Internet Research and the Sociology of Cyber-Social-Scientific Knowledge

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Perspectives from the sociology of scientific knowledge are deployed to explore the birth of Internet research, focusing in particular on the development of methodological approaches. For a researcher based in the sociology of scientific knowledge, being an Internet researcher has been a vivid opportunity to experience firsthand a phenomenon usually studied from the outside. The article begins by assessing some models of the process of scientific change. Characterizing Internet research as new has been a potent resource for enrolling researchers into the field and positioning research responses. The development of virtual methods for doing social research illustrates the process of methodological innovation in social science and the negotiation of methodological adequacy. Methodological discussions have been enlivened by the advent of the Internet as an object of study. Internet research has arguably been a valuable reflexive opportunity for the traditional disciplines that have fed its development.

Keywords Internet, methodology, problem area, research network, sociology of scientific knowledge

Ten years ago I would not have called myself an Internet researcher. I was a sociologist, and in particular a sociologist who focused on science and technology. The area that I specialized in was laboratory science, concentrating on the ways in which computers were being employed in scientific work. As an ethnographer I was inclined to follow my informants’ lead, taking note of the technologies that they found interesting, remarkable, or useful. It was in this way that I was led to the Internet as a research object, when the laboratory scientists I studied began increasingly to make use of e-mail, of online databases, and of discussion forums. Having always thought of the laboratory as my field site, I found it a challenge to make sense of a new way of using technology that seemed also to involve my informants moving into new spaces. Along the way, I found that I was starting to rethink some of my methodological principles and tactics. As well as writing about what my informants were doing, I also began to write about the approaches that were helping me to understand their activities. I called these approaches “virtual ethnography,” to mark them out from the old-fashioned, traditional kind of ethnography. Gradually I became aware that many other researchers, from a wide range of disciplines, were also trying to understand the social aspects of the Internet. Anxious to learn from others and to be a part of the burgeoning network, I signed up for the first Association of Internet Researchers conference, and began to think of myself as an Internet researcher.

This autobiographical story of a research trajectory is of a kind that we could all tell. Contingencies lead us to particular research foci, methods predispose us to look at problems in particular ways, and we ally ourselves to research communities and networks for reasons of mutual support and illumination and strength in numbers. The story could, no doubt, be told in more or less cynical ways. In some versions of the story I might render myself especially prescient, foreseeing the coming of a new area, and wanting to seize a piece of the action. In other versions, I am a naive follower of trends, picking up on the direction that everyone else seems to be taking to study the latest fad. No doubt elements of both versions are valid. More significantly, though, for me the autobiographical story has a poignant resonance with particular aspects of my research focus. Having spent much of my career looking at the ways in which scientific knowledge production is organized and changes over time, particularly in the face of new technologies, it has been a fascinating experience to be a part of such a change in my own research environment. In the development of the field of Internet research over recent years I have experienced firsthand phenomena that sociology of scientific knowledge has sought to understand in other fields.
In this article I aim to describe some perspectives from the sociology of scientific knowledge that resonate with the development of Internet research. I first discuss sociological understandings of the ways in which science changes over time, focusing in particular on the development of research networks in response to new problem areas. This then leads to looking at the qualities of the Internet that led researchers to view it as a productive object for study. Finally, I focus on research methods, to look at the dynamics of innovation in methodological approaches. In conclusion, I suggest that the sociology of scientific knowledge perspective offers an encouragement to celebrate the reflexive opportunities that a new problem area offers, in ways that can be fruitful both for traditional disciplines and for the new research network. The sources that I draw on are largely anecdotal and autobiographical. I deploy them here to develop an argument both about the ways that Internet research has developed and about the possible benefits of remaining undecided about its status as discipline, whether inter-, proto-, or fully fledged.

RESEARCH NETWORKS, PROBLEM AREAS, AND THE DEVELOPMENT OF INTERNET RESEARCH

In this article I cannot hope to do justice to the whole scope of current sociology of scientific knowledge. For that reason, I turn to a classic, and work through its implications at some length rather than surveying the range.1 The most well-known perspective on change in scientific knowledge production is that of Kuhn (1970). Probably the key insight to draw from Kuhn for the purposes of this article is that knowledge and the ways to produce it are validated within the community, and it is at this level that standards are maintained on appropriate problems and the ways in which to solve them. Kuhn’s notion of the paradigm captures the extent to which our ways of thinking about the world are shaped by particular clusters of approaches, methods and theories. For Kuhn, a scientific revolution involves a paradigm shift, or a move to a different way of seeing the world. These revolutions are punctuated by “normal science”: extended periods when scientists use the tools and perspectives available to them within the current paradigm for relatively small-scale puzzle-solving. The change from normal science to revolution may be occasioned by the gradual accumulation of anomalies (observations that cannot be explained within the current paradigm), building to a crisis. This opens the way for a new paradigm, which, once articulated, is seen to offer a greater potential to explain anomalies and to provide new and fruitful problems to research. The revolutionary shift to a new way of seeing the world takes many researchers with it; Only the older scientists, with careers entrenched in the previous paradigm, may get left behind.

It seems rather difficult to reconcile the birth of Internet research with this version of Kuhn’s model. The coming of the Internet as an object of study was the occasion for some new ways of thinking, but these were not necessarily incommensurable with previous approaches. Neither was Internet research preceded by a sense of impending crisis due to the accumulation of observations that did not fit a theory. If there has been any sense of crisis in recent years, it has been due to the growing recognition among Internet researchers that we are all looking at similar objects but in very different ways. It seems more as if we all brought our paradigms with us from our home disciplines, but Internet research itself has never had a single paradigm. Internet research might, then, represent a preparadigmatic sphere. During this phase competing perspectives emerge, and there is no single dominant set of theories, methods, and evaluative criteria, although eventually a clear winner does emerge.

To think of Internet research as a preparadigmatic science suggests a prediction about its future course of development. This also depends, however, on whether we consider Internet research to be a science. Space precludes acknowledging the many and varied commentaries and critiques on the questions raised by applying Kuhn’s schema to the social sciences. Social sciences have variously been considered to be inherently multiparadigmatic, exempt from Kuhn’s analysis, and even misguidedly trying to model themselves upon Kuhn’s version of science (for a range of such responses see Urry, 1973; Ritzer, 1975; Barnes, 1982; Fuller, 1992, 2002). For Kuhn, science (or normal science at least) is characterized by a highly socially controlled form of puzzle-solving. It is questionable whether the social sciences have single agreed perspectives in this way or whether their questions can ever be expressed as solvable puzzles. It would then be no wonder if Internet research were not a unified field, since it has been colonized by representatives of previously coexisting but largely incommensurable world views. The social sciences may have simply settled upon being multiparadigmatic, and rather than being preparadigmatic, Internet research would thus reflect this multiplicity.

The social sciences also seem to differ from natural sciences in their objects of study. In studying contemporary society we study a moving target: We believe that societies can and do change. In contrast, the natural sciences that formed the focus of Kuhn’s interest largely believe that their object, the natural world, is fundamentally unchanging (although this is a key point that sociology of scientific knowledge disputes). The expectation of wholly new phenomena in natural sciences is limited, while the social sciences have to be open to the possibility that developments in contemporary society will produce something novel. While Kuhn explicitly excludes from his consideration of change in science any concern with “external
social, economic and intellectual conditions” (Kuhn, 1970, p. x), these conditions are of course exactly what the social sciences study. If our object changes, we aim to describe and understand that change. Most radically, if the Internet was going to be productive of a new society, then it seemed only reasonable that we would need new social sciences with which to study them. From this perspective, the Internet opened up a new object of study, and was colonized by a variety of competing perspectives. A single dominant paradigm may or may not emerge from the chaos. It is this novelty of object that opens up the possibility for Internet research as a preparadigmatic science. It is thus doubly likely to be without a single dominant paradigm, given that it is a new object of study and it has attracted researchers from different existing disciplines, possibly themselves already multiparadigmatic.

