UNDERSTANDING RESEARCH IN THE DIGITAL AGE

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THE CHANGING RESEARCH LANDSCAPE

In this chapter we will:

- outline the ways in which research boundaries are becoming increasingly blurred
- describe macro-level reflections for digital researchers
- describe micro-level reflections for digital researchers
- emphasise the central role of contextuality in digital research decisions.

INTRODUCTION

This chapter opens with a discussion of how the well-established characteristics, strengths and weaknesses of different types of research methods (e.g., qualitative/quantitative) are blurred in the digital environment. It explores how the digital era is now influencing our understanding of broad classes of research techniques and raises questions concerning the boundaries of traditional 'classifications' of research methods. This leads to questions concerning whether the established 'boundaries' used to classify research (e.g., qualitative/quantitative) remain as useful in the digital research environment. The theme of blurred boundaries is revisited throughout the book. How place and space are blurred by the digital environment removing temporal boundaries is a theme considered in Chapter 4, how the digital context impacts on the roles of the participant and the researcher is covered in Chapter 5, while how notions of public and private are impacted by socio-technological norms can be found in Chapter 6.

How, then, can digital researchers understand and justify their research choices when established ideas are morphing and the environment they work in is dynamic? Whether it is the choice of research topic or specific research methods used, the blurring of boundaries reduces the usefulness of the established research heuristics that are used to make research design choices. Consequently, as digital researchers we need to return to examining our underlying research assumptions. To facilitate this exercise, this chapter unpacks the applicability of the established research heuristics in the digital environment, examines some of the macro-level questions related to what we are aiming to achieve with our research as well as considering questions that will help us to understand how our choices fit into the current socio-technological context. This chapter also explores the micro-level questions related to our digital research design choices, as well as considering the relevance of contextuality to digital research.

ESTABLISHED RESEARCH HEURISTICS IN THE DIGITAL ENVIRONMENT

Classifying research can be helpful in putting boundaries around ideas and creating structures to work within both in terms of how we as researchers might implement our research ideas, and how we might maximise the potential of our research outputs. Some critics of categorisation consider boundaries to represent false parameters, which impose self-limiting results and shorten the research horizons of what might be possible. Nevertheless, many research methods texts categorise the tools and techniques they describe to enable clear description of their strengths and weaