducted "virtual participant observation" by covertly "lurking" (i.e., not making oneself known) on a listserv e-mail list of British doctors for 15 months. Smith clearly considered the listserv a research "setting" and actively analyzed the unsolicited data she gathered from it. Williams (2006), on the other hand, conducted overt online participant observation and synchronous focus groups in a three-dimensional virtual world (which he terms "Cyberworlds") over 6 months to explore the question of deviance within online communities. He became a member of Cyberworlds and conducted his focus group in a virtual "open field" (i.e., unpopulated virtual green countryside) to which respondents were privately invited. What was particularly attractive to Williams was that the venue of the focus group could be brought to respondents via their modems rather than having to endure the complexities of bringing respondents to an off-line physical venue.

Carter (2005) conducted an ethnography of "Cybercity," a virtual community. Carter researched the community over 3 1/2 years. She used online and off-line methods: a questionnaire and face-to-face interviews. She also had 21 respondents write short stories/monologues about their time in Cybercity. The actual digital ethnographic methods she employed were not cutting-edge, but the level of ethnographic richness in her e-mail/text-based interviews was high. Carter presents extracts from interviews with six of her respondents regarding friendship and intimacy online versus off-line. The responses she received from respondents are thoughtful and reflective. For example, one of her respondents observes that in Cybercity, one "might lose that sense of personal conversation, especially when compared to talking face to face" (Carter, 2005, p. 157). After conducting these virtual interviews, she used her built-up rapport in Cybercity to encourage her respondents to meet with her off-line. She ultimately met with four respondents off-line (Carter, 2005, p. 150). Kanayama (2003) conducted an ethnography, using participant observation and face-to-face interviewing, of an online mailing list based in Japan, "senior-ml," in order to explore the engagements of elderly Japanese people with online communities. She conducted participant observation for 10 months on the list. Kanayama also served as a "technical volunteer" for the list and assisted senior citizens to gain the technical skills to participate in the e-mail list. She also conducted telephone interviews with some respondents. Both Carter's and Kanayama's ethnographic work is best characterized as multimodal, incorporating both virtual and digital ethnographic methods.

Chapman and Lahay (2008) conducted an ethnography of SNS sites and differential usage in the United States, France, China, and South Korea through 36 face-to-face interviews. Their research uses conventional face-to-face ethnography to explore the digitally mediated subject. Their semi-structured interviews explored familiarity with social networking sites, usage patterns, and perceptions, among other things. At one level, the

project can also be considered to be a digital ethnography as Chapman and Lahay used a live video feed during each interview so that members of their international research team, who are based in the countries mentioned above, could simultaneously "be there" during the interview process. Enabling distant researchers to observe the interview process real time through one-way video feeds is a valuable digital ethnographic method in that it keeps teams of researchers, regardless of proximity, involved in the ethnographic process. Chapman and Lahay's work highlights new ways in which traditional ethnographic methods such as face-to-face interviewing can be fused with emergent digital technologies.

Below, I will examine some specific digital ethnographic applications in detail. These are fieldnotes with blogs/wikis, embedded ethnographic technologies (the "cyborg ethnographer"), digital pens, and CMS groupware.

Fieldnotes With Blogs/Wikis

As many ethnographers have attested to over the years, a fundamental aspect of a successful ethnography is the "strength" of one's fieldnotes (Sanjek, 1990). I use "strength" here broadly, encompassing "accuracy," spontaneity, and diversity of data types. Digital ethnography, whether it uses wikis, blogs, or other technological innovations, presents potentialities for new types of fieldnotes that can be inputted online from the field and embedded with video streams, audio transcripts of interviews, digital pictures, and, of course, textual fieldnotes. The ability to construct fieldnotes that simultaneously gather multiple data points from a single device with a small form factor (rather than being lumbered with a digital camera, video camera, digital transcriber, and paper notebook) is alluring—especially in more remote fieldsites.

My current research explores a transnational diasporic Muslim music scene and my fieldsites include recording artists' studios, club/concert venues, and the residences of respondents. Given the diversity of my fieldsites and the involvement of a remote research assistant, I began exploring potential digital ethnographic methods. Taking into consideration the studies mentioned above, my project bears resemblance to those of Carter (2005) and Kanayama (2003) in that I decided to conduct a multimodal ethnography, which fused face-to-face and virtual ethnographic methods. I concluded that I would need a publicly accessible Web site as well as a means to create multimodal fieldnote entries for the project.

The configuration our research team is using consists of Apple iTouches³ with Canon PowerShot digital cameras to create multimodal fieldnote entries from the field. In this pilot configuration, I am able to record the audio (and video clips) of ethnographic interviews and observations on the iTouch/digital camera, upload digital pictures from the field automatically to a flickr.com album (with the location of where the picture was taken automatically saved), and key fieldnotes in real time (which are automatically time-stamped—Wi-Fi access is needed to do this⁴). For those with a larger budget, the use of an iPhone could potentially eliminate the need for a separate camera.⁵

To implement this genre of configuration:

1. Purchase an Internet-ready mobile device/tablet, digital camera with video recording capabilities, and an Eye-Fi Share Wireless SD Flash Memory Card⁶ or another similarly equipped auto-uploading memory card.

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2. Create a free image sharing account at Flickr⁸ (or a similar photo sharing service) and, in the registration process, choose the appropriate privacy settings to make the album public, private, or semi-private.
3. Select a method by which you wish to maintain your online fieldnotes. You can choose to maintain them for free on public "blog sites" such as Blogger,⁹ Vox,¹⁰ or LiveJournal.¹¹ The most apparent downside to these "free" Web sites is that your data is stored on commercial Web servers and this may also present intellectual property/privacy issues depending on your research. Secondly, advertisements may be displayed on these blog sites. Some of these ads may not only qualitatively change the aesthetic of your research blog, but may also be considered offensive/annoying by yourself or your respondents (as you may not have control of the ads displayed). If your research project needs to avoid this situation for whatever reason, consider using a premium ad-free online blog service such as TypePad or having your IT department install blogging/CMS software on its own servers.
4. Configure your Eye-Fi memory card to automatically upload field photographs from your digital camera to your Flickr or some other photo sharing account. If you are using TypePad or Vox as your fieldnote software, Eye-Fi can be configured to upload your photographs from the field directly to your TypePad or Vox site.

Another key advantage of this setup is that I can code the fieldnotes by "tag"¹² labels as I create fieldnote entries. Upon finishing an entry, I check the relevant box for the "category" of data being submitted and then enter keyword tags before I submit the entry online (See Figure 7.1 for an example of this). Though the "intellectual labor involved in coding" remains, the "administrative labor of applying and altering a coding scheme" (Dohan and Sánchez-Jankowski, 1998, p. 488) is radically reduced if one is continuously coding in the field rather than ex post facto using CAQDAS software. CAQDAS software would allow you to change coding schemes on-the-fly and most packages are able to have a flexible coding scheme. However, what they currently do not have is seamless integration with mobile devices such as the iPhones and Internet tablets. Blog software such as WordPress¹³ has a free iTouch/iPhone application, which can be downloaded directly from Apple's iTunes store at www.apple.com/itunes/. Once downloaded, researchers can enter field entries and code them real time. Importantly, photographs taken in the field on the iPhone can be embedded into the blog entry through the WordPress iPhone application (See Figure 7.1 for an example from my research). The instantaneous nature of this form of qualitative research is useful to individual researchers, but is most advantageous to group-based research projects.