Dominant though Kuhn’s ideas have been in shaping a perspective on the development of science as a social activity, they have not gone unquestioned. In particular, Kuhn oversimplifies his account of periodization and the nature of revolutions in science (Galison, 1997) and exaggerates their totality (Laudan, 1984; McMullin, 1993), in addition to being notoriously unclear about what exactly constitutes a paradigm (Masterman, 1970). In Kuhn’s clarification, there are two distinct sense of paradigm:

On the one hand, it stands for the entire constellation of beliefs, values, techniques, and so on shared by the members of a given community. On the other, it denotes one sort of element in that constellation, the concrete puzzle-solutions which, employed as models or examples, can replace explicit rules as a basis for the solution of the remaining puzzles of normal science. (Kuhn, 1970, p. 175)

I would suggest that while Internet research does not, as yet have a paradigm in the first sense, it clearly does have, in the second sense, exemplary studies that have been extensively used as models. From my own personal perspective, discovering in 1995 the Cybersociety collection (Jones, 1995), and in particular Baym’s (1995) ethnography of a newsgroup, provided me with models to emulate and formed an early basis for a dialogue. Clearly I am not alone in finding these works exemplary: The ISI Web of Science database (in a search completed on 5 November 2004) gave 90 journal articles citing the Baym chapters in Cybersociety (Jones, 1995) and Cybersociety 2.0 (Jones, 1998a). The following example illustrates a common style of citation, positioning, among others, Baym’s paper from the 1995 Cybersociety as founding evidence for the existence of community online:

Although still considered by many to be outside the realm of “real” community, studies of online environments have already found that we can indeed create community and sustain strong ties through electronic media (e.g., Baym, 1995, 1997; McLaughlin, Osborne & Smith, 1995; Reid, 1995; Rheingold, 1993; Smith, McLaughlin & Osborne, 1996).

In the notion of an online ethnography, and of newsgroup as community, Internet research found an early exemplar that shaped a generation of studies. More latterly the idea of Internet as embedded in everyday life (Wellman & Haythornthwaite, 2002) has acquired a greater significance for many Internet researchers, and the early phase of studies that established the Internet as a social setting in its own right is seen to be only a part of the story. New exemplars will no doubt emerge as time goes on. Whether these will occasion wholesale reorientations of the field of Internet studies, or indeed threaten its very existence as a separate domain of research remains to be seen.

In Kuhn’s terms, research areas remain vibrant for as long as there are problems to solve. If it begins to seem as though all the problems have been solved, or that currently available approaches have been exhausted in their potential to illuminate problems, then researchers will be open to new approaches or new areas to work in. This starts to explain why so many researchers were happy to take their existing approaches to the Internet and see what they could do. As Becher and Trowler put it:

It is a common finding of studies of what motivates academic researchers that what moves them is primarily factors intrinsic to the discipline itself, particularly the desire to develop a reputation in the field and to contribute significantly to it. (Becher & Trowler, 2001, p. 75)

This kind of concern certainly accounts for my own readiness to pursue a new object of study, and is due in no small part to Kuhn! I entered sociology of science and technology in its post-Kuhnian phase, after the exciting days of the 1970s and 1980s when laboratory ethnographies pushed Kuhn’s perspective to the limit in pursuing thoroughgoing sociological interpretations of science. Arriving after the working through of radical constructivist approaches to science, it seemed to me as though there was little left to be said. A whole new object of study, with all that it offered in terms of research perspectives to develop and new phenomena to describe, was immensely appealing.

In understanding research directions, however, some additional factors need to be added to Kuhn’s model. Firstly the climate in which research is done has altered, and pressures to carry out research with clear utility and fundability may direct researchers toward particular areas, and indeed toward developing interdisciplinary research teams (Gibbons et al., 1994; Becher & Trowler, 2001). Kuhn’s specification of the field of research deliberately bracketed off the territory of science from the influences of this kind of social change. In the case of Internet research, however, this may be a significant influence: Some
Internet research may be more like Mode 2 (Gibbons et al., 1994) in its focus on questions with a clear real-world relevance outside of traditional disciplinary structures. The wider cultural climate that viewed the Internet as socially and commercially significant (at least during the era of the dot-com bubble) may have also made it an attractive research area.

