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2 A brief history of online research methods

Online research has developed rapidly. Internet technologies are themselves relatively new, and their social impacts newer still. The theories and methodologies of online research have therefore developed in a technological and social environment that has changed year-on-year. This chapter will trace the interweaving of online research methods with this changing technological environment. It will reflect upon how methodological approaches and technologies have interacted, and how these interactions have created tensions and an imperative for continual methodological innovation.

All social research methods develop in relation to social, political and intellectual factors. How researchers approach their investigations is clearly intertwined with the world in which they live, and the subjects and themes that they are investigating. Various writers have traced the history of social research methods, including Platt and Alastalo (Platt 1996; Alastalo 2008). However, the latter argues that a comprehensive history of social research methods has still yet to be written because of the fragmented and multi-disciplinary nature of what is being studied. In the absence of a definitive history, writers have tended to focus on a particular method or group of methods, such as qualitative approaches (Vidich and Lyman 1994; Platt 2002; Seale 2004), quantitative approaches (de Landsheere 1997; Tonkiss 2004; Cresswell 2005) and mixed method approaches (Tashakkori and Teddlie 1998; Cresswell 2003). Historical methodological reviews tend to argue that there has been a gradual increase in the pace of methodological development, but recognize that research methods are socially constructed and contingent on context. However, none of these historical methodological reviews contains much consideration of the development of online research methods, although many recognize that it is likely to transform research methods in the future.

This chapter addresses this omission in the historical literature by examining how technological changes, and in particular those associated

with the growth of the internet, have impacted on the development of methodological thinking and practice. It is useful to begin with a timeline setting out key developments, in both the development of the internet and online research methods.

Table 2.1 Historical timeline

	Developments in internet technologies	Developments in online social research methods
1960s	Development of early forms of computer-mediated communication. 1962: Licklider sets out a vision for a 'Galactic' or 'Global' 'Information Network'.	
1970s	1973: first mobile phone demonstrated (Dr Martin Cooper of Motorola). 1979: first commercially automated cellular network (Tokyo, Japan).	
1980s	1983: first commercial handheld (not linked to a car) mobile phone (the DynaTAC 8000x). 1989: demonstration of the World Wide Web by Tim Berners-Lee.	1986: Kiesler and Sproull undertake an online survey (Kiesler and Sproull 1986). Invention of first computer packages for the analysis of qualitative data.
1990–1994	1990: public release of the World Wide Web. 1990: first search tool for the web (Archie) was created. 1993: first web crawler (Wanderer) was created. 1993: first graphical browser (Mosaic). 1994: Netscape browser launched. 1994: development of first popular search engines (Alta Vista, Lycos, Excite and Yahoo).	1993: Rheingold uses the term 'cyberspace'. 1994: Foster conducts online asynchronous interview using email. 1994: first methodological discussion of online interviewing (Brotherson 1994). 1995: <i>Journal of Computer-Mediated Communication</i> began publication.

