Digital Methods for Social Science

An Interdisciplinary Guide to Research Innovation

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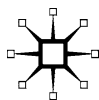*Research Fellow, Centre for the Study of Behaviour Change and Influence, University of the West of England, UK*

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Foreword

There is still no consensus about what digital social methods are. Some argue that social research methods have been digital for a long time, as computational devices entered the social research toolkit many decades ago, in the form of punchcards, and the range of quantitative and qualitative software packages that social researchers have been trained to use from the 1970s onwards. Others argue that the long-standing process of 'digitization' is taking a new form today, as digital devices are currently transforming social life in ways that precisely render it available for social research in unprecedented ways. Many agree that developments such as the rise of social media, the proliferation of mobile devices and the uptake of digital analytics across professional practices are giving rise to a new apparatus for researching social life. They also have as a practical consequence that 'social methods' are becoming ever more prominent or 'mainstream' in our societies and cultures: today, users of digital devices are almost de facto researching communities, measuring influence and so on. Social media platforms such as Facebook routinely rely on methods of social network analysis to suggest new profiles to 'friend'. And well before the rise of 'social' media, the research paper introducing the search engine Google cited the sociologist Robert Merton as an important source of inspiration in the development of computational methods for analysing the 'reputation' of web pages.

Of course, whether or not the analytic measures that have been built into digital infrastructures qualify as social research methods – whether they deserve to be called by that name – is something that we can debate and disagree about. Some social scientists insist on the difference between computational methods and the dominant methodological repertoires of the social sciences (interviews, surveys). By contrast, others have highlighted the many overlaps between methodological traditions of the social sciences and computing: methods for the analysis of conversations, networks and discourse have been developed across fields, and they have both a computational and a sociological dimension. But whatever one's view on this matter, the project of the 'mainstreaming' of digital methods raises important questions for social research. As computational methods are deployed by industry to gain insight into social life, where does this leave 'social research' as an academic, public and everyday undertaking? As the contributions to this

volume help to make clear, it is highly implausible to expect digital platforms themselves to take on all the various tasks of social research, as these platforms are increasingly configured to serve the rather narrow purposes of marketing and advertising research, leaving it partly to academic and public social researchers to develop the research designs and wider methodology that we need in order to make digital data, tools and methods work for social enquiry.

But someone has to make the first move, and the contributions to this volume show that academic, social and cultural researchers are very much up to this task. They help us to understand just how much it takes – in terms of practical astuteness and methodological investment – to make Internet-based and Internet-related methods work with other social research methods. Intellectual scepticism about digital methods – and about digital industries – is not necessarily unfounded, but it too often serves a placeholder for an unwillingness to do this work. Yes, the type of social research that is facilitated by digital platforms and the kind of 'knowledge about society' pursued by social researchers are in many ways at odds, but this only means that we must do the work of making digital data, tools and methods serve the ends of social inquiry. This volume provides many examples that demonstrate how to do this.

In the process, the contributions also show us that digital methods are not just another set of methods or just another toolkit. To be sure, social research methods have long had a computational dimension. But what we are facing today is a much wider re-negotiation of social research methodology across academia, industry and society. If something unites those who 'do' digital methods, it is perhaps that they are prepared to recognize the importance of technology and socio-technical arrangements to how we gain knowledge about social life. They recognize that digital technologies, settings as well as digital user practices and the 'research situation' all inform the 'method' we end up using in our research. As we learn how to research social life 'with the digital', we then inevitably come to re-specify what participates in the composition of method: machines as much as people, ideas and situations. How to do it? This is as much a practical as an intellectual question, and this is what makes digital methods so exciting and the willingness to engage with them so important.

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Acknowledgements

Contributors

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Emma Hutchinson has recently completed her PhD, entitled 'Performative Identity and Embodiment: An Online Ethnography of Final Fantasy XIV', at the Department of Sociology, University of Warwick, UK. Her work concerns the performative relationship between identity and embodiment online in the context of online gaming. This research maps how performative identity and embodiment via an avatar can be enacted within an environment that is structured by social norms including heteronormativity and racism. The research also charted different ways of researching online gaming using qualitative methods including participant observation, asynchronous interviewing and forum observation. Her research interests include digital sociology, digital social research methods and visual sociology.