As an attractive research area, with connotations of topicality and fundability, with an array of interesting questions to address and the promise of reputations to be made, Internet research was ripe to become a gold-rush area. Having identified such an opportunity, however, researchers have to be in a position to act upon it. Entry to a new area can depend on having the resources to hand, and on being able to capitalize upon existing expertise and equipment (Becher & Trowler, 2001). In the case of Internet research the entry costs were relatively low, in that academic researchers tended to have Internet access and were well placed to acquire skills. The low entry costs also allowed many more junior researchers to enter the field, equipped as they often were with better information technology skills and awareness than their more senior colleagues.

It is also possible that the mode of communications affected the rate at which Internet research grew: The fact that its researchers were familiar with the Internet has led the group to make extensive use of mailing lists and online publication. Internet research has often been research not just about the Internet but also on it and through it and constituted within it. Communicating online gave early Internet researchers the chance to find one another, to exchange ideas and solidify concepts, and to develop a sense of collective identity (Matzat, 1998). It is important not to overplay this point, however. Internet research is not a solely virtual discipline, and face-to-face conferences have played a major part in constituting the field. It is after all unlikely that even the most cyber-ready academic disciplines will move wholly online and dispense with the more traditional ways of communicating altogether (Nentwich, 2003).

Another important issue that Kuhn omits is the political aspects of research. It is important in understanding Internet research to remember that it is far from an autonomous sphere in Kuhn’s sense, and that many researchers have been motivated precisely by the apparent abilities of the Internet to sidestep, transform, highlight, or reinvent some traditional political formations, identities and inequalities. Researchers concerned with issues of marginalized identities and fragmented communities may have been drawn to the Internet precisely as a domain of political opportunity. Telling a straightforward Kuhnian history of Internet research would be doing an injustice to these experiences if it failed to acknowledge that many researchers see themselves as political actors and view their research agenda in this light.

In trying to account for the qualities of Internet research I have moved a long way from the initial characterization of science as composed of long periods of normal science punctuated by revolution. Influential though it is, and much as it resonates with the experiences of Internet research that I have described, the story is a little too neat. There are some very different forms that change in science might take that do not follow this path of disciplinary development. In particular, sometimes specialisms may flourish temporarily without becoming disciplines (Becher & Trowler, 2001). The communication networks of specialisms may also vary, producing a spectrum of different social groupings involved from tight-knit groups of activists to much looser assemblages (Griffith & Mullins, 1972). Some specialisms fail to catch on, some challenge the mainstream, and some are incorporated in the core discipline. Also, more recent approaches in sociology of science question whether terms such as discipline and specialism are adequate to represent the fine-grained complexes of social, material, spatial, and technological that comprise “epistemic cultures” (Knorr-Cetina, 1999).

One alternative to Kuhn’s version that might be helpful was proposed by Mulkay (1975; Mulkay et al., 1975). In Mulkay’s version, it is misleading to think of science as composed of unified disciplines. More accurately, we can think of research networks organized around particular problem areas. Mulkay emphasizes that science has expanded greatly over time, and that a lot of this expansion has involved exploration of new problem areas, rather than more people focusing on the established areas. A lot of change in science happens, therefore, not by revolution, but by branching. As he expands on this notion of branching, Mulkay makes clear that he sees Kuhn’s revolutions as merely a special case of the branching process that science undergoes.

In Mulkay’s branching model, new research networks are being formed all the time around specific problem areas. Researchers migrate from neighboring fields that have become disappointing. Because these migrants come from different fields, they employ varied perspectives and tend to work initially in ignorance of one another. Publications will be scattered among many journals at this early stage, but increasingly there will be communication between researchers, and a degree of consensus will emerge. As this occurs, key journals and research groups become established, and particular early contributions come to be seen as significant. Paradoxically, some of the major contributions will be made before many of the participants have even become aware of the network. Over time, the potential of a problem area for interesting work will be seen to decline, as many of the problems are either solved or appear unsolvable. Migrants will then tend to leave the network, in search of more productive areas. Research networks are transient and of small scale, tending to split up into smaller
groups when they contain 200 or 300 people (although it would be interesting to revisit this assertion and explore whether computer-mediated communication has any effect on the sustainable size of a research network).