	Developments in internet technologies	Developments in online social research methods
1995–1999	<p>1995: Internet Explorer launched.</p> <p>1995: first public video-conference took place.</p> <p>1996: instant messaging services launched.</p> <p>1997: Google released</p> <p>1997: first weblog (blog) is attributed to Jorn Barger's Robot Wisdom Web site.</p> <p>1997: SixDegrees.com is launched. Often seen as the first social networking site.</p>	<p>1995: Correll writes about 'internet ethnographies'.</p> <p>1995: first online web experiment conducted.</p> <p>1995: first comprehensive list of online psychological experiments published on the web.</p> <p>1996: explosion of debate around online research ethics with papers published by Allen, Boehlefeld, King, Reid and Thomas (Allen 1996; Boehlefeld 1996; King 1996; Reid 1996; Thomas 1996).</p> <p>1997: Krantz <i>et al.</i> publish an online psychology experiment in an academic journal (Krantz, Ballard and Scher 1997).</p> <p>1997: World Wide Web and Contemporary Cultural Theory conference took place at Drake University.</p>
2000–2004	<p>2000: 400 million people across the globe use the internet.</p> <p>2001: first commercial launch of 3G (Third Generation) mobile phones.</p> <p>2001: first Access Grid developed at the University of Manchester.</p> <p>2003: Myspace launched.</p> <p>2004: development of Voice Over Internet Protocol (VOIP) telephone service.</p> <p>2004: Mozilla Firefox web browser released (the 2nd most popular current browser after Internet Explorer).</p> <p>2004: O'Reilly uses the term 'web 2.0'.</p> <p>2004: Facebook launched.</p>	<p>2000: launch of the Association of Internet Researchers.</p> <p>2000: publication of a number of key texts in the field, for example, <i>Mail and Internet Surveys. The Tailored Design Method</i> (Dillman 2000); <i>Virtual Ethnography</i> (Hine 2000); <i>Internet communication and qualitative research: A handbook for researching online</i> (Mann and Stewart 2000).</p> <p>2001: <i>The Internet Research Handbook</i> published (O'Dochartaigh 2001).</p> <p>2002: publication of <i>Online Social Sciences</i> (Batinic, Reips and Bosnjak 2002); <i>Internet Research Methods</i>, Hewson, Yule, Laurent and Vogel 2003); <i>Standards for internet-Based Experimenting</i> (Reips 2002a).</p> <p>2002: publication of the Association of Internet Researchers guidelines on online research ethics (Ess 2002).</p>

	Developments in internet technologies	Developments in online social research methods
2005–2009	2006: Twitter launched. 2007: iPhone launched. 2008: Google Chrome browser launched.	2005: <i>Virtual Methods</i> (Hine 2005) 2006: <i>International Journal of Internet Science</i> begins publication. 2008: <i>The Handbook of Online Research Methods</i> (Fielding, Lee and Blank 2008).
2009–2011	2010: iPad launched. 2011: number of internet users estimated as 2 billion world wide.	2009: publication of <i>Netnography: Doing Ethnographic Research Online</i> (Kozinets 2009) and <i>Online Research Essentials</i> (Russell and Purcell 2009).

The growth of the internet

Computers have been used to facilitate communication and information sharing since the early 1960s. For example, instant messaging services such as Compatible Time-Sharing System (CTSS) and Multics (Multi-plexed Information and Computing Service) were introduced, making computer-mediated communication a reality. The concept of a network of computers allowing people to communicate with each other was established in the US for Cold War military use by J.C.R. Licklider of MIT in August 1962, who described it as a ‘Galactic’ or ‘Global’ ‘Information Network’ (Leiner, Cerf, Clark, Kahn, Kleinrock, Lynch, Postel, Roberts and Wolff 2009). Licklider envisaged a global network of computers allowing researchers to share information and ideas. The internet was therefore developed as a research tool, although not in the first instance as a tool for social data collection.

The period from the 1960s until 1990 was a time of slow and steady growth (Lee, Fielding and Blank 2008), with the internet increasingly taking on an international, and heavily academic, character. The transformation of this network of computers into a mass medium only really happened when Tim Berners-Lee developed, and then demonstrated, the World Wide Web (WWW) in 1989 and then released it to the public in 1990, based on a text formatting system called Hypertext Mark-up Language (HTML). HTML was important because it allowed documents to be displayed almost identically on any computer world wide (Odih 2004).

From 1990, the pace of change around internet technologies accelerated with the development of browsers (tools for reading and accessing the web) such as Mosaic and then Netscape, and search tools like Archie, WebCrawler and Alta Vista. With the launch of Internet Explorer (1995) and Google (1997), the elements were in place to enable the web to expand rapidly and to become a central part of people's social, cultural and working lives.

