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8 Where next for online methods?

Predicting the future of something like online research methods is extremely difficult because it is contingent on so many other factors. However, it is possible to argue that online research methods develop in response to three main factors:

- Changes in the socio-technological world which online research seeks to investigate – in particular, the changes which emerge from the development of internet technologies and the social practices which utilize the internet.
- Changes in technical capabilities which facilitate new forms of research or offer new research tools.
- Changes in methodological thinking that emerge in relation to the above two factors and to wider developments in the epistemological traditions which inform online research methods.

In relation to changes in the socio-technological world, some commentators argue that we are currently in the midst of a period of paradigm shift, and that making meaningful predictions is essentially impossible. Fischer, Lyon and Zeitlyn therefore focus their predictions about the future of online research methods on the emergent periphery of today, using it as a basis from which to extrapolate the mainstream of the future (Fischer, Lyon and Zeitlyn 2008). Inevitably the future is built on the foundations of the present, and so this strategy is undoubtedly a good one, and one which is broadly followed in this chapter. However the 'Fischer fifteen year rule' for the mainstreaming of technology may not hold within the current environment. Shirky argues that 'the bigger the opportunity offered by new tools, the less completely anyone can extrapolate the future from the previous shape of society', and it would be worth keeping that in mind in any consideration of where the future may lead online research methods (Shirky 2010: 2552–53).

The future is therefore likely to be at once built out of the present and sufficiently different to it as to be difficult to predict accurately. Facer and Sandford argue that any attempt to predict the future is essentially a political act which seeks to shape the future it predicts (Facer and Sandford 2010). They present four principles for future enquiry which could be usefully restated in the context of the future development of online research methods:

- Explorations into the future should attempt to challenge assumptions rather than present definitive predictions.
- The future is not determined by its technologies but rather by how and why those technologies are used.
- Thinking about the future always involves values and politics.
- Research has a range of responsibilities that need to be reflected in enquires about its future. In other words, how you think the future of research will develop is bound up with what you think research is for.

Facer and Sandford then go on to use these principles to develop a series of possible socio-technical worlds, differentiated by different levels of commodification and social capital. From these possibilities, a variety of implications spring about how educators and researchers might relate to changes in the socio-technical environment.

This chapter does not attempt to map out socio-technological futures in as ambitious a way as Facer and Sandford, but there is much value in their approach. It is therefore important that the future 'predictions' advanced here are recognized for their partiality and contingency. The future will not emerge in a straight line from the present and, if it has any value, social research will be part of shaping the future as well as responding to it.

A changing context for online research methods

Predicting the future of online research methods clearly needs to be done within the context of an understanding of the wider socio-technological future. However, it is also important to attend to the local context of changes to higher education, the academic professions, research practice and methodological thinking. Unsurprisingly, higher education is being shaped by many of the factors that are shaping the wider socio-technical environment. These trends are not purely technical, and also have

contestable political and conceptual elements which different researchers may relate to in different ways. Advocates of the use of social media in research argue that it has the potential to speed up the development of new ideas, make collaborations more effective and efficient, open up a channel of communication with the general public and enhance the professional networks of researchers (Cann, Dimitriou and Hooley 2011). While these ideas about the positive influence of social media on intellectual life have been challenged ideologically (Keen 2007), and questions asked about their pervasiveness (Procter, Williams and Stewart 2010), it seems unlikely that research and wider academic practices can remain unmoved whilst new technologies transform publishing, information exchange and a wide range of other social institutions and processes. How academics respond to these changes remains to be seen, but social media, the semantic web, mobile technologies and all the other socio-technical developments are likely to influence the practice of the academy in some way. If there are changes in wider academic practice, these changes are likely to manifest in the arena of social research, particularly if social media enables academic practices to become more open, collaborative and routinely engaged in the non-academic world.