For Mulkay, researchers are strategic actors, who like to work in productive areas and feel that they can make a difference. This strategic quality leads to the establishment and the decline of research networks around particular problem areas. Clearly, there are resonances for Internet research in this model. It may seem rather bleak to espouse a model that predicts the decline of the research network which so many have worked so hard to build up. More positively, these dynamics appear to be an intrinsic part of doing research as motivators of effort and curiosity. New problem areas will emerge, around research objects as yet unforeseen, many of the perspectives developed for the Internet may be deployed in these areas, and many of the researchers from Internet studies may meet again in new research networks. Mulkay’s view of science is of transient and fluid structures. Our identification with disciplines is clearly only a part of the story of research careers, and the experience of involvement in Internet research may bring this point home for many of us. The sociology of science perspective reminds us not to take any of the identities available to us as more than temporary or contingent.

NOVELTY, POTENTIAL, AND THE OBJECT OF INTERNET RESEARCH

Thus far I have written a lot about the dynamics of Internet research as a new area, without giving attention to how the Internet was identified as being a new object. In this section I turn to this problem, focusing on how the Internet came to seem a specific and productive area for research. For these purposes I will discount the possibility that we all immediately recognized that there was something uncontroversibly new about the Internet. Sociology of scientific knowledge has argued that discoveries are made, not found; there is nothing about a piece of data that inherently demands it be recognized as a discovery (Woolgar, 1976). In similar fashion, there is nothing about a technology that inherently requires us to recognize it as revolutionary. As Sismondo puts it in his introduction to the field of science and technology studies, “Knowledge and artifacts are human products, and marked by the circumstances of their production” (Sismondo, 2004, p. 10). Taking that sensibility to Internet research suggests recognizing that researchers as much as publics, policymakers, and technologists have constructed notions of the Internet and that Internet research as a field may be shaped by particular ways of thinking about its object of research.

The Internet was made as a single object, and one of major cultural significance, out of a history of dispersed inventions and programs (Abbate, 2000). The Internet acquired early on, and to some extent still has, a broad cultural status as a significant technology with radical implications for social, political and economic organization (Hine, 2000). At the same time as this cultural status has provided a valuable resource for positioning the work of Internet researchers as significant, assessing how far these characterizations are valid forms much of the subject matter of Internet research (Jones, 1998b). In naming itself “Internet research,” the network could seem to assume the reality of the object which, on other occasions, it often seeks to question, deconstruct or disaggregate. It can, however, be difficult to get these complex or more critical versions of the Internet into the public domain, and too much success on this front could even be self-defeating for the field.

It is commonplace for research funding proposals to proceed by first establishing the importance of a phenomenon, then going on to position the researcher as holding the tools to explore some facet of that phenomenon (Callon et al., 1986). The importance of the research stems, by implication, from its alliance with the importance of the phenomenon explained. The situation is further complicated by what van Lente and Rip (1998, p. 223) describe as the “dialectics of promise,” in which researchers have to demonstrate their field’s strength in terms of the explanations it can offer, while at the same time showing that it needs support and funding in order to succeed and survive. Guice (1999) describes the way in which policy documents have to describe the future as both achievable close, and yet needing investment and effort to make it real. There is a rhetoric of proposal writing in which authors seek to position their projects as fundable against their understanding of the scientific and cultural context (Myers, 1985).

The cultural status of the Internet thus forms a useful resource in funding applications, yet the rhetoric of proposal writing can pose considerable dilemmas. After some repetition it can begin to seem tired constantly to position oneself as the interrogator of hype. The alternative to positioning oneself as a negative anti-hype is to do without it altogether, which can leave the proposal promising to research a phenomenon that is announced from the outset as nonsignificant. Both strategies avoid the “bad faith” of presenting the Internet as automatically significant, but neither alternative is particularly appealing as a way of attracting funding. I have found myself treading a careful path of qualification and ambiguity, as this extract from a proposal that I prepared for a series of virtual methods seminars illustrates:

The proposed Seminar Group addresses an area of considerable need within social research: the development of methodological approaches to the new information and communication technologies (ICTs). In addition to their interest as a topic of social research, the new technologies also appear to have considerable implications for the conduct of
research itself. A considerable body of practical experience in research on information and communications technologies has now been amassed. Much of this work has involved innovative approaches to methodology and project design, but researchers have also found it necessary to re-examine some previously taken for granted ways of doing research. . . . It is also still unclear how existing frameworks such as discourse analysis, conversation analysis and textual analysis apply to online interactions.