Browsers enabled people to use the web as an information and entertainment source, while search engines allowed people to find and recall resources. However, alongside these developments was a range of others which expanded the internet's potential as a mode of communication. In 1995 the first public video-conference took place, linking a technofair in San Francisco with one in Cape Town, South Africa. However, it was the launch of text-based Instant Messenger services in 1996 that proved to be more influential. Text-based, real-time chat interfaces became an extremely important form of online social interaction, and they were quickly re-purposed by social researchers for undertaking interviews and focus groups. It was not until the widespread dissemination of broadband access to the internet in the early 2000s that audio and video communication channels, like Skype, began to provide a popular alternative to text-based chat.

In 2004 O'Reilly developed the term Web 2.0 to describe a new approach to web development and the use of the web. Theorists of Web 2.0 stressed the constantly developing nature of the internet, the co-productive relationship between developers and users, and the social and user generated nature of the web. However, much of Web 2.0 was actually built on existing tools and practices. The first weblog is credited to Jorn Barger's Robot Wisdom website (1997), although the term was attributed to Peter Merholz, who in 1999 wrote, 'I've decided to pronounce the word 'weblog' as 'wee-blog. Or 'blog' for short'. Similarly, it is possible to see a wide range of other social and user driven technologies in operation before the term Web 2.0 was coined, such as SixDegrees.com which allowed users to create profiles, list their Friends and, beginning in 1998, surf the Friends lists (Boyd and Ellison 2007).

Web 2.0 is perhaps more usefully understood as the extension and popularization of a variety of existing trends. Nonetheless, in the period in which O'Reilly was theorizing this trend there was a wide range of developments, such as the creation of Myspace (2003) and Facebook

(2004) which involved different, more communicative and more social ways of using the web. The development of social tools such as weblogs, wikis, social networking sites, microblogs and social book marking sites created new ways of using the internet to communicate and new ways of communicating. Social media typically enshrined open and many-to-many approaches to communication that allowed the creation of new social and cultural forms. Furthermore the brand names associated with these social tools (Wikipedia, Facebook, Myspace, Youtube, LinkedIn and Twitter) entered the popular, cultural and political consciousness, and have in themselves become another focus for social research.

Social tools have changed the way that people use the web, both for resource discovery and for communication. In 2009, total social network usage passed that of email (Morgan Stanley 2010), and in March 2010 Facebook overtook Google as the most popular site on the web (Dougherty 2010). This growth of social tools is already impacting on how people relate to each other, their employers, the state and even to social researchers. Central to this is the changing nature of privacy in a world where personal data is routinely made openly available and in which computational power is sufficient to extract and analyse these data (O'Hara and Shadbolt 2008). In particular, the ability to connect different data sets, to visualize them and to identify geographical information, is reshaping society's understanding of privacy and personal data. These developments offer huge opportunities for researchers (see chapter 8), but they are not without ethical challenges (see chapter 3).

While the speed of technological development has been rapid, the speed at which demographic penetration of technologies has taken place has been even more rapid. In 1994 the internet organized a relatively small network of around 3 million technologists, enthusiasts and researchers. By 2011, an estimate of the total number of internet users was around 2 billion (Econsultancy 2011). In the UK alone, 30.1 million adults use the internet every day or nearly every day (Office for National Statistics 2010). Furthermore, users are accessing and utilising the internet in new ways, including through mobile devices that allow internet use to inter-connect with offline life to ever greater extents.

However, it is important for social researchers to recognize that whilst internet use continues to grow and to penetrate new demographics, it remains far from ubiquitous. The distinction between the internet haves and have nots is often referred to as the digital divide, and the social and

political implications of this new social and information hierarchy are clearly a subject for further social research over the next few years. In the UK alone there are 9.2 million adults who have never used the internet (Office for National Statistics 2010). It is also useful to explore digital exclusion and digital literacy as well as the digital divide (Hooley, Hutchinson and Watts 2010: 8). It is possible to be connected in the sense of owning a device that is capable of accessing the internet, but to still lack the skills and knowledge necessary to use the internet in ways that support social participation (Carrick-Davies 2011). Issues of digital literacy and digital inclusion are important public policy questions, and clearly shape the online populations with which researchers interact.