The trend towards greater engagement by academics in the non-academic world can be observed in both the 'public communication' of research agenda, and in the increasing requirement for datasets used in research to be made more readily accessible to others. King argues that journals, publishers and funders should work to create a culture of data sharing as a norm (King 2011: 720). Alongside this he argues that there needs to be greater thinking put into the development of 'privacy enhanced data sharing protocols', to ensure that concepts like confidentiality do not become untenable within social science research.

The changes in the socio-technical world, and the technical capabilities that facilitate them, continue to influence methodological thinking in social research. One trend that it is possible to predict is the increased mainstreaming of online research and its re-absorbance into the methodological traditions from which it emerged. Fischer, Lyon and Zeitlyn's assertion that the 'firm distinction between online and offline research is a present phenomenon', and prediction that online research will soon cease to be 'the odd one out', seem convincing (Fischer, Lyon and Zeitlyn 2008: 520). However, whilst online research methods may move into the mainstream, it is possible to anticipate that the dialogue between research

methods and cutting (or bleeding) edge technologies will continue to generate methodological challenges for researchers. The term 'online research methods' has been a useful one because it has facilitated a methodological discussion about the inter-relationship between methodology, technology and the world. At some point technical tools become familiar enough to be invisible, and the use of an online survey is seen as no more 'technological' than the use of paper, pens and clipboard. However, the tools will continue to develop and social research methods will continue to need to explore how to use, critique and understand them.

A key perspective that underpins this book is the idea that, despite differing epistemological traditions, there is methodological thinking that binds approaches to online research methods together. As this book has shown, there are very important distinctions between different online research methods. However, there is also learning that can be drawn from across different methodologies and synergies that can be achieved between them. One area that seems highly likely to generate further thinking and investigation is that of new mixed methods approaches and the further development of hybrid methods.

Symonds and Gorad argue that the use of mixed methods in the social sciences has become so widespread that there is a need to rethink the label to ensure that it is meaningful (Symonds and Gorad 2010). Examination of online research methods supports the assertion that the rigid distinctions between quantitative, qualitative and mixed methods are becoming increasingly difficult to maintain. For example, the ethnographic approaches described in chapter 6 are increasingly encountering vast and easily accessible datasets which can potentially swamp qualitative approaches. A small community of individuals can rapidly generate data across a multitude of platforms over the course of a day, and researchers seeking to track, map and analyse these data may find that quantitative tools are useful. Similarly the increase in computational power, as well as the growth of naturally occurring online datasets, may enable quantitative researchers to interrogate the kinds of issues that were previously confined to qualitative research. Fielding and Lee discuss some of these possibilities in relation to the use of Grid computing and CAQDAS (Fielding and Lee 2008).

Alongside the mixing of methods, it is also possible to observe some mixing of disciplines. Inter-disciplinarity has clearly been important in the development of online research methods, but this is not merely about

the application of the same tool to different problems. Increasingly, it is difficult to decide what discipline research questions sit in – for example, is it appropriate to discuss people's use of Facebook in terms of media/communication studies, education, computer studies, sociology or some combination of all of these? King argues that access to new sources of digital data and new analytical tools has resulted in bioscientists, computer scientists and physicists moving into realms previously inhabited by social scientists, as digital social data is analysed to answer a much wider range of questions (King 2011). The idea that there may be valuable synergies in inter-disciplinarity and mixed or hybrid methods is not a new one, nor is it confined to online research methods. However, there are a number of features of the online environment that may serve to focus the minds of researchers on synergies between different approaches. This is not to say that technology will wash away epistemological positions that have political and ideological components as well as technical ones, but it may be the case that the shifting environment frames methodological discussions in new ways that open up the possibility of new formations emerging.

The rest of this chapter examines how changes in the technical capability of particular tools or sets of tools are reframing methodological thinking. In particular it examines the idea of visualization of naturally occurring data, the combination of datasets, the growth of the diverse and integrated web, and the development of new forms of technically supported participation in research. These trends all seem important, but the list is not meant to be an exhaustive one. The opportunities that exist for new tools to reframe methodological thinking are likely to continue to expand in ways that we cannot predict or fully comprehend.