This proposal treads a difficult path in attempting to position the significance of virtual methods as more than the mere adjustment of technical details, without buying into a determinist version of the necessity of change in the face of new technologies. The result is a rather uncomfortable use of conditional formulations.

A neater solution was employed in a recent UK research program, which dealt with ambivalence about its research object by calling itself not Virtual Society, but Virtual Society? (Woolgar, 2002). Even here the ambivalence was hard to sustain. The research suggested the Internet might not, after all, lead to inevitable universal uptake and social transformation, but that its introduction had variable, often counterintuitive upshots. While some media reporting attempted to take this complexity on board (for example, Burkmann, 2000), the extreme qualities of many of the responses suggest that debunking the Internet was itself a culturally timely storyline, and the research offered an opportunity for the media to develop that point.

Meanwhile, those setting up teaching and research programs have to contend with the tensions of making sure that their public identity connects with topical cultural concerns without buying in uncritically: Mansell and Silverstone from the London School of Economics have written about the dilemmas inherent in trying to build up such a programme in Media@LSE without reifying or fetishizing the novelty of new media (Nissenbaum & Price, 2004). While the critical path is not, then, straightforward, it is probably not particularly fruitful for Internet research to build itself around the death of the term Internet: Keeping a critical edge on what the Internet means, for whom, and how, is vital for the health of the field (Silver, 2000), even with all of the rhetorical dilemmas that this entails.

Describing the Internet as new is thus potent, yet troubling. It is possible to see the decision to define “Internet research” as a field as a rhetorical choice, designed to evoke the qualities that the Internet held as a cultural artifact as the cutting edge technology of the moment. The naming of disciplines and problem areas is not neutral, as Hedgecoe describes:

This article’s central claim is that rather than simply representing an area of research, the term pharmacogenomics can be seen as a rhetorical device used to gain support among policy makers and funders for particular research topics and technologies. By tapping into the interest and “hype” surrounding the word genomics, pharmacogenomics links into a number of future scenarios about the impact of genomic technology on health care systems and society as a whole. (Hedgecoe, 2003, p. 513)

It seems fairly straightforward to map Internet research onto this characterization. This perspective also implies, however, that allying oneself with the technology of the moment may be rather a risky strategy. If the cultural status of the Internet shifts, one may not wish to identify oneself as an Internet researcher. For this reason, then, Internet research may not turn out to be a long-term problem area. While Mulkay argued that problem areas decline as they appear less promising venues for career-boosting problem solutions to be proposed, Hedgecoe’s analysis suggests that they may also decline in response to the cultural status of their objects of study. In both cases, the positive version of the analysis would suggest that we can most usefully adopt ambivalent relationships toward our objects of study, and embrace the possibilities for rejuvenation of academic interest which apparently novel technologies offer. We should not reject as overhyped the technology of the moment, since it may need our critical attention and we may need the energy boost that it provides. We should, however, be ready to abandon it when the time comes and refocus efforts elsewhere in new places that promise to be culturally, politically, or economically relevant or just plain sociologically interesting.

A review of the agenda for recent Association of Internet Researchers conferences suggests that while, as a community, we are happy to subscribe to the banner of Internet research, in practice we use many ways of focusing our attention, including weblogs, online communities, gaming, e-governance, distance learning, social networks, and digital divides, and do not spend all of our time talking about “the Internet.” December (1996) suggests that a diversity of concepts is impeding our ability to compare across studies, and that we need to pay more explicit attention to developing schemas that show where we have common ground. Sandvig and Verhulst (2004) find it healthy that terms like “digital divide” provide a meeting ground for different disciplines to interact. On balance, diversity of concepts may be a productive mechanism for helping us not to settle unquestioningly on a single version, as long as that does not mean that we simply separate off into different factions that do not interlink at all.