Wiles *et al.* argue that methodological developments often focus exclusively on a 'developed world' context (Wiles, Pain and Crow 2010). Discussion of online research methods often fails to acknowledge the developing world where demographic penetration of internet technologies is much lower. However, this does not mean that the internet is not widely used in the developing world. Indeed some figures estimate that there are more internet users (1.2 billion) in the developing world than there are in the developed world (885 million), although obviously this does not reflect the proportion of internet users in relation to overall population (International Telecommunication Union 2010). It is also important to recognize that all connectivity is not equal, and that much internet access in the developing world is through mobile devices or low bandwidth connections offering limited access.

This opening section has attempted to sketch the changes in technology associated with the internet in order to provide a context for discussion of the development of online research methods. There are a number of works that provide a more detailed understanding of the history of the technology behind the creation of the internet (Hafner and Lyons 1996; Leiner, Cerf, Clark, Kahn, Kleinrock, Lynch, Postel, Roberts and Wolff 2009; Ryan 2010). Given the close inter-relationship between technology and methodology, researchers may be interested to find out more about the personal, social and technological stories that exist behind the technologies that they are utilizing for research.

Researching online and online methods

It is important to make a distinction between research which examines the internet, and research which uses the internet to undertake online research. The focus of this book is squarely on the side of online research methods, but it is important to recognize that the two are often intertwined. Online research methods are most obviously useful when the phenomenon that is being investigated is strongly connected to the internet. As the penetration of internet technologies moves further through social demographics and becomes more embedded in a variety of everyday activities, it becomes increasingly difficult to talk meaningfully about the distinction between 'real' and 'virtual' life.

Many early social research studies investigated the social life of the internet using conventional onsite methodologies. Freeman investigated computer mediated communication and social networks using a conventional questionnaire (Freeman 1984); Finholt and Sproull looked at work-based electronic communications through creating a hard copy of all emails sent by ninety-six employees over a three-day period (Finholt and Sproull 1990); Lievrouw and Carley looked at the use of technologically mediated communication amongst scientists using literature and document analysis to build a conceptual approach (Lievrouw and Carley 1990). There is nothing fundamentally wrong with investigating online phenomena using onsite methods – indeed many researchers continue to do so – but researchers should be aware of the difference between research conducted online as opposed to that which examines the online environment.

Alongside and immediately following these onsite investigations of the internet, researchers also began to experiment with undertaking research online. Kiesler and Sproull used an email survey to look at the use of email (Kiesler and Sproull 1986); Kehoe and Pitkow saw the potential of the web for delivering surveys (Kehoe and Pitkow 1996); Foster used email for interviewing (Foster 1994); Correll began to discuss and undertake what he called 'internet ethnography' (Correll 1995); Welch and Krantz used computer-mediated communication for psychological experiments (Welch and Krantz 1996). These developments will be discussed in more depth later on in this chapter.

Online research methods as a field

Following on from these early experiments in online research, there began to be some recognition that online research methods might exist as a methodological area in their own right. As this book shows, online research methods are developed in response to a wide range of influences. Most online research methods draw heavily on a particular onsite methodological tradition. In other words, the methodology associated with online surveys is built with clear reference to the methodology of onsite, postal and telephone surveys. However, the technological possibilities of the online space also exert their own influence on methodological development. This means that as methodological approaches have moved online they have frequently had to wrestle with similar issues regardless of their epistemological basis. As will be explored in subsequent chapters. Issues such as recruitment, identity verification and the absence of visual and social cues and clues have influenced the development of a variety of social research methods as they have transferred online.