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Digital Methods as Mainstream Methodology: An Introduction

Helene Snee, Christine Hine, Yvette Morey, Steven Roberts and Hayley Watson

Introduction

This book explores exciting innovations in the field of digital social research. The growing significance of 'the digital' for contemporary social life is undeniable; nevertheless digital methods have yet to be fully accepted into mainstream social science. By presenting a range of work by social scientists from a variety of disciplinary backgrounds, it is our aim to highlight digital methods as a valuable and increasingly integral part of the social research toolkit. They offer the chance to access, generate and analyse new kinds of data on the social world in novel ways and address new research questions, as well as providing different approaches to long-standing questions. In this collection, we define digital methods as *the use of online and digital technologies to collect and analyse research data.* Our concern is not only with research that explores online phenomena, but also with a broader interest in utilizing digital methods to engage with all aspects of contemporary social life.

In each of the chapters that follow, the contributors consider two central questions:

- How do the methods described supplement or extend the existing methodological repertoire of the discipline?
- How far do these digital methods contribute to or transform understanding of a 'mainstream' issue?

This collection therefore embraces digital technologies for what they offer in terms of methodological innovation and conceptual insights. However, we also recognize the practical and ethical challenges of digital

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methods, and we offer critical reflections on establishing these tools as viable, rigorous and effective sets of methodologies.

In this introductory chapter, we set the scene for the innovations that follow by providing a contextualizing literature review of the emergence of digital social research. We outline the growth and changes in Internet use and the response by social science and then discuss the developments in digital methods – from ethnographies to 'big data' analysis – that the chapters in this book build upon. Following this overview, we discuss some of the challenges in bringing digital methods into the mainstream, before outlining the contributions to this collection. In this book, we hope to contribute to important debates across social science disciplines concerning how digital data augment, enhance and problematize our conventional methods of research. Such debates raise fundamental questions over who is researched, what is researched and how research is conducted.

The emergence of digital methods in social science

Since the Internet became a mainstream phenomenon in the mid-1990s, it has been clear that it provides both a fascinating resource for doing social science and a significant opportunity to develop and build upon some established modes of social science research. Following an initial early phase of scepticism about the social potential that computer-mediated communication offered, it subsequently became widely apparent that online interactions were of sufficient intensity and significance for their participants that social scientists could study them and in fact needed to take them seriously (Jones, 1995, 1997). Following this recognition, a burgeoning literature has explored the specific qualities of online social spaces, often in a pioneering spirit that has stressed the need for social scientists to adapt their techniques to the specific qualities of new phenomena (Hine, 2005a).

Since its initial emergence as a phenomenon of significance for social science, much has changed about the Internet and digital social science. Successive waves of the Oxford Internet Survey (Oxford Internet Institute, 2014), Pew Research Center studies of Internet use (Pew Research Center, 2015) and the World Internet Project (World Internet Project, n.d.) have documented the growth and diversity of the Internet-using population. A very important qualitative and quantitative shift in online activity has been occasioned by the growth and broadening out of user participation in the creation of online content, fed by the emergence of social networking sites and the development of modes of

contribution which require little technical skill from users. This emergence of Web 2.0 (O'Reilly, 2005; Beer and Burrows, 2007) or what is known as the participatory web (Blank and Reisdorf, 2012) reflects the input of an ever-widening segment of the population and changes the nature of what is said online. In 2015, We Are Social reported that there were approximately 2.078 billion active social media accounts; Europe alone contributed 387 million accounts (Kemp, 2015). Social networking sites offer a 'platformed sociality' (Van Dijck, 2013) which provides a simple means for users to connect with one another and, in the process, to leave persistent traces of their activities. The potential of the 'big data' – data which is 'high-volume, high-velocity and/or high variety' (Gartner, 2013) – generated by social media, for instance, to offer new ways of doing social science is one of the themes explored in this collection.

As the Internet-using population has broadened out, so too have the aspects of everyday life reflected on the web. The wider population has become accommodated to the idea of the Internet as a site where information is accessed and a space where their own daily lives may be played out, both in moments of drama and crisis and in more mundane ongoing practice. Among academic researchers, there has been a subtle, but nonetheless important, shift in emphasis within the literature, with the growing recognition that the Internet, rather than acting as a transcendent phenomenon which offers a separate form of social space, is instead embedded in multiple contexts of everyday life (Wellman and Haythornthwaite, 2002). This 'contemporary Internet' has become a complex and multifaceted arena which both reflects and reshapes everyday life, subtly remodelled by the platforms which provide options for sociality and the algorithms which circulate data and personalize our online experience (Beer, 2013). It has become increasingly difficult for social scientists across a wide range of domains to ignore the role that digital technologies, and online interactions in particular play in the forms of life that they are studying. Interest in digital methods has therefore spread far beyond those researchers who are interested in the Internet for its own sake. As online interactions have burgeoned, and as social science ambitions for taking account of these online interactions have broadened out, the complexity of the methodological challenges has also increased. The multi-platform embedded in the Internet poses a new set of demands on established research methods, as we seek to find ways to keep up with new technologies that provide platforms for sociality, to map the connections between online and offline space and to analyse diverse forms of data.