In collaborative ethnographies, researchers can also agree on a list of "tags" and "categories" beforehand and program them into the software they are using for their fieldnotes. In my case, I am using the free open-source blog software WordPress, which allows research categories and tags to be coded prior to creating "posts" (i.e., fieldnote entries in my case). WordPress can be used through wordpress.com or can be installed on servers in one's institution or company. These fieldnotes can be password protected if the blog software is maintained on your institution's servers. I was previously using Movable Type, another freely available blog software. A key reason for my decision to switch to WordPress was its iPhone support (mentioned above), which I feel is of tremendous value to



Figure 7.1 Entry from the author's research blog.

ethnographers. In-depth text and video tutorials on installing and configuring WordPress can be found online.¹⁴

The tagging process is of critical value to this ethnographic method as it is the coding system that blog software uses. After I tag each field entry, a "tag cloud" is created on the front page of my research Web site. A larger size "tag" (see Figure 7.2) reflects more entries or more recent entries (depending on what software you are using). The tag cloud, therefore, serves as a visual map of keywords of one's research and provides an extremely convenient clickable index to navigating one's field entries. It serves as a sort of table of contents on-the-fly that takes you to the selected section of your fieldnotes with a click. For example, a tag cloud representing research on the lived experiences of rheumatoid arthritis sufferers might include the following tags: arthritis, bursitis, chronic illness, humira, knee replacements, knees, medication, methotrexate, pain, physical therapy, prednisone, R. A., rheumatoid, rheumatoid arthritis, rheumatologist, surgery, and weight gain. If you were to click on "humira," for example, all of your entries concerning this rheumatoid arthritis medication would be displayed on a single page. Because the tag cloud also enlarges tags with more entries (see Figure 7.2), a researcher would be able to quickly visually compare the frequency of entries on the medications being studied: humira, methotrexate, and prednisone.

Respondents can also tag material or even tag people to help researchers map out communities. For example, Farrell, Lau, and Nusser (2008) examined tagging in business settings and found that respondents voluntarily tagged individuals in a company, which allowed the researchers to see the emergence of respondent-perceived communities in the workplace. If "football team" was tagged by respondents, a researcher would not only discover the presence of an office football team, but also know who exactly are members of the team.

In addition, if respondents are allowed to upload data (images, audio, or video) to your research wiki/blog/site, they can be asked to tag or mark a caption to it. Van House



Figure 7.2 Tag cloud (from

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Ethno-Goggles: Cyb

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Fieldnotes are "tagge based pen, but happens ethnographer uses a spe and to label the entries w this data collection syste tem such as Ethno-Gogg qualitative data and easil (despite a cornucopia o



Figure 7.2 Tag cloud (from author's research).

and configuring WordPress

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and Ames (2007), for example, collected over 400 photographic images from respondents who were provided with custom-designed auto-uploading camera phones. Thirty-nine percent of the images were descriptively captioned and, as such, could be analyzed individually and collectively with this in mind. Furthermore, if employing a methodology such as theirs, the ethnographic researcher could then analyze the data by keyword/caption. Searching for a particular campus social group, in the case of Van House's and Ames' research, an ethnographer could see the images that respondents associated with the group.

Ethno-Goggles: Cyborg Ethnographer?

Tennent, Crabtree, and Greenhalgh (2008) developed a multimodal qualitative field data collection system, which they call "Ethno-Goggles." Using unobtrusive glasses with an embedded camera, microphones disguised as in-ear "bud" style headphones, a digital pen, and a laptop computer with digital replay system (DRS) software hidden in a backpack, Ethno-Goggles is currently in development stages (Tennent et al., 2008, p. 8).

Fieldnotes are "tagged" using a digital pen, a device that looks just like a regular ink-based pen, but happens to be digitizing and storing all keystrokes written with it. The ethnographer uses a special piece of "paper" with microdots to handwrite fieldnote entries and to label the entries with keyword tags. An iPhone or PDA serves as a remote control to this data collection system. The strength of a heterogeneous qualitative data collection system such as Ethno-Goggles is that a researcher can simultaneously capture a mountain of qualitative data and easily tag it in real time. Furthermore, because this system is disguised (despite a cornucopia of technology), it is especially suitable for covert ethnography. Its

uses in overt ethnography are well-suited to gathering vox-populi interview data "on the street" or in other urban ethnographic fieldsites. Similarly, this type of system is useful for ethnographies that rely on video from the eye of an observer rather than from that of a video camera. By this I mean that interactions with respondents (even when they are aware you are recording them) are more likely to be less staged than interactions recorded on handheld video cameras. Because the embedded video camera is invisible, respondents are less likely to play up to the camera (again, even if they are aware of the camera, they soon forget it as it is out of sight).

With this array of technology, the ethnographer becomes a sort of Haraway-esque cyborg ethnographer, collecting data as he or she walks around, observes, and interacts with respondents and fieldsites. As discussed, there are strengths to this, but the status as cyborg ethnographer is also its weakness. The researcher, being connected to a whole host of wires/devices, is restricted in movement and actions and, as such, is less likely to be comfortable and "natural" in interactions with respondents. There is no doubt that this affects the data gathered and presents a barrier to building rapport with respondents. Furthermore, the researcher has to monitor the many devices to make sure they have not malfunctioned or run out of batteries. Tennent et al. (2008, p. 8), themselves, note that the battery life of the system is a mere 2 hr and if the researcher fails to shut it down before batteries run out on the laptop, data corruption can occur.

Clearly, there are large ethical questions in some uses of this technology. Indeed, philosophically, covert implementations of Ethno-Goggles or similar technologies mirror debates surrounding covert ethnography in general. For example, recording audio covertly has always been a research method with complex ethical implications, especially among vulnerable groups. These are issues that individual IRBs would need to consider carefully and researchers should make clear what exactly is being captured by the technology and why a method like this was chosen over other data-gathering methods. If this type of technology is being implemented in covert research, there is a reasonable likelihood that an IRB would not approve it. In any event, I see the best use of this technology for overt research. Indeed, the developers of Ethno-Goggles see the technology as useful to ethnographers because they can focus on their respondents, rather than focusing on their cameras and keeping respondents in the viewfinder.¹⁶ In overt implementations of video capture technology, researchers should make clear to respondents that the camera is out of sight and that they are most likely to forget that they are being filmed. This should be explicitly highlighted in informed consent agreements as an expected part of the research process and respondents should be made aware that they should refuse participation if they are not comfortable.

Digital Pens

Digital pens,¹⁶ such as the one implemented in Tennent et al.'s work (2008) mentioned above, are a good first port of call when evaluating digital ethnographic methods. They serve as a "gateway" method, combining traditional paper fieldnotes with digital technologies. Becvar, for example, uses digital pens and blogs about her digital pen-based research.¹⁷ Becvar and Hollan (1) observe that despite "recent digital alternatives for recording field data [...], many investigators still prefer the flexibility and portability of paper-based media." They rightly highlight that a pen and a paper notebook is a "natural

medium for recording data, ubiquitous, and cheap, instantly" and have "infinite capacity for contemporaneous notes." Becvar and Hollan note their solution to moving from paper to digital for fieldnotes, coding, and archiving: the Anoto digital pen,¹⁸ which captures what you have written and uploads it wirelessly to your computer. This is a standard on many laptops and one's computer forms a central hub for notes, respondents, clients, etc. (p. 2) note, segments of fieldnotes, enabling easy searching and highlighting, enabling easy archiving of fieldnotes by keywords and video and audio.