METHODOLOGIES AND THE PROBLEMS OF INTERNET RESEARCH

In the final section of the article I dwell in more detail on the question of research methods for the study of the Internet. As already described, the apparent novelty of the Internet as an object of study is a useful resource for methodological work, since it seems quite sensible that a new object
may require new methods to make it amenable to examination. In the Kuhnian formulation, a research field is in large part defined by the “disciplinary matrix” which includes sets of methods and research instruments. As a field becomes established, whether through revolution or migration, we might expect a proliferation of methodological publications, since the security of old solutions is undermined and new ones must be found. This has indeed happened in Internet research: One online bibliography of papers on web survey methodology, published by Research on Internet in Slovenia (http://websm.org), contains some 1023 references to the end of 2002. The potential that existing frameworks do not apply, fostered by our conception that the Internet is new, has also been troubling for established ethical frameworks, leading to the establishment of a committee and publication of a set of guidelines by the Association of Internet Researchers (Ess & Association of Internet Researchers Ethics Committee, 2002).

Drawing from sociology of scientific knowledge, we could argue that the instruments that are used to view the world play a large part in shaping what we see (Latour & Woolgar, 1986; Woolgar, 1988). The methods that have become conventional in Internet research, whether online ethnography, computer-mediated discourse analysis, or social network analysis, thus have the potential to shape our understanding of what is going on when people use the Internet. It is important to remain reflexive about the methods and concepts that have become conventional and to examine the biases and omissions they may entail (Dahlberg, 2004). In relation to ethnography, the notion of “online community” raises concerns. I certainly have found that asking students to carry out pilot ethnographic studies of newsgroups can lead to them rejecting one candidate after another on the basis that it “doesn’t look enough like a community.” Having read the canonical literature, they reject versions of experience that do not fit the model. Similarly, there is some concern that particular ways of conceptualizing the debate on ethics and Internet research have constrained conclusions (Bassett & O’Riordan, 2002; White, 2002).

The question of methodologies for Internet research has been characterized by innovation and anxiety in equal measure. It is clear that in social science we depend to a large extent upon precedent in our assessments of methodological adequacy. Presenting a methodology as innovative is double-edged: While we value innovation, we may be cutting ourselves off from useful resources. I have more than once been e-mailed by students asking me to provide them with arguments to convince their professors that online ethnography is possible and acceptable. As the literature becomes more established and widely known such requests would be expected to tail off, since the literature provides the precedent and exemplars become more widely available.

It is possibly no surprise that in assessments of the state of innovation in new media research methods, Jankoswki and colleagues find that modification of existing methods is more common than radical reconstruction (Jankowski et al., 2004) and that innovations at the micro level are far more common than those at the macro level (Jankowski & van Selm, 2005). The issue of innovation and precedent pervades the collection on virtual methods recently assembled as the result of a series of seminars (Hine, 2005). Contributors agree that the Internet provides new opportunities for the formation of research relationships and the specification of research sites and strategies. Hyperlink analysis, web spheres, ethnographic explorations of online environments and web-linked fields, mapping and actively intervening in the construction of web geographies, and time-stretched and interactive electronic research interviews all offer new possibilities for researchers to be present with and understand the social worlds of others. At the same time, each chapter is grounded in a research literature that stretches back before the Internet began, and several authors take pains to point out that prior approaches have not been supplanted and that the new versions are not without loss.

From an ethnographic perspective one would want to situate research methods as always negotiated in the circumstances in which they find themselves. In the case of Internet research as in any other area (Miller & Slater, 2000), that argument about adaptation is rooted in ideas about fundamental ethnographic principles. From this perspective, the appearance and techniques of the ethnography might change, but the basic commitments remain the same (Markham, 1998). This argument forms a valuable way of negotiating the troubled territory between innovation and precedent in discussions of methodological validity, for ethnography at least. It is this latter aspect of virtual methods that I have valued the most: their potential to stimulate and enliven methodological debate in general. Using the lever of the apparent novelty of Internet research methods to enable talk about methodology more broadly is, I believe, a valuable reflexive opportunity. If we can have discussions not just about the technicalities of how to do interviews, but on what an interview fundamentally achieves and how far different communication media help in that goal, then Internet research has achieved a very valuable contribution. We can do this best not by assuming the novelty of Internet research and virtual research methods, but using our uncertainty about whether they are new or not to stimulate reflection.