Visualizing naturally occurring data

The process of utilizing naturally occurring data is not new, as chapter 6 has already shown in relation to ethnographic and qualitative methods. For researchers, this presents some enormous opportunities as long as the technical and ethical challenges can successfully be negotiated. King argues that this massive increase in available social data enables researchers to address 'major, previously intractable problems that affect human society' (King 2011: 719). Developing methodological approaches which make use of this enormous resource is likely to be a key area of development over the next few years.

There is a tradition of quantitative research in this area which has typically used tools like Issue Crawler to undertake network analysis around the inter-relationships between different websites (Xenos and Bennett 2007). However, with the growing use of social networks, increasing amounts of human experience are available in the form of naturally occurring data. So, for example, Mislove *et al.* have investigated the social structures that are evident through a quantitative examination of social media data, and used these to predict the attributes of members of that network (Mislove, Viswanath, Gummadi and Druschel 2010).

As the tools become more powerful, it is possible to begin to use quantitative visualization tools to interrogate large datasets and see how they work (Blondel, Guillaume, Lambiotte and Lefebvre 2008). Visualizations draw on the ability to identify pattern and structure, and represent these visually as a distribution of data points. This can provide a starting point from which to focus more powerful statistical tools and deeper qualitative enquiry on areas of interest (Merico, Gfeller and Bader 2009). Interactive visualization tools, used as part of an analytic process, allow real-time visual dialogue with data (Zudilova-Seinstra, Adriaansen and Liere 2009).

The ability to visualize social networks as a part of data analysis opens up the possibility for much more subtle approaches. For example, the opportunity to identify issues, focus in on them and reframe the analysis in the light of developments in real time enables social researchers to deal with the ever increasing volume and complexity of online data. The real-time visualization and analysis of large-scale datasets also provides a new basis on which mutually informing mixed methods approaches can be built, as part of an analytical move between large-scale and close analysis of detail.

Combining data

A second promising area is the ability to combine and relate a range of different online data. So, for example, market researchers examining consumer behaviour through an analysis of customer databases might seek to broaden their understanding of the behaviour of consumers by relating customer records to interests recorded by the same individuals in their Facebook profile, or the occupational information that they list on LinkedIn. In this example, consumers are suddenly transformed from a series of records of purchases into complex individuals with lives, interests,

relationships and histories. If the complexity of this new combined dataset can be managed, its explanatory power is likely to be huge.

Linking together different datasets is often described as a mash-up, and it has huge potential for researchers. The ability to relate datasets to wider contextual information is a key activity undertaken in the analysis of social research data. Mash-ups provide an opportunity to bring context into data analysis in a far more systematic way than has previously been possible. However, again there are clearly ethical issues in building these kinds of multi-dimensional datasets. O'Hara and Shadbolt describe how public data in the US relating to sex offenders has been mashed with geographical data to allow the creation of an interactive map which can allow you to pinpoint your nearest sex offenders and to see pictures of them (O'Hara and Shadbolt 2008: 152). Two datasets (offender information and map data) are combined together with search criteria (for example, the search term 'sex offender') to create a new dataset that is much more powerful than any of the constituent parts. For public policy this throws up huge challenges, as surveillance of individuals becomes routine and previously private information becomes available to the state, private companies, the media and crucially to other interested individuals (Kerr, Lucock and Steeves 2009).

For researchers, there is considerable power in the ability to combine existing data together in meaningful ways, but this correspondingly throws up further concerns for researchers around issues such as confidentiality and anonymity. However, despite the ethical difficulties the potential remains, and is further enabled by the increasingly common practice of linking together various online accounts to ensure a single login point.