Brown et al. (2004, p. 10) note that when text is displayed side-by-side with notes, notes can be directly compared. Schmandt (2001) also terms this "The Audio Notebooks" and notes that this is an action that retraces the path of the researcher. There is also an advantage to qualitative fieldwork. For an ethnographer still has a paper backup if the digital copy is lost, the digital copy is lost, the digital copy is lost.

Yeh et al.'s ButterflyN pens highlights the potential to combine GPS, written fieldnotes, and a reasonable cost barrier to entry, relegating it to grant-funded research. It is open-source software and its code is available on its website.¹⁹ Furthermore, its creators may perhaps release version 2.0.

CMS Groupware

Brown, Lundin, Rost, Lynn, and I taught graduate students to use CMS groupware. The student groups were charged with maintaining a repair center and a repair center maintained online as wiki technology is Wikipedia.

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medium for recording data in the field" (Becvar & Hollan, 2005, p. 1) as it is easily portable, ubiquitous, and cheap. Yeh et al. (2006, p. 571) also add that paper notebooks "turn on instantly" and have "infinite battery life." Furthermore, it is a medium that is highly conducive for contemporaneous fieldnotes and brainstorming in the field. That being said, as Becvar and Hollan note, it is challenging to archive and digitally code paper notebooks. Their solution to moving from pen and paper to laptops and iPhones is to use digital pens for fieldnotes, coding, and even data analysis. In their ethnographic research, they deploy the Anoto digital pen,¹⁸ which works like a standard ballpoint pen, but simultaneously captures what you have written into a digital file (with time and date stamps) that can be uploaded wirelessly to your computer through Bluetooth,¹⁹ a communication technology standard on many laptops and mobile phones. The collection of these digital fieldnotes on one's computer forms a digital field notebook, which can be shared with other researchers, respondents, clients, or the general public. Furthermore, as Becvar and Hollan (2005, p. 2) note, segments of handwritten data can be easily tagged/categorized by circling or highlighting, enabling ethnographers to organize these digitally encoded and written fieldnotes by keywords and analyze them alongside other coded digital data types such as video and audio.

Brown et al. (2004, p. 8) use Anoto digital pens to capture fieldnotes and the handwritten text is displayed side by side with the researchers' wiki page so that the handwritten notes can be directly consulted during the "typing up" of fieldnotes. Stifelman, Arons, & Schmandt (2001) also transparently integrate audio into a paper notebook (what they term "The Audio Notebook") by enabling researchers to tap on sections of the written page, an action that retrieves audio data recorded when those fieldnotes were taken.²⁰ There is also an advantage in terms of data backup to using digital pens like Anoto in qualitative fieldwork. For example, if the digitization mechanism of pen failed in the field, an ethnographer still has ink without switching pens. Similarly, if a digital file gets corrupted, a paper backup is there for the researcher to scan/photocopy/consult. If a paper copy is lost, the digital copy is there.

Yeh et al.'s ButterflyNet (2006), which is a system designed for field biologists, integrates Anoto digital pens. Though ButterflyNet was not designed for social scientists, it highlights the potential to integrate digital pens into complex field applications that combine GPS, written fieldnotes, and contemporaneous audio and video. However, there is a reasonable cost barrier to designing and implementing this type of system, most likely relegating it to grant-funded and commercial applications. That being said, ButterflyNet is open-source software that can be downloaded from the Stanford University HCI Web site.²¹ Furthermore, its creators are exploring its potential use among social scientists (and may perhaps release versions that facilitate adoption in the social sciences).

CMS Groupware

Brown, Lundin, Rost, Lymer, & Holmquist (2007, p. 416) discuss one way in which they taught graduate students digitally mediated group-based ethnographic methods. Their student groups were charged with conducting ethnographies of, for example, a local science center and a repair workshop for trucks, planes, and buses. Their fieldnotes were maintained online as wikis, multiuser editable Web pages (the most well-known use of wiki technology is Wikipedia). Using the open-source software TikiWiki,²² students created

fieldnote entries that were easily shared and modified by the members of the group. One example entry, titled "Blue Chip," that Brown et al. (2007, p. 416) include, notes a meeting with a respondent in the aviation industry and includes a wiki entry describing an ethnographic interview with the respondent and an embedded digital photograph of an airplane (from the field site). As Brown et al. (2007, p. 416) note, TikiWiki enabled their field groups to create forums, blogs, and workflow integration. Furthermore, the software has multilevel privacy features that enable groups to make notes confidential, publicly editable, or shared/edited with clients and academic advisors.

TikiWiki is a groupware/CMS (Content Management System) software package, which combines a Web front-end with a powerful database-driven backend. In lay terms, TikiWiki provides a one-stop solution for digital ethnographers who wish to maintain online fieldnotes, image databases, map data, and other field-generated data. TikiWiki can also seamlessly distribute ongoing ethnographic data (e.g., new fieldnotes or photographs) so that interested individuals and groups are fully up to date. Researchers and respondents interacting with TikiWiki only require basic computer skills. Those who have implemented TikiWiki in ethnographic research emphasize that end users do not need to be familiar with programming languages or HTML (e.g., Callén et al., 2007, p. 17).

Implementing TikiWiki from the ground up for the purposes of digital ethnographic work requires moderate to advanced computer skills. Those already comfortable with installing Web server software, can download it directly from <http://www.tikiwiki.org>. David Lankes, a TikiWiki expert, made a short video²³ detailing how to configure TikiWiki for those proceeding with self installation. For those without the requisite technical skill set, private companies have set up preconfigured and easy to use TikiWiki services. For example, SiteGround²⁴ provides fully comprehensive TikiWiki hosting services with unlimited technical support for \$5.95/month, eliminating the need for TikiWiki servers at an academic institution or business. Once TikiWiki has been installed and configured, you can customize it quite easily to accommodate your individual project's needs. For example, Callén et al. (2007) used TikiWiki to create a Web site for their ethnography of the politics of Riereta.net, a "technoactivist" virtual community. In their TikiWiki space, they presented their research objectives, methodologies, etc. Additionally, these pages invited respondents to provide suggestions on the research project, reconstruct the history of the Riereta community, complete questionnaires, and even read the provisional text of each chapter of their book as it was being written (Callén et al., 2007).

Collaborative fieldnote entries and data sharing are one aspect of CMS groupware. This genre of software applications also offers other highly useful applications such as collaborative video analysis. One specific application of interest is Fraser, Biegel, Best, Hindmarsh, & Heath (2005), in which the researchers discuss how qualitative video data can be synchronously analyzed and coded by multiple geographically distant researchers. Their custom-designed software application is built upon their argument that general CAQDAS software systems view video and collaborative features as "add-ons" rather than as integral components. They view this as a serious shortcoming of existing CAQDAS software. In their EQUIP DATASPACE application, video is played in multiple locations and researchers use a text box to write up analysis and can conduct "freeform annotation" by "writing on" the video display box using a type of digital stylus. Though technologically sophisticated and extremely powerful for visual ethnographers, an implementation like theirs is expensive (with multiple data stores and custom-configured software and equipment), time-consuming, and requires specialized knowledge/training.²⁵ That being said, the idea

of collaborating on video use free Web sites and on Facebook (and it can chat session (also using CAQDAS such as ATL). Granted, this does not a easy to set up and uses tive visual ethnographic

Can Digital Ethnography The Case for Multiple

Some researchers, such face-to-face ethnographic case studies mentioned 2003) use multiple methodological" ethnography. Even fully employed multiple accounts of cyber communities (2008) conducted a virtual based Web site "2-channel public forums. In this space have helped contextualize tionally "flaming," that is say that the posts are not for a more rigorous qualitative

A good example of a nal's work (2006, 2005) raphy of the first and m ethnography in Eritrea (she contextualized posts and the Web site's forum methods is Kendall's ethnography described earlier off-line ethnographic ot be significant in her interviews managed to succeed interpretation. This is h the BlueSky MUD as a world and its inhabitant BlueSky users did she attend views. For her, the success of her respondents, as well her intense online ethnographic theorization of gender

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²⁵ That being said, the idea

of collaborating on video data analysis need not be expensive or a burden. Rather, one can use free Web sites and software to do this. For example, you could start a research group on Facebook (and it can be private if needed) and upload a video and engage in an online chat session (also using Facebook's chat feature) and, during this process, code video into CAQDAS such as ATLAS.ti or HyperRESEARCH using video time stamps and "tag" data. Granted, this does not allow you a seamless coding experience like Fraser's EQUIP, but it is easy to set up and uses existing technical skill sets. This type of solution allows collaborative visual ethnographers to hit the ground running.