Given the range of common methodological issues that researchers have experienced online, it is possible to construct a rationale (as in this volume) for seeing online research methods as a field in its own right. However, the practice of online research methods, along with methodological thinking in the area, has been widely spread across the disciplines. The danger associated with this approach is that parallel developments can take place in disciplinary silos with little reference to relevant methodological thinking in other disciplines. A review of the literature on this subject reveals that there is considerable evidence of these kinds of parallel developments. However there has also been a range of attempts to connect up relevant literatures and to find synergy and added value in different approaches. It is therefore useful to briefly review the organizations, publications and spaces where much of the development of online research methods has taken place.

Papers about online research methods have been featured at a huge number of conferences including the Conference on Computer Supported Cooperative Work; ESRC Research Methods Festival; Human Factors in Computing Systems; iConference; International Conference on Information and Knowledge Management; the International Conference on System Sciences. Online research methods frequently inhabit the spaces between social research and technological research, and are well

distributed across a range of disciplines. However, the opportunity to bring researchers together who all work on online social research, regardless of discipline, has also been of key importance. One critical conference was the World Wide Web and Contemporary Cultural Theory conference, which took place at Drake University in November 1997. This brought together many of the researchers who would go on to establish the Association of Internet Researchers (AOIR), which was launched in 2000 and has held annual conferences ever since.

As with conferences, the multi-disciplinary nature of online research methods means that research on the subject is scattered though a wider range of different academic journals. Of key importance has been the *Journal of Computer-Mediated Communication*, first published in June 1995, focusing on social research relating to the internet. Another key journal in the area is the *International Journal of Internet Science*, which began in 2006 and focuses on social and behavioural science concerned with the internet and its implications for individuals, social groups, organizations and society. Other journals that have devoted considerable coverage to online research methods include *Behaviour Research Methods*, *Sociological Methodology*, *Journal of Contemporary Ethnography*, *Science Computer Review*, *Psychological Methods*, *Methods of Psychological Research*, *Information Communication & Society*, *Qualitative Market Research*, *International Journal of Social Research Methodology*, *International Journal of Qualitative Methods*, *Journal of Mixed Methods Research*, *Survey Research Methods*, and *Communication Methods and Measures*. In 2008 the *International Journal of Internet Research Ethics* was launched, providing a cross-disciplinary perspective on the ethical issues emerging from online research.

The area has also been well documented in monographs and edited collections, many of which have informed the current research landscape. Of particular importance to the development of the field have been *Online Social Sciences* (Batinic, Reips and Bosnjak 2002); *Online Social Research* (Johns, Chen and Hall 2004); *Virtual Methods* (Hine 2005); *The Handbook of Online Research Methods* (Fielding, Lee and Blank 2008). More practically focused books include *The Internet Research Handbook* (O'Dochartaigh 2001); *Internet Research Methods* (Hewson, Yule, Laurent and Vogel 2002) and *Online Research Essentials* (Russell and Purcell 2009). These texts have all tried to provide an overview of the field, rather than focusing on a particular technique or methodological tradition. However,

there is a vast range of other texts that has informed the thinking in the field. One element of this book is a bibliography that sets out all the literature that has been consulted in its creation. Whilst it cannot claim to be comprehensive, it does offer a broad and extensive overview of the literature on online research methods and associated areas.

As the internet is key to online research, it is unsurprising that discussion and material about online research methods is widely available online: the website Exploring Online Research Methods (Madge, O'Connor, Wellens, Hooley and Shaw 2006) offers a wide range of commentary on, and resources relating to, online research methods. Launched in 2011, The Digital Research Tools wiki (DiRT) is another highly useful website where information about technical tools that can support research are gathered together. The Digital Methods Initiative (2011) provides a useful hub and resource base for some of the more technical aspects of online research methods.

This historical summary of online research methods provides some context for the examination of research methods on which this book is focused. Developing a full understanding of the field of online research methods is difficult due to its multi- and inter-disciplinary development. To some extent this is an inevitable consequence of the way in which research is organized, as disciplinary silos explore new developments within their own arenas and only tentatively reach out to other fields. However, there is also a sense in which the development of the internet poses some challenges to existing disciplines, blurring boundaries between what is personal and political discourse, what can be described as local, specialist or mass media, and what can be seen as publication, communication and teaching and so on.