The ability to link datasets is helped by the development of semantic standards such as the Resource Description Framework (RDF) (W3C 1999). By agreeing on common metadata approaches, the ability to build meaningful links between different datasets is enhanced, and new forms of analysis enabled. Perhaps one of the most powerful ways in which the opportunity to combine distinct datasets might aid researchers is through the use of geographical information. Fischer, Lyon and Zeitlyn discuss the possibility of researchers making use of the GPS data that many devices record, but this only scratches the surface of possible uses of geographical data that are derived from online data sets (Fischer, Lyon and Zeitlyn 2008). As O'Hara and Shadbolt's sex offenders example demonstrates, the

rendering and exploration of the spatial elements of datasets has become increasingly possible (O'Hara and Shadbolt 2008).

The decision by mainstream geographical information providers (such as the UK's Ordnance Survey) to adopt standards such as RDF (Goodwin, Dolbear and Hart 2008) massively increases the quality and inter-operability of such data, opening up new possibilities for researchers. These include the ability to examine the interplay between geographical and online space. Nag argues that research into online phenomena may be missing important factors if it does not acknowledge the geographical distribution and locations in which online things take place (Nag 2010). Until recently it was highly difficult to identify geographical space in a meaningful way; however, through the use of GPS technologies and standards such as RDF, researchers now have the tools to explore this further.

The diverse and integrated internet

The discussion of geographical data draws attention to the fact that the internet is now accessed from a wide range of different devices which enable new blends of online and onsite research. The introduction discussed the fact that 'cyberia' is no longer a place that people visit, remote from their everyday lives – rather, the internet intersects with people's onsite lives in an increasing range of ways. Mobile phones, electronic reading devices and tablet computers are becoming ever more common, but these are only the tip of the iceberg of internet connectivity that is reshaping the social world and which therefore may ultimately be re-purposed by online researchers.

It is possible to describe the internet as being at once diverse and integrated. Users connect into the same architecture and access much of the same content (integrated), but utilize an increasing range of devices to do this (diverse). This led Anderson and Wolff to declare, 'The Web is Dead. Long live the internet', and to argue that the web will no longer provide the main way in which people interact online (Anderson and Wolff 2010). For online researchers this may initially make things more complex, as the careful development of web-based translations of research methods will need to be reworked for the new platforms and devices through which people are experiencing the online environment. Furthermore, if Anderson and Wolff's predictions are right, there may also be a trend towards enclosing the essentially open and free nature of online space

which may in turn have impacts, particularly for cash-poor public sector social researchers.

Researchers have already been making use of a wide range of diverse and integrated devices. Hagen *et al.* set out a typology of research methods for understanding mobile technology use (Hagen, Robertson, Kan and Sadler 2005). They note that researchers can understand participants' behaviour in a variety of ways such as using data logs recorded by mobile devices or by asking them to wear cameras or sensors. Increasingly, these research approaches are being applied to broader research questions that are less directly connected to the ergonomics of mobile phone use. So Vavoula and Sharples used mobile devices to assess young people's interaction with museum exhibitions (Vavoula and Sharples 2009), Aanensen *et al.* used smartphones to collect geographically tagged field data (Aanensen, Huntley, Feil, Own and Spratt, 2009), and Eagle, Pentland and Lazer used mobile phone data to investigate people's social networks by looking at factors such as physical proximity (Eagle, Pentland and Lazer 2009).

While the most obvious manifestation of the diverse and integrated internet is the explosion of increasingly computer-like mobile devices, the implications are actually much broader. The technical literature discusses technologies such as wearable computing (Van Laerhoven 2011); radio frequency identification (RFID) tags which enable the onsite world to be perceived as part of the online world (O'Hara and Shadbolt 2008: 203–09); online monitoring of embedded systems (Wood, Stankovic, Virone, Selavo, He, Cao, Doan, Wu, Fang and Stoleru 2008). Many of the technical details are not important in the context of this work, but the political and social implications are critical. The diverse and integrated internet is the vehicle through which ever greater integration between the online and onsite worlds is being delivered. For researchers, this clearly raises research questions, methodological possibilities, and considerable ethical and conceptual challenges.