Can Digital Ethnography Be Combined With Face-to-Face Ethnography?: The Case for Multiple Ethnographic Methods

Some researchers, such as Murthy (2008), say yes and argue that combining digital and face-to-face ethnography can increase data validity through triangulation. Many of the case studies mentioned above (such as Martínez Alemán & Wartman, 2009; Kanayama, 2003) use multiple methods that employ some combination of cyber, digital, and "traditional" ethnography. Even some studies of virtual worlds (e.g., Carter, 2005) have successfully employed multiple methods. And not using multiple methods can lead to narrow accounts of cyber communities and Web-based social spaces. For example, McLelland (2008) conducted a virtual ethnography of race and racism on the Japanese discussion-based Web site "2-channeru" in which he observed and analyzed postings on the site's public forums. In this specific case, conducting face-to-face or telephone interviews would have helped contextualize the discourses in that some of the posters may have been intentionally "flaming," that is, posting hate messages to get attention²⁶ (though this is not to say that the posts are not racist). Like off-line ethnographic work, triangulated data makes for a more rigorous qualitative account.

A good example of ethnography that successfully employs multiple methods is Bernal's work (2006, 2005) on Eritrean diasporic identity that combines her digital ethnography of the first and most prominent diasporic Eritrean Web site, Dehai,²⁷ with physical ethnography in Eritrea (and with diasporic Eritreans around the world). In Bernal's case, she contextualized postings on the site through ethnographic interviews with members and the Web site's founders. Another example of an effective use of online and off-line methods is Kendall's ethnography (2002) of a MUD (a type of multiuser gaming community described earlier) over 3 years, which included online participant observation and off-line ethnographic observation and interviews. She found her off-line interactions to be significant in her interpretation of her online ethnographic data.²⁸ These ethnographers managed to successfully integrate online and off-line data in their analyses and interpretation. This is hardly a seamless process. In Kendall's case, she spent a year on the BlueSky MUD as an active user, becoming familiar with the spaces of this virtual world and its inhabitants. Only after she developed a strong rapport with a collection of BlueSky users did she attend informal off-line gatherings and conduct face-to-face interviews. For her, the success of her off-line interviews both in terms of an understanding of her respondents, as well as the meanings of their "lives" in BlueSky was contingent on her intense online ethnographic work. Furthermore, Kendall was able to further develop her theorization of gender construction within MUDs based on her online ethnographic

work when she met with respondents off-line. For example, one of her respondents constructed a male character named "Phillipe." When Kendall met Phillippe face-to-face, she discovered that the person behind the character was a woman named Toni. At the time of Kendall's interview with Toni, very few BlueSky users knew of this. In her face-to-face interview with Toni, Kendall (2002, p. 104) discovered that her respondent chose a male character because she "wasn't really sure of the environment" and "liked the notion of not being [herself]."

A particularly unique case is that of Johannes Fabian (2008), a veteran field anthropologist who transcribed and digitized an interview with a healer in Katunga, Zaire over 30 years ago and recently posted it on the Internet. Obviously, the "text" came from traditional face-to-face ethnography, but its transformation into Internet-mediated "text" allows anyone with Internet access to "read" and critique the recorded ethnographic interview. In this sense, the original physical ethnography has taken on a digital ethnographic component. If nothing else, the Internet—an often textually driven space—promotes perhaps a phonocentric reading of Fabian's interview than a logocentric one.

What Are the Costs/Benefits?

But the bulk of information technology is complex and expensive. It requires massive capital investment in large teams of researchers. Only the most powerful interests in society—governments and large private corporations—have the resources to promote it. Kumar (1995, p. 34)

Since Kumar wrote this almost 15 years ago, much has changed in terms of the accessibility of technology. For example, custom-designed software applications and more feature-rich hardware are expensive and continue to stay well out of the reach of some ethnographers. Costs vary and the impacts of these costs differentially affect institutions, graduate students, and independent researchers. Though the digital divide remains very much alive, albeit in new forms, as Selwyn (2004) argues, a "base" toolkit is within reach of most researchers—basic laptop, consumer grade high resolution digital camera, broadband Internet access, and freely downloadable/accessible software. Extras like an Eye-Fi geotagging memory card (mentioned previously) are relatively inexpensive (\$100). Furthermore, conducting straightforward qualitative surveys online start free at Web sites (e.g., surveymonkey.com, zoomerang.com, and surveygizmo.com) and tutorials on how to implement these surveys can be found in methods books (e.g., Thomas, 2004) or are freely available online.²⁹ That being said, custom-made qualitative data-gathering widgets for Facebook or iPhone applications can cost thousands, reaffirming the stratifications within ethnographic research online.

Nonetheless, the benefits of digital ethnography are compelling. As mentioned previously, these benefits include, but are not limited to, global datasets/respondents, the speed of data collection, high portability of data (and ease of sharing with coresearchers in digital collaborative ethnographic projects), and the ease by which visual ethnographers can collect video and photographic data. Furthermore, digital ethnography presents new modalities for involving respondents, as well as disseminating research with respondents in the wider public. Therefore, in proposals to implement digital ethnographic methods,

the costs of these technologies must be weighed against the benefits.

What Are the Ethical Implications?

The ethical implications of digital ethnography are numerous. One difficulty is the scope of ethics guidelines. The International Association of Internet Research (IAIR) has developed guidelines for Internet Research forums well, but predated the widespread use of social media. It said, key sections of guidelines for conducting online research that are even a decade old, such as issues of privacy and anonymity.

The increasing shift to online research requires researchers need to be diligent. For example, Moreno, Foster, and Light (2008) discuss the ethical implications of research via Facebook as a case study. One issue is that if one obtains data from a user without their explicit consent, it is not always possible to remove the data. Anonymity and the removal of identifying information make it very easy to reuse data, which is to not only anonymize but also to "make them difficult to find." In a research of the virtual world, he asked him to remove a response and he would make his response anonymous. p. 26) observes, researchers should recognize that "the detailed informed consent and responses on separate forms, in proposals to Institutional Review Boards, are not explicitly clear on possible consequences on the part of review boards."

A key purpose of IRB is to protect privacy, potential harm to the research. Digital ethnography, these, as Rutter and Smith (2004) mediated spaces as "uncollegially mediated fields" informed consent and a shifting virtual environment. Smith's work on RumCo online and off-line through

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What Are the Ethical Implications of These New Technologies?