The growth of online surveys

Much of the early interest in the possibilities of online research centred around online surveys. Online surveys offered researchers an approach that was quick, low cost and easy to analyse and administer. Researchers were able to transfer methodological practices from onsite, postal and telephone surveys, and to reframe them for electronic surveys using email or web technologies. The first recorded email survey, conducted by Kiesler and Sproull in 1986, looked at electronic mail communication in organizations (Kiesler and Sproull 1986). Their research included the development

of a 'reduced social cues' model. They argued that email offered an impoverished form of communication as it provides few social cues. However, they correctly concluded that the lower cost of the electronic survey was likely to lead to its increased use in the future.

The first recorded web surveys appeared around 1994 (Kehoe and Pitkow 1996), with most early online surveys produced by organizations evaluating their services and products or seeking market intelligence. For example, in 1996 the Council of American Survey Research Organizations (CASRO) undertook a survey of Fortune 2000 companies across America and found that 64% saw the potential for, and intended to commission, online surveys in the near future.

The methodological discussion around the use of online surveys also developed in the mid- to late 1990s, with numerous studies discussing and noting the research potential for this new technology (Anderson and Gansneder 1995; O'Lear 1996; Kehoe and Pitkow 1996; Schmidt 1997; Smith 1997). Researchers quickly noted that online surveys had the potential to reach large audiences at a relatively low cost and at greater speed than any earlier survey approach (Kehoe and Pitkow 1996; Schmidt 1997; Schaefer and Dillman 1998). For example, in 1999 Sheehan and McMillan conducted studies where both mail and email were used to deliver surveys. They estimated that mail surveys took an average of 11.8 days to return while the corresponding time for email surveys was 7.6 days. In fact Sheehan and McMillan's estimated online survey response times were longer than most other researchers have found. Harris, for example, found that surveys took an average of 2 to 3 days to be returned (Harris 1997).

Dillman contextualized the importance of online surveys by looking at how technological developments had previously reshaped survey methodologies (Dillman 2000). Dillman argued that online surveys built on two other significant developments in survey methodologies: random sampling (1940s) and telephone surveys (1970s). He argued that the development of online surveys was likely to be seen as the most important of these developments. Couper argued that the social implications of online surveys are just as great as the methodological ones (Couper 2000). As costs are reduced and online survey tools become easier to use, the ability to conduct a social survey becomes available to all and not just to a professional minority. Couper describes this change as a democratization of the survey. However, many professional researchers have expressed concerns about the methodological and ethical issues associated with this

democratization and the corresponding danger of saturation and survey fatigue.

Many researchers have discussed whether the growth in online surveys has had a negative impact on response rates. The issue of response rates compared with traditional paper surveys was being discussed as early as 1994 (Schuldt and Totten 1994). In 1996, Comley used a multi-mode approach and compared the response rates to email and postal surveys. Because of the novelty of the email approach he achieved a 45% response rate for email and 16% for the same postal survey. However, as the use of online surveys has increased, the response rate has declined. For example, Lozar *et al.*, in their meta analysis looking at the declining response rates to surveys, found that online surveys were the worst affected survey method (Lozar, Bosnjak, Berzelak, Haas and Vehovar 2008).

The representativeness of samples was also raised as an issue as early as 1997 (Swoboda, Muehlberger, Weitkunat and Schneeweiss 1997; Schaefer and Dillman 1998; Dillman 2000). Articulating some of these methodological concerns about sampling bias, Coomber noted that respondents to online surveys were disproportionately white, male, first world, affluent and educated (Coomber 1997). However, as the demographics of internet use have broadened this bias is unlikely to still hold true. However, this does not mean that an internet sample can be understood to be representative globally. The ability to reach a global audience is highly dependent on researchers' recruitment strategies and likely to be influenced by geography, social-economic position and language amongst many other factors.