CONCLUSION

In this article I have described perspectives from the sociology of scientific knowledge that cast light on the development of Internet studies, and that place some doubt on
confident assertions about what it is. Viewed from this perspective, Internet research is neither inevitably a field, nor a proto-discipline, nor a virtual network of intellectuals. It is a research network organized around a problem area whose apparent novelty is both a valued resource in stimulating research and fundability, and a source of anxiety. I suggest that rather than needing to be resolved, this air of innovation and anxiety is a valuable asset that Internet research can build on and sustain, in order to maximize the potential for reflexive thinking about social science that it offers. Nissenbaum and Price (2004) make a similar point, suggesting that the Internet holds the possibility to challenge long-established “truths” by offering up new situations to think with, and arguing caution against a too easy accommodation of the Internet within self-contained disciplines.

It might seem that my analysis is negative, and that I wish to cast off the identity of Internet research altogether. This is far from the case. I would suggest that we need the stimulus of novelty to provoke activity and debate, to promote dialogue and bring together researchers from areas that were otherwise quite distinct. The transient nature of research networks built around objects like the Internet is likely to mean that many researchers will retain links to their traditional disciplinary homes, and that many will move on to newly identified problem areas as time goes on. For the time being, however, the Internet is an incontrovertibly important area to study, if only because so many people think that it is. In addition to its many substantive contributions, Internet research is also a valuable reflexive opportunity for traditional disciplines, which would benefit from a continuing traffic with Internet researchers. By encouraging talk about research foundations and research methods, Internet research can enliven its parent disciplines and produce a useful legacy for its offspring.

Moving on from the informal observations in this article, I would suggest that there is a valuable research project to be done in examining how negotiations about methodological adequacy, innovation, and precedent have been conducted in the early days of Internet research, and how these relate to questions of disciplinary affiliation. In the spirit of recent sociology of scientific knowledge explorations of epistemic cultures (Knorr-Cetina, 1999), it would be interesting to interview recent doctoral candidates (who are likely to be among those most sharply aware of these issues) in Internet research about a range of issues including: their methodological choices; the literatures that they chose to justify their decisions; any difficulties that they experienced in identifying relevant literatures, convincing peers, supervisors and examiners, and ethical committees; how they selected their publication venues and conferences; and what their understanding is of external pressures on their research and funding possibilities. Doing this research now would be an excellent opportunity to capture the processes of knowledge negotiation at a stage when the complexities are still relatively fresh in the mind, and the methodological choices in the field have yet to settle down into a set of relatively black-boxed conventional choices. By investigating the burgeoning epistemic culture of Internet research, we would add an important depth to the reflexive awareness of the field and contribute more broadly to understanding of the conditions of contemporary knowledge production.

NOTES

1. For introductions to some of the range of issues and questions that current sociology of scientific knowledge addresses, see Sismondo (2004), Lynch (1993), Golinski (1998), or Barnes et al. (1996). One of the anonymous referees of this article suggested a whole series of questions from contemporary sociology of scientific knowledge I could have focused on, including issues of institutionalization, practices, and instrumentation. Any of these would be a fascinating subject for study in its relation to Internet research, as a way of exploring the conditions of contemporary knowledge production. In the confines of this article I can address none of them; I hope that in future they will be explored, and I make one suggestion in this regard in the concluding section of this article.

2. It is worth noting here that the references that I cite to explain the core concepts from sociology of science used to explore Internet research are mainly from the 1970s, thus exemplifying my point about the perception that the key work in establishing the discipline was carried out then. There is indeed more recent work going on focusing on the communication networks of scientific disciplines and specialties, for example, by van den Besselaar and Leydesdorff (1996), but this tends to come largely from scientometrics, a field increasingly separate from the mainstream of science and technology studies and from qualitative studies of scientific culture (van den Besselaar, 2001). On a different note, it is also fair to say that I have fallen to some extent into the trap identified by Fuller (2002), in using Kuhn’s account as prescription rather than a description. Recent work in sociology of science and technology points out that while a linear and progressive history of the field is a seductive fiction, more complex histories would ultimately prove more fulfilling (Bowker & Jensen, 2004). I acknowledge these concerns, but for the purposes of this article a Kuhnian linear history is a useful tool to think with.

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