The ethical implications raised by the above-mentioned studies and methods vary enormously. One difficulty is that newer technological innovations are quickly exceeding the scope of ethics guidelines, which take time to develop. Such is the case with the Association of Internet Researchers' (AoIR) ethical guidelines of 2002,³⁰ which covers listserv/Web forums well, but predates social networking and other Web 2.0 applications. That being said, key sections of guidelines such as AoIR continued to be highly relevant. For example, when conducting online research with particularly vulnerable respondents, guidelines that are even a decade old (e.g., Schrum, 1995; Sharf, 1999) continue to be insightful as core issues of privacy and "lurking," for example, remain in Web 2.0 applications.

The increasing shift of people's lives into the public domain also means that ethnographers need to be diligent in their treatment of continually emerging ethics issues. For example, Moreno, Fost, and Christakis (2008) discuss the ethics of using social networking Web sites. Light, McGrath, and Griffiths (2008) call for an ethics policy in conducting research via Facebook and other social networking sites (SNS). Another critical ethical issue is that if one obtains informed consent to quote from a Web forum, Facebook group, etc., it is not always possible to provide complete and total anonymity through pseudonyms and the removal of identifying information. "Googling" identifying data can often make it very easy to reveal sources. One solution to this, which Boellstorff (2008, p. 83) uses, is to not only anonymize screen names, but to also paraphrase quotations in order to "make them difficult to identify using a search engine." Williams (2005, p. 412), in his research of the virtual world "Cyberworlds," received a request from one respondent who asked him to remove any reference to his distinctive emoticon as any publishing of it would make his responses instantly known by residents of Cyberworlds. As Joinson (2005, p. 26) observes, researchers using digital and cyber-ethnographic methods, in many cases, should recognize that "true anonymity is not strictly possible." Joinson advises on using detailed informed consent forms and, when necessary, storing identifying information and responses on separate computers (which are presumably not networked). Furthermore, in proposals to Institutional Review Boards (IRB), academic researchers should be explicitly clear on possible ethical issues so that the shortcomings in technical knowledge on the part of review boards do not lead to ethical oversights.

A key purpose of IRB review of research proposals is to protect participants in terms of privacy, potential harm, and keeping them informed on the scope and implications of the research. Digital ethnographic methods do have unique ethical implications. Some of these, as Rutter and Smith (2005, p. 85) argue, are due to the nature of online and digitally mediated spaces as "unconventional" research settings. By this they mean that technologically mediated fieldsites are not the norm for ethnographers. For them, negotiating informed consent and announcing/maintaining their research identities in continually shifting virtual environments was never a straightforward task. However, in Rutter and Smith's work on RumCom.local, they were able to gain the trust of their respondents online and off-line through the type of honest self-presentation that ethnographers use

in face-to-face ethnography. I would urge researchers to carefully think through the ethical implications of the technologies mentioned in this chapter. For example, maintaining publicly accessible fieldnotes and allowing your respondents access to comment not only requires detailed informed consent agreements, but also high levels of attention to confidentiality and the privacy of participants in your research. Some of the devices mentioned in this chapter may not pass the approval of an IRB. As mentioned previously, covert uses of ubiquitous capturing technologies such as Ethno-Goggles would most likely raise eyebrows in IRB panels. That being said, every case is different and the responsibility of covert researchers using cutting-edge digital technologies to disclose fully ethical implications to IRBs is even greater. As Stern (2004, p. 284) sagely advises, "researchers [should...] remember that behind every online communication is a real, living, breathing person."

These ethical implications are not a negative aspect of digital ethnography. Rather, the method offers ethnographers an opportunity to reflexively evaluate the impacts of their work and to respectfully and responsibly inform potential and actual respondents of what the research will involve. Ultimately, digital ethnographic methods have an immense potential to enliven and enrich the qualitative ethnographic experience and ethical considerations should be carefully attended to but should be viewed as safeguards rather than as stumbling blocks to high-quality social research.

Do Digital Ethnographic Technologies Require a Different Set of Skills?

Digital ethnographic technologies do require a set of technology-based skills. However, basic PC skills and skills gained from using existing ethnographic software are transferable. For example, consider the case of hosting an ethnographic focus group on Facebook. The process of joining Facebook and using an online "wizard" to set up a focus group does not require much more of a skill set than using "normal" Web-based applications. Similarly, the skills gained in using CAQDAS (e.g., ATLAS.ti, NUD*IST, NVivo, and HyperRESEARCH) are transferable to digital ethnographic tools. For example, many digital ethnographic methods involve "tagging." ATLAS.ti and HyperRESEARCH, for example, both foster data "tagging" skills in their users (Brown et al., 2007). Their analytic structure is organized along data categories and sub-tags. For example, when you want to deposit text, images, or other ethnographic data in CAQDAS, you classify it in a very similar process to tagging. As Friedman (2005) highlights, anthropologists and professional archivists have been "tagging" off-line through conventional systems of classification and categorization. Tagging online employs the same organizational and analytic structures—just deployed through the medium of computer-mediated communication. The difference is that this tagging, when put online, becomes a networked taxonomy. This is termed a "folksonomy," a collaborative system of subject-indexing in which users—rather than professional archivists or researchers—classify information collectively through "tags."

Because these methods of categorization are different to conventional off-line research methods, there currently exists a gap in training between what is being taught in social research courses and what skills are needed to tag online. Therefore, until the teaching of ethnography in undergraduate and graduate curriculums encompasses online "tagging," a barrier to maintaining a networked research folksonomy will persist. That being said, social research handbooks and manuals across a broad array of social science disciplines

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ally think through the ethics. For example, maintaining access to comment not only levels of attention to confine of the devices mentioned previously, covert uses would most likely raise eye-l the responsibility of covert e fully ethical implications s, "researchers [should...] living, breathing person." digital ethnography. Rather, ely evaluate the impacts of d and actual respondents of : methods have an immense experience and ethical con-ed as safeguards rather than

ifferent Set of Skills?

logy-based skills. However, aphic software are transfer- phic focus group on Face- "wizard" to set up a focus "normal" Web-based appli- TLAS.ti, NUD*IST, NVivo, ic tools. For example, many ind HyperRESEARCH, for i et al., 2007). Their analytic example, when you want to you classify it in a very simi- opologists and professional systems of classification and al and analytic structures— ommunication. The differ- d taxonomy. This is termed a which users—rather than llectively through "tags." nventional off-line research at is being taught in social refore, until the teaching of compasses online "tagging," ill persist. That being said, of social science disciplines

discuss tagging and provide modes of training (e.g., Thomas, 2009; Salmons & Wilson, 2009; Fielding, Lee, & Blank, 2008; Jank & Shmueli, 2008). As these pedagogical texts become integrated in method courses, the training gap should disappear.

Conclusion

This chapter has not advocated the death of paper-based ethnographic methods. As Sellen and Harper (2002) highlight that there are major "myths" surrounding paperless professional work. Fieldwork is no exception. Yeh et al. (2006) argue that digital technologies should complement paper (and I would argue non-digital ethnographic methods in general). In this vein, I have introduced various digital ethnographic methods and technologies such as digital pens, wikis, blogs, and embedded "cyborg" technologies. Creating an antagonism between digital and non-digital ethnographic methods is not only counter-productive to the future of ethnography, but overlooks the fact that both modalities of qualitative data collection have inherent strengths and weaknesses. Furthermore, digital ethnographic methods are not necessarily replacements to traditional physical ethnographic methods. Digital pens, for example, are an accessible and relatively nonintrusive gateway into digital ethnography. (Though, they too can be a distraction if batteries fail and a field researcher becomes preoccupied.)