The issues of response rates and sampling demonstrate the importance of understanding methodological developments historically. As the level of penetration of the internet has grown, and increasing numbers of people have crossed the digital divide, methodologies have needed to change and develop. Online research methods have moved from investigating an elite activity to a mass activity, and also have had to address the changes in culture and practice that have emerged from these social and technological developments. Many of these issues will be picked up in more depth in chapter 4.

Exploring the potential for online qualitative research

Alongside the developments in surveys, online interviews and focus groups were receiving academic interest. One important distinction that was made early on was between asynchronous interviews and focus groups which take place over time using technologies such as email and discussion boards, and synchronous interviews and focus groups in which the researcher and participant(s) interact at the same time. According to O'Connor *et al.*, asynchronous email interviews have moved into the mainstream but online synchronous interviewing remains a relatively novel and innovative approach (O'Connor, Madge, Shaw and Wellens 2008). In fact, nearly all of the early literature on the subject focused on asynchronous interviews carried out through email (Foster 1994; Gaiser 1997; Murray and Sixsmith 1998; Ward 1999).

According to Fox, online focus groups become increasingly visible in the literature from the late 1990s (Fox, Morris and Rumsey 2007; Stewart, Eckerman and Zhou 1998; O'Connor and Madge 2003; Williams 2003). Again, they mainly focused on asynchronous approaches using bulletin boards and discussion groups (Gaiser 1997; Murray 1997; Robson 1999; Ward 1999). Murray argued that focus groups could be transferred online and that many of the same principles that had underpinned onsite focus groups would continue to be useful. The methodological approach to asynchronous online focus groups were developed by Gaiser, who explored the possibilities that were offered by bulletin boards, internet relay chat (IRC) groups, multi-user dimensions (MUDs) and web conference pages as potential places to conduct focus groups. He argued that (at that time) both IRC and MUD were probably inappropriate because much of the discussion tended to be superficial and playful in nature.

The first published synchronous interviews that began to appear in the mid-1990s (Brotherson 1994; Mann and Stewart 2000) note that much of the early development of synchronous interviews focused on conferencing software (Mann and Stewart 2000; O'Connor and Madge 2001). Despite Gaiser's early reservations, Instant Messenger services such as Microsoft MSN were re-purposed for online interviewing (Luders 2004; Volda, Mynatt, Erickson and Kellogg 2004; Opdenakker 2006; Stieger and Goritz 2006).

There has also been interest in using virtual environments such as Second Life for synchronous interviews and focus groups (Gaiser 2008),

and an increasing interest in the use of multi-media tools (Fielding and Lee, 2008; Fielding, 2010). These, and other more recent developments, will be picked up in chapter 5.

Doing fieldwork without a field

The third methodological tradition that this book explores is ethnographies. Hine argues that the development of online ethnographic methodologies has gone hand-in-hand with the development of the internet (Hine 2008). As the internet has been increasingly understood as a site for community and social interactions, ethnographic methodologies have provided an appropriate way to investigate and understand the lived experience of those interacting. The ethnographic investigation of the internet has been variously described. Kozinets says that the term netnography was developed by him as early as 1995 (Kozinets 2010), while Correll used the term internet ethnography (Correll 1995) and Hine referred to it as virtual ethnography. Much of this work sought to reframe existing ethnographic approaches for the online environment, whilst recognizing that radical shifts are necessary when the field of study appears as text on a screen and the group of people involved are scattered across the world (Morton 2001).

The first recorded online ethnographies began to appear in the early 1990s and were largely based on the study of discussion groups and bulletin boards, such as the ones created through Usenet (Jones 1995; Baym 1995, Correll 1995; Hauben and Hauben 1997). Unlike other online methodologies, many online ethnographers were interested largely in the new online environment from an early stage and were less interested in how these ethnographies compared to traditional offline ethnographies. This was based on an analysis that saw the online community as a new social reality. This led to a series of publications of what Hine describes as the 'cyberculture studies' (such as Silver 2000).