This collection focuses on an assorted array of approaches across the social sciences using digital methods to address 'mainstream' issues. The authors focus on digital phenomena, but they do so in full recognition that such phenomena are not to be considered as 'merely' digital or qualified as *only* online forms of sociality. Rather, these researchers study digital phenomena because they are social, and as such, deserving of attention, and significant within the overall concerns of their home disciplines. These researchers are faced with the specific demands placed upon them by the contemporary Internet as a complex and embedded phenomenon, but they do so building on the tradition of online research and a wide array of established research methods. This collection focuses on contemporary challenges and develops its strategies out of a strong heritage of qualitative and quantitative research into online phenomena. The remainder of this section will, without attempting a comprehensive overview, outline some of the key foundations of online methods which this collection builds upon.

The development of digital methods

The question of how to do research in online spaces has been a recurring theme for collections and handbooks over the years as the Internet itself has developed (e.g. Jones, 1999; Mann and Stewart, 2000; Hine, 2005b; Fielding, Lee and Blank, 2008). The web has been used extensively to reach research participants by both qualitative and quantitative researchers. Web-based surveys (Dillman, 2007), for example, have become a much-valued resource, allowing for flexible delivery to broad samples at relatively low cost and access to hard-to-reach populations (Coomber, 1997). Online interviewing and focus groups have become routine, both in asynchronous mode and in real time (Kazmer and Xie, 2008; James and Busher, 2009; Salmons, 2009; Salmons, 2011). Interviewing online can offer a safe space for participants to address sensitive issues (Illingworth, 2001; Orgad, 2005; McCoyd and Kerson, 2006) and provide for inclusion of those who might find face-to-face interviews hard to fit into their lives (Madge and O'Connor, 2002; Nicholas et al. 2010).

Some qualitative researchers have used data from online discussion groups and forums, preferring to draw on this naturally occurring data for its capacity to explore how participants formulate issues in their own words and for the low burden placed on participants. Systematic comparisons have established that such data compare favourably in quality with the conventional interview (Seale et al., 2006; Seale, Ziebland and Charteris-Black, 2010). Computer-mediated discourse analysis (Herring,

2004, 2011) uses techniques from linguistics to explore the specifics of online language use and conversational structure. Other uses of online 'found data' take a larger-scale quantitative approach to the analysis of emergent patterns of discourse (Thelwall, 2009; Bruns and Stieglitz, 2012) or exploit the underlying structure of hyperlinks to explore the emergence of issues across the landscape of the web (Rogers and Marres, 2000; Thelwall, 2004). Digital data offer a readily available resource for exploring social patterns on a large scale.

Researchers have also extensively used ethnographic approaches to explore the specificities of the online cultural space. The development of participant observation techniques tailored to online spaces, such as virtual ethnography (Hine, 2000), cyberethnography (Teli, Pisanu and Hakken, 2007), netnography (Kozinets, 2009) and digital ethnography (Murthy, 2008), has entailed extensive reflection on what it is to be present in an online space and how ethnographers can plausibly represent themselves as developing a robust knowledge of those who inhabit them. Moving on from this notion of discrete online cultural space, and reflecting the move towards the comprehension of a complex, multiply embedded Internet, those conducting ethnographic studies of online spaces have increasingly found themselves drawn to explore complex connections between online and offline in an effort to understand the multiple ways in which the Internet is localized (Postill, 2008). Digital anthropology (Horst and Miller, 2013) explores online spaces in their own right and also navigates the broader cultural territory within which being online has become a way to experience being human. Hine (2015) advocates a multi-sited form of ethnographic practice which addresses the Internet as embedded, embodied and everyday. Postill and Pink (2012) discuss the 'messy' web which emerges from ethnographic attempts to track the online and offline activities of social movements.