However, we should not fall victim to the zeitgeist of new technologies. We should remember that new media spaces, like their off-line counterparts, can be "colonizing, racializing, gendering, sexing, classifying, stratifying, fetishizing, deceiving, authenticating, mesmerizing, transgressing, clarifying, stunning, muting, distracting, subjecting, cherishing, preserving, cluttering, and so on" (Clarke, 2005, p. 218 cited in Bell, forthcoming). It is our job as ethnographers to critically evaluate digital and virtual ethnographic methods. This chapter has mapped out some cutting-edge technologies, how they can be implemented, and their ethical implications. However, technologies are always evolving and their reception by respondents does as well. Therefore, a careful consideration of one's field site(s), respondents, and ethical questions, among other things, is critical to technology choices in one's research design.

Another purpose of this chapter has been to keep the literature on digital ethnographic methods up to date. However, the terrain of digitally mediated research is always changing and new technological developments for use in ethnographic research will continue to emerge. In the future, I envision social researchers regularly using custom-built applications in social networking sites (e.g., Facebook) to collect highly sophisticated sets of qualitative data; conducting interviews and observation in complex virtual worlds; and working in virtual research teams in which ethnographers are located in multiple physical locations, observing and interviewing respondents locally, while contributing to a large-scale comparative ethnography.

Additionally, as new media technologies become more and more pervasive in the everyday lives of our respondents, ethnographers will be presented with new ways in which to apply emergent digital ethnographic methods for social inquiry. I am particularly convinced that advances in ubiquitous computing (ubiquomp), everyday computational objects such as cell phones, will present radical increases in the scope and reach of digital ethnographic methods. Ubiquomp devices will continue to not only increase in

their raw processing power, but also in their convergence of technologies (imaging, video conferencing, GPS, and even motion sensing). Furthermore, if ubicomp becomes more ubiquitous across class, gender, racial, and international lines, digital ethnographers will have unparalleled abilities to collect a whole array of rich qualitative data that is contemporaneous, socially diverse, and wide-ranging.

Notes

1. As of July 2010. See <http://secondlife.com/statistics/economy-data.php> for the most recent statistics.
2. For example, see Hine (2000: 73) for the actual text she used.
3. A Nokia N810 Internet tablet was evaluated as well. For a demonstration video of a Nokia 810, see <http://www.youtube.com/watch?v=wDeIgd-pB8o>
4. The iTouch does not include a built-in microphone like the iPhone. Therefore, if you wish to deploy this configuration, you will need to purchase a 2G iTouch with Apple's optional premium microphones/headphones.
5. Though Wi-Fi is not needed if an iPhone is deployed.
6. That being said, the quality of pictures taken with an iPhone is usually much lower in comparison to good quality point-and-shoot digital cameras.
7. <http://www.eyefi.com/>
8. <http://www.flickr.com>
9. <http://www.blogger.com>
10. <http://www.vox.com>
11. <http://www.livejournal.com>
12. See the literature on tagging (Ardet & M., 2004; Friedman, 2005; Mason & Thomas, 2007; Riddle, 2005; Speller, 2007) for more information.
13. <http://www.WordPress.com>
14. http://codex.wordpress.org/Installing_WordPress and a video tutorial can be found at http://www.dailymotion.com/video/x3lpe4_install-wordpress-tutorial_school
15. http://redress.lancs.ac.uk/resources/launch.php?creator=Tennent_Paul&title=Ethno_Goggles
16. <http://www.youtube.com/watch?v=ekjw1ewyAUU>
17. <http://amayabecvar.blogspot.com/>
18. See <http://www.anoto.com>
19. For an overview of Bluetooth, see Ferro and Potorti (2005).
20. Livescribe, another manufacturer of digital pens, has a blog section on ethnographic uses of their digital pens. See <http://www.livescribe.com/blog/tag/ethnography/>
21. <http://hci.stanford.edu/bio>
22. <http://tikiwiki.org>
23. <http://tikiwiki.org/tiki-index.php?page=TikiMovies>
24. <http://www.siteground.com/tikiwiki-hosting.htm>
25. See a PowerPoint presentation of their set up at http://www.ncss.ac.uk/events/conference/2005/papers/presentations/ncss2005_fraser.pdf for pictures and diagrams of how EQUIP dataspace works.
26. See Donath (1999) for more on flame posting.
27. <http://www.dehai.org>
28. Some other examples include Aoyama (2007), who conducted a "cyber ethnography" of the "nikkei," the Japanese diasporic population in Peru using the social networking website hi5 and physical ethnography in Lima. Davis (2008) conducted an ethnography of Myspace in which she observed 97 of her "Friends" rather than physically unknown respondents.

29. See <http://www.acsu.l>
and <http://support.uiwtx.edu>
Monkeyfull.ppt

30. http://aoir.org/?page_

References

- Aoyama, S. (2007). Nikkei-n Peruvians of Peru. MA thesis, University of Texas at Austin.
- Becvar, L. A., & Hollan, J. D. (2000). digital pen technology for interaction. In S. Bell, S. (Forthcoming). Digit DeVries, R., & Dingwall, Bernal, V. (2006). Diaspora, Global Networks, 6(2), 14.
- Bernal, V. (2005). Eritrea on Ethnologist, 32(4), 660-7.
- Boellstorff, T. (2008). Coming Princeton, NJ: Princeton University Press.
- Brown, B., Lundin, J., & Rost, M. (2008). learning experience. ACI Teaching ethnography at Bryman, A. (2008). Social as Callén, B., Balasch, M., Guan Net: Epistemic and polit Sozialforschung/Forum: (Carter, D. (2005). Living in v cyberspace, Information, Chapman, C. N., & Lahav, M. In CHI '08 extended abstracts.
- Clifford, J. (1986). On ethnography. Research (Santa Fe N.M., A School of American Research Press.
- Coffey, A., Renold, E., Dicks, B. (2008). educational settings. Eth Davies, C. A. (2008). Reflexivity London: Routledge.
- Davis, J. L. (2008). Presentations Myspace. MS dissertation.
- Denzin, N. (2004). Prologue: Chen, S.-L., & Jon Hall, C. New York, Oxford: Peter Dicks, B., & Mason, B. (1999). & Roberts, J. (Eds.), Expl Newcastle, UK: University of Dicks, B. (2005). Qualitative technologies for social research.

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icess.ac.uk/events/ ures and diagrams of how

d a "cyber ethnography" of the networking website hi5 and phy of Myspace in which she dents.