Increasingly, ethnographic researchers became interested in how online activity connected with offline activity. In early studies, the assumption was made that online communities could be studied in a roughly analogous way to offline communities. However, as online fieldwork methodologies and online practices developed, it became increasingly clear that ethnographers needed to explore the ways in which both online and offline communities and networks overlapped and inter-related. For

example, Sade-Beck argued that focusing only on the online gives a partial understanding of how people interact (Sade-Beck 2004), while Ruthleder argues that the virtual and 'real' environments overlap and interact with one another (Ruthleder 2000).

The development of social tools and their increasing popularity has further eroded the distinction between online and offline spaces, and provided a new challenge to ethnographers. Correspondingly, a great deal of recent research has concerned the interaction of new forms of social media such as blogging (Doostdar 2004; Herring and Paolillo 2006; Hookway 2008), online gaming (Boellstorff 2006), Youtube (Liu 2007) and social network sites such as Facebook, Myspace, Twitter (Boyd and Heer 2006; Thelwall 2008) – which have created a rich new source of material and experience for ethnographers to study. These issues, along with a more detailed discussion of online ethnographies, are picked up in chapter 6.

Beginning to experiment online

Finally, this book examines the development of online experiments. Musch and Reips argue that the first web experiments were Norma Welch's 1995 experiments on auditory perception (Musch and Reips 2000), which ran simultaneously at McGill University, Montreal, Canada and Technical University, Darmstadt, Germany (Welch and Krantz 1996). However, as the experiments were combined with tutorials, there has been debate on whether these were true internet experiments. The first truly online experiment was arguably conducted by Andreas Weigend at Colorado University, who undertook three web experiments on music recognition (Weigend 1994). The first psychology web experiment to be published in an academic journal was on the determinants of female attractiveness (Krantz, Ballard and Scher 1997). This period also saw the creation of a central listing of online experiments in the Psychological Research on the Net webpage (Krantz 1995–2011).

As with other online research methods, methodological discussion around online experiments was initially focused on mapping the advantages and disadvantages of online approaches over traditional methods (Hewson, Laurent and Vogel 1996; Reips 1996a; Reips 1996b; Birnbaum 2000). For example, Hewson concluded that the main advantages of online experiments over other methods were that they were cheaper, made it easier for people to remain anonymous, and were easier for the

participant because they were able to engage at their leisure. There was clearly also a number of downsides resulting from the relative loss of control for the researcher. These and other methodological issues are explored further in chapter 7.

In summary

Online research methods have now established a clear place in the social research methods canon. Researchers began to experiment online from the mid-1980s but it was only with the development of the internet as a mass form in the mid- to late 1990s that online research really began to develop as a field and to advance the methodological questions. This chapter has argued that there is a complex relationship between technology, the social use of technology and the strategies that researchers develop to examine these. This relationship forms one of the main themes of this book, as it examines the key features and debates that have emerged in the areas of online surveys, online interviews and focus groups, online ethnographies and online experiments.

Further reading

There are a number of works that provide a more detailed understanding of the history of the technology behind the creation of the internet, such as *Where Wizards Stay Up Late* (Hafner and Lyons 1996); *A Brief History of the Internet* (Leiner, Cerf, Clark, Kahn, Kleinrock, Lynch, Postel, Roberts and Wolff 2009); *A History of the Internet and the Digital Future* (Ryan 2010).

While there is no comprehensive history of the development of online research methods, there are a number of key works that provided a 'state of the nation' at key points in the field's development. These include *Online Social Sciences* (Batinic, Reips and Bosnjak 2002); *Online Social Research* (Johns, Chen and Hall 2004); *Virtual Methods* (Hine (2005); *The Handbook of Online Research Methods* (Fielding, Lee and Blank 2008).

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