Allowing participants to really participate

Much discussion around current technological trends emphasises the egalitarian and democratizing nature of social media and other Web 2.0 technologies (Tapscott and Williams 2006; Howe 2008; Shirky 2009; Shirky 2010). While this enthusiasm for the political and economic outcomes of social media has been critiqued (Carr 2010; Lanier 2010), and there is

clearly need for empirical investigation of some of the techno-utopianism, the perspective remains both influential and appealing.

Much of the current theorization of the social web draws on O'Reilly's paper which examined the conceptual basis of the Web 2.0 approach to technical development (O'Reilly 2005). O'Reilly's paper emphasised the contingency of all technologies, and encouraged an open, nimble approach that viewed development as a process rather than a destination. Crucially O'Reilly also emphasised collaboration and the idea of co-production with users. Rath and Givens used O'Reilly's article as a lens through which social research could be viewed as an analogous activity to web development (Rath and Givens 2010). They therefore emphasise enhanced collaboration (perhaps sharing coding tasks across the web), and a more participatory form of engagement with research participants.

The decision to involve participants in research raises deeper epistemological questions. Is the role of a researcher to produce knowledge out of the raw materials gathered from participants, or is all social research essentially a form of co-production? The answers that researchers give to this again depend on political and epistemological positioning. However, in the past, researchers who sought ongoing, meaningful dialogue with participants had to overcome considerable logistical and financial obstacles. Even disseminating results to participants in an appropriate form could be costly and challenging, while deeper engagement with participants, especially during the analysis stage was more difficult still (Doherty and Price 1998; Pain and Francis 2003).

For those conducting research online the issue of participation and co-production presents very different challenges. Whereas the onsite researcher was frequently geographically removed from his or her participants, the online researcher remains easily accessible even after the conclusion of the project. This accessibility can be enhanced through connections built with participants through social networks etc., and clearly has the potential to blur boundaries in the nature of the researcher/participant relationship. Even if a researcher does not actively build a relationship with the research participants, if they discuss or publish research outputs that might be of interest to participants these may appear in online searches, and participants/subjects may discover and engage with research that speaks to their experience in some way.

The idea of democratization of research, in which an empowered participant engages in the co-production of research findings, is a political

and methodological ideal which is becoming increasingly possible. Cooke and Buckley argue that a 'combination of social computing tools with an understanding of social networks' will allow market researchers to 'build new types of research community in which respondents interact not only with researchers but with the clients and, most fertile, with each other' (Cooke and Buckley 2008: 271). In the kind of situation that Cooke and Buckley describe, professional researchers and research funders are likely to need to cede some control to the participants that they are working with. While not all researchers will advocate this kind of approach to research, it may be that they experience participants becoming more assertive and demanding greater access to research outputs than is currently the case.

In summary

The future of online research methods is inevitably difficult to predict. However, given the trajectory of the field it seems likely that it will be a bright one, and that the idea of undertaking social research online will continue to become more mainstream. However, it is important to recognize that online research methods have developed in close conversation with wider socio-technological changes. It is expected that these wider changes will exert even greater influence on the development of social research methods than the online research methods tradition itself.

In particular, the explosion in online and digital data sources has the potential to reframe the nature of social research by placing vast amounts of naturally occurring data in the hands of researchers. Whether the methodologies outlined in this book (surveys, interviews and focus groups, ethnographies and experiments) continue to be the best way to describe the online social research that emerges in the future remains to be seen. This chapter has suggested that social researchers will discover increasing possibilities in the visualization of online data, the opportunity to combine different data sources, the diverse and integrated nature of the internet, and increased opportunities for participatory research enabled by social tools. This list is far from exhaustive but, as with any attempt at prediction, the most exciting possibilities are likely to lie beyond what can currently be seen.

Further reading

There are a large number of people writing about the future of technology or the internet. *A History of the Internet and the Digital Future* (Ryan 2010), *The Future of the Internet: And How to Stop It* (Zittrain 2009) and *Cognitive Surplus* (Shirky 2010) all provide good, if strongly opinionated starting points for thinking about what the socio-technological implications of new technologies might be.