29. See <http://www.acsu.buffalo.edu/burgosm/Impatica/Survey-Monkey-Tutorial.html> and <http://support.uiwtx.edu/MediaTraining/PDF&Powerpoints/SurveyMonkey/Survey%20Monkeyfull.ppt>

30. http://aoir.org/?page_id=54

References

- Aoyama, S. (2007). *Nikkei-ness, a cyber-ethnographic exploration of identity among the Japanese Peruvians of Peru*. MA dissertation. Mount Holyoke College.
- Becvar, L. A., & Hollan, J. D. (2005). Envisioning a paper augmented digital notebook: Exploiting digital pen technology for fieldwork. Distributed Cognition and Human-Computer Interaction Laboratory, Department of Cognitive Science. La Jolla, CA: UCSD.
- Bell, S. (Forthcoming). Digital methods for collecting and analysing data. In Bourgeault, I. L., DeVries, R., & Dingwall, R. (Eds.), *Sage handbook on qualitative health research*. London: Sage.
- Bernal, V. (2006). Diaspora, cyberspace and political imagination: The Eritrean Diaspora online. *Global Networks*, 6(2), 161-79.
- Bernal, V. (2005). Eritrea on-line: Diaspora, cyberspace, and the public sphere. *American Ethnologist*, 32(4), 660-75.
- Boellstorff, T. (2008). *Coming of age in second life: An anthropologist explores the virtually human*. Princeton, NJ: Princeton University Press.
- Brown, B., Lundin, J., & Rost, M. (2004). Wikis in the field: Collaborative ethnography as a learning experience. *ACM*.
- Brown, B., Lundin, J., Rost, M., Lymer, G., & Holmquist, L. (2007). Seeing ethnographically: Teaching ethnography as part of CSCW. *Ecsnw*, 2007, 411-30.
- Bryman, A. (2008). *Social research methods*. (3rd ed.). Oxford: Oxford University Press.
- Callén, B., Balasch, M., Guarderas, P., Gutierrez, P., León, A., Montenegro, et al. (2007). Riereta. Net: Epistemic and political notes from a techno-activist ethnography. *Forum Qualitative Sozialforschung/Forum: Qualitative Social Research*, 8(3).
- Carter, D. (2005). Living in virtual communities: An ethnography of human relationships in cyberspace. *Information, Communication and Society*, 8(2), 148-67.
- Chapman, C. N., & Lahav, M. (2008). International ethnographic observation of social networking sites. In *CHI '08 extended abstracts on human factors in computing systems*. Florence, Italy: ACM.
- Clifford, J. (1986). On ethnographic allegory. In Clifford, J., Marcus, G. E., & School of American Research (Santa Fe N.M.) (Eds.), *Writing culture: The poetics and politics of ethnography*. A School of American Research Advanced Seminar (pp. 98-121). Berkeley: University of California Press.
- Coffey, A., Renold, E., Dicks, B., Soyinka, B., & Mason, B. (2006). Hypermedia ethnography in educational settings. *Ethnography and Education*, 1(1), 15-30.
- Davies, C. A. (2008). *Reflexive ethnography: A guide to researching selves and others*. (2nd ed.). London: Routledge.
- Davis, J. L. (2008). Presentation of self and the personal interactive homepage: An ethnography of Myspace. MS dissertation. Texas A&M.
- Denzin, N. (2004). Prologue: Online environments and interpretive social research. In Johns, M. D., Chen, S.-L., & Jon Hall, G. (Eds.), *Online social research: Methods, issues, & ethics* (pp. 1-12). New York, Oxford: Peter Lang.
- Dicks, B., & Mason, B. (1999). Cyber ethnography and the digital researcher. In Armitage, J., & Roberts, J. (Eds.), *Exploring cybersociety: Social, political, economic and cultural issues*. Newcastle, UK: University of Northumbria Press.
- Dicks, B. (2005). *Qualitative research and hypermedia: Ethnography for the digital age, new technologies for social research*. London: Sage.

- Dicks, B., Soyinka, B., & Coffey, A. (2006). Multimodal ethnography. *Qualitative Research*, 6(1), 77-96.
- Dohan, D., & Sánchez-Jankowski, M. (1998). Using computers to analyze ethnographic field data: Theoretical and practical considerations. *Annual Review of Sociology*, 24(1), 477-98.
- Dominguez, D., Beaulieu, A., Estalella, A., Gómez, E., Schnettler, B., & Read, R. (2007). Virtual ethnography. *Forum Qualitative Sozialforschung/Forum: Qualitative Social Research*, 8(3).
- Donath, J. S. (1999). Identity and deception in the virtual community. In Smith, M. A., & Kollock, P. (Eds.), *Communities in cyberspace* (pp. 29-59). London; New York: Routledge.
- Fabian, J. (2008). *Ethnography as commentary: Writing from the virtual archive*. Durham, NC; London: Duke University Press.
- Farrell, S., Lau, T., & Nusser, S. (2008). Building communities with people-tags. In *Human-Computer Interaction—Interact 2007* (pp. 357-360).
- Ferro, E., and Potorti, F. (2005). Bluetooth and Wi-Fi wireless protocols: A survey and a comparison. *IEEE Wireless Communications*, 12(1), 12-26.
- Fielding, N., Lee, R. M., & Blank, G. (2008). *The sage handbook of online research methods*. Los Angeles: Sage.
- Fraser, M., Biegel, G., Best, K., Hindmarsh, J., & Heath, C. (2005). Distributing data sessions: Supporting remote collaboration with video data. *Proc. ICeSS*.
- Friedman, P. K. (2005). Folksonomy. *Anthropology News*, 46(6), 38.
- García, A. C., Standlee, A. L., Bechko, J., & Yan, C. (2009). Ethnographic approaches to the Internet and computer-mediated communication. *Journal of Contemporary Ethnography*, 38(1), 52-84.
- Gobo, G. (2008). *Doing ethnography*. Los Angeles; London: Sage.
- Hine, C. (2000). *Virtual ethnography*. London: Sage.
- Howard, A. (1988). Hypermedia and the future of ethnography. *Cultural Anthropology*, 3(3), 304-15.
- Hughes, A. L., Palen, L., Sutton, J., Liu, S. B., & Vieweg, S. (2008, May). "Site-seeing" in disaster: An examination of on-line social convergence. Paper presented at the Proceedings of the 5th International ISCRAM Conference, Washington DC.
- Illingworth, N. (2001). The Internet matters: Exploring the use of the Internet as a research tool. *Sociological Research Online*, 6(2).
- Jank, W., & Shmueli, G. (2008). *Statistical methods in e-commerce research*. Statistics in Practice. Hoboken, NJ: Wiley.
- Joinson, A. N. (2005). Internet behaviour and the design of virtual methods. In Hine, C. (Ed.), *Virtual methods: Issues in social research on the Internet* (pp. 21-34). Oxford, New York: Berg.
- Kanayama, T. (2003). Ethnographic research on the experience of Japanese elderly people online. *New Media Society*, 5(2), 267-88.
- Kendall, L. (2002). *Hanging out in the virtual pub: Masculinities and relationships online*. Berkeley, CA; London: University of California Press.
- Kumar, K. (1995). *From post-industrial to post-modern society: New theories of the contemporary world*. Cambridge, MA: Blackwell Publishers.
- Latham, R., & Sassen, S. (2005). *Digital formations: It and new architectures in the global realm*. Princeton, NJ: Princeton University Press.
- Light, B., McGrath, K., & Griffiths, M. (2008). Facebook's ethics. In *Facebook: a network, a research tool, a world?* Liverpool John Moores University.
- Markham, A. N. (1998). *Life online: Researching real experience in virtual space*. Ethnographic Alternatives Book Series. Walnut Creek, CA; London: Altamira Press.
- Martínez Alemán, A. M., & Wartman, K. L. (2009). *Online social networking on campus: Understanding what matters in student culture* (1st ed.). New York: Routledge.
- Masten, D. L., & Plowman, T. M. P. (2003). Digital ethnography: The next wave in understanding the consumer experience. *Define Management Journal*, 14(2), 75-81.
- McLelland, M. (2008). "Race" on the Japanese Internet: Discussing Korea and Koreans on "2-Channeru." *New Media Society*, 10(6), 811-29.
- Miller, D., and Slater, D. Moreno, M. A., Post, N. *Pediatrics*, 121(1), 1: Murthy, D. (2008). Digit research. *Sociology*, 4 Rutter, J., & Smith, G. W. *Virtual methods: Issues in organizational synergy* Sanjek, R. (1990). *Field in* Schrum, L. (1995). *Fram Inquiry*, 1(3), 311-2t Sellen, A. J., & Harper, R. Selwyn, N. (2004). *Recon New Media Society*, 6 Sharf, B. F. (1999). *Beyon Internet*. In Jones, S. *the net* (pp. 243-56). Smith, K. M. C. (2004). *E virtual ethnography. Methods, issues, & eth* Stern, S. R. (2004). *Study E. A. (Ed.), Readings i PA: Information Scie Stewart, K., & Williams, A groups for social rese Stifelman, L., Arons, B., & with structured speec systems. Seattle, WA: / Teli, M., Pisanu, E., & Hak cyberethnography of Social Research*, 8(3). Tennent, P., Crabtree, A., & qualitative material. In ESRC NCeSS. Thomas, M. (2009). *Hand Information Science B Thomas, S. J. (2004). Using Thousand Oaks, CA: (Van House, N., & Ames, M. Computer/Human Int Ward, K. J. (1999). *The cyb Sociological Research C Wellman, B., & Gulia, M. (communities. In Welln communities* (pp. 331- Williams, M. (2006). "Polic community. *Policing ar Yeh, R. B., Liao, C., Klemm Butterlynet: A mobile the Association for Coi**