There is, therefore, a rich heritage of methods that both celebrate and interrogate the specific qualities of digital forms of interaction and seek to situate them within a broader social context. Savage and Burrows (2007) feared that social science faced a crisis, as its traditional techniques were increasingly sidelined by the emergence of a wealth of data and the tools to interrogate it largely developed in commercial settings. Instead, it appears that social scientists have risen to the challenge, developing new techniques designed to celebrate the qualities of digital data (Rogers, 2013). Social science has to some extent embraced a new era of big data, although this has not occurred without critical examination. As Manovich (2011) discusses, it is important not to take digital data as transparently reflecting what people do and think. Marres and

Weltevrede (2013) reflect on the need to critically reflect on the assumptions inherent within data generated by tools developed for commercial purposes. Elsewhere, boyd and Crawford (2012) argue for the need to retain qualitative approaches alongside and in dialogue with the seductively large scale of analysis offered by big data. The status of digital methods in the social sciences remains a rich site for reflection on the wider goals and strategies of social scientists striving to keep pace with each new development.

Digital methods as mainstream methodology: The challenges

Social researchers adopting digital methods therefore face some epistemological dilemmas, concerning what the online phenomena that we study actually represent in social science terms and what assumptions we may make when adopting new tools and new research practices. In addition to these epistemological issues, social researchers in digital territories face a considerable array of practical challenges. Each technological development in the Internet, and each new platform, may require different techniques for data collection, new forms of data analysis and innovations in publication format. This pace of change may mean that social science can lag behind engaging with what has already become 'mainstream' in the commercial or public sphere. Moreover, the economic value of digital data means that access is increasingly controlled by corporations and can be expensive (see Bruns and Burgess, Chapter 2 in this volume). One challenge is that the technical proficiency to access and analyse data may require skills not routinely offered to social scientists as part of their methods training. Digital social research is the subject of specialist courses, conferences and journals, but does this create silos rather than embedding these methods and tools into broader disciplinary concerns? A key priority is to support the work of PhD students and early career researchers in this area, but how do we embed such efforts into 'mainstream' social science? Alternatively, innovation, collaboration and interdisciplinary work are undoubtedly crucial and could be fostered through carving out common ground across disciplinary boundaries. There is also much potential in working outside the mainstream at the 'interface' of digital media and digital social research in order to drive forward methodological development in challenging ways (Marres and Gerlitz, 2015). Yet, as Hewson (see Chapter 13 in this volume) considers, there are also considerable challenges in applying the ethical standards of critical social science to

new and rapidly changing environments. The chapters in this collection attest the vital importance of adopting theoretically grounded and reflexive approaches to digital tools and methods, recognizing that their production and use are part of wider political, social and cultural processes (Lupton, 2015). We will return to these themes in our concluding chapter.

Outline of the book

This text is divided into four parts, each with three chapters organized around broad themes. We introduce each of these parts with an overview of the key methodological issues raised across the three chapters and some advice for researchers working in similar territory.

Part I considers not only quantitative and qualitative analysis of social media, addressing the contemporary concern with 'big data', but also the rich or 'thick data' available online. Chapter 2 by Bruns and Burgess seeks to highlight the challenges associated with access to data from social media stemming from Twitter as well as some of the tools that can be used for analysing Twitter data. Chapter 3 by Brooker, Barnett, Cribbin and Sharma examines the technical aspects of computational applications for capturing and handling social media data from Twitter that can impact the researcher's reading and understanding of the data. Lastly, Chapter 4 by Stirling provides an insight into her own first-hand experience as a researcher conducting a 'digital' ethnography with the help of the social networking website Facebook.

Part II provides examples of research that has sought to explore digital methods through comparing and combining these with 'offline' or traditional approaches. In Chapter 5, Hope describes research aimed at understanding the use of online support by parents of people with the rare condition Rett syndrome. This chapter provides an exemplar of an approach to exploring sample and data biases across online and offline modes of administering surveys and interviews, and it gives advice on potentially problematic issues when combining data from different modes in the same research project. In Chapter 6, Sajuria and Fábrega continue this theme of comparing different modes of data collection with their exploration of Twitter data. Their case study focuses on discussions surrounding the Chilean presidential election of 2013. Sajuria and Fábrega summarize the problematic status of Twitter as an apparent barometer of public opinion against the surveys more conventionally used to explore the issue. In Chapter 7, De Roock, Bhatt and Adams explore a complex, multi-modal setting which requires them not just to