- Qualitative Research, 6(1), 77-96.
- to analyze ethnographic field data: *Qualitative Research*, 24(1), 477-98.
- to Read, R. (2007). Virtual ethnography. *Qualitative Social Research*, 8(3).
- to y. In Smith, M. A., & Kollock, P. (Eds.), *Virtual ethnography*. New York: Routledge.
- to al archive. Durham, NC.
- to people-tags. In *Human-Computer Interaction*.
- to ols: A survey and a comparison of online research methods. *Qualitative Research*, 5(4), 395-416.
- to istributing data sessions: *Qualitative Research*, 5(4), 395-416.
- to ethic approaches to the Internet. *Qualitative Research*, 38(1), 52-84.
- to tural Anthropology, 3(3).
- to r). "Site-seeing" in disaster: *Qualitative Research*, 5(4), 395-416.
- to at the Proceedings of the 5th International Conference on the Internet as a research tool.
- to e Internet as a research tool. *Qualitative Research*, 5(4), 395-416.
- to earch. Statistics in Practice. *Qualitative Research*, 5(4), 395-416.
- to ethods. In Hine, C. (Ed.), *Virtual ethnography* (pp. 34-54). Oxford, New York: Berg.
- to panese elderly people online. *Qualitative Research*, 5(4), 395-416.
- to relationships online. Berkeley. *Qualitative Research*, 5(4), 395-416.
- to theories of the contemporary. *Qualitative Research*, 5(4), 395-416.
- to tectures in the global realm. *Qualitative Research*, 5(4), 395-416.
- to Facebook: a network, a research tool. *Qualitative Research*, 5(4), 395-416.
- to rtual space. Ethnographic Press. *Qualitative Research*, 5(4), 395-416.
- to rking on campus: *Qualitative Research*, 5(4), 395-416.
- to rk: Routledge. *Qualitative Research*, 5(4), 395-416.
- to e next wave in understanding. *Qualitative Research*, 5(4), 395-416.
- to s-81. *Qualitative Research*, 5(4), 395-416.
- to Korea and Koreans on. *Qualitative Research*, 5(4), 395-416.
- Miller, D., and Slater, D. (2000). *The Internet: An ethnographic approach*. Oxford; New York: Berg.
- Moreno, M. A., Fost, N. C., & Christakis, D. A. (2008). Research ethics in the Myspace era. *Pediatrics*, 121(1), 157-61.
- Murthy, D. (2008). Digital ethnography: An examination of the use of new technologies for social research. *Sociology*, 42(5), 837-55.
- Rutter, J., & Smith, G. W. H. (2005). Ethnographic presence in a nebulous setting. In Hine, C. (Ed.), *Virtual methods: Issues in social research on the Internet* (pp. 81-92). Oxford; New York: Berg.
- Salmons, J., & Wilson, L. (2009). *Handbook of research on electronic collaboration and organizational synergy* (2 vols). Hershey: Information Science Reference.
- Sanjek, R. (1990). *Fieldnotes: The makings of anthropology*. Ithaca: Cornell University Press.
- Schrum, L. (1995). Framing the debate: Ethical research in the information age. *Qualitative Inquiry*, 1(3), 311-26.
- Sellen, A. J., & Harper, R. (2002). *The myth of the paperless office*. Cambridge, MA: MIT Press.
- Schwyn, N. (2004). Reconsidering political and popular understandings of the digital divide. *New Media Society*, 6(3), 341-62.
- Sharf, B. F. (1999). Beyond netiquette: The ethics of doing naturalistic discourse research on the Internet. In Jones, S. G. (Ed.), *Doing Internet research: Critical issues and methods for examining the net* (pp. 243-56). Thousand Oaks: Sage.
- Smith, K. M. C. (2004). Electronic eavesdropping: The ethical issues involved in conducting a virtual ethnography. In Johns, M. D., Chen, S.-L., & Jon Hall, G., (Eds.), *Online social research: Methods, issues, & ethics* (pp. 223-238). New York; Oxford: Peter Lang.
- Stern, S. R. (2004). Studying adolescents online: A consideration of ethical issues. In Buchanan, E. A. (Ed.), *Readings in virtual research ethics: Issues and controversies* (pp. 274-287). Hershey, PA: Information Science Pub.
- Stewart, K., & Williams, M. (2005). Researching online populations: The use of online focus groups for social research. *Qualitative Research*, 5(4), 395-416.
- Stifelman, L., Arons, B., & Schmandt, C. (2001). The audio notebook: Paper and pen interaction with structured speech. In *Proceedings of the SIGCHI conference on human factors in computing systems*. Seattle, WA: ACM.
- Teli, M., Pisanu, F., & Hakken, D. (2007). The Internet as a library-of-people: For a cyberethnography of online groups. *Forum Qualitative Sozialforschung/Forum: Qualitative Social Research*, 8(3).
- Tennent, P., Crabtree, A., & Greenhalgh, C. (2008). Ethno-goggles: Supporting field capture of qualitative material. In *4th international e-social science conference*. University of Manchester: ESRC NCeSS.
- Thomas, M. (2009). *Handbook of research on Web 2.0 and second language learning*. Hershey, PA: Information Science Reference.
- Thomas, S. J. (2004). *Using Web and paper questionnaires for data-based decision-making*. Thousand Oaks, CA: Corwin Press.
- Van House, N., & Ames, M. (2007). The social life of cameraphone images. Paper presented at the Computer/Human Interaction 2007, San Jose, CA.
- Ward, K. J. (1999). The cyber-ethnographic (re)construction of two feminist online communities. *Sociological Research Online*, 4(1).
- Wellman, B., & Gulia, M. (1999). Net surfers don't ride alone: Virtual communities as communities. In Wellman, B. (Ed.), *Networks in the global village: Life in contemporary communities* (pp. 331-366). Boulder, CO: Westview Press.
- Williams, M. (2006). "Policing and cybersociety: The maturation of regulation within an online community. *Policing and Society*, 16(4), 1-24.
- Yeh, R. B., Liao, C., Klemmer, S. R., Guimbretiere, F., Lee, B., Kakaradov, B., et al. (2006). Butterflynet: A mobile capture and access system for field biology research. Paper presented at the Association for Computing Machinery, Montréal, Québec, April 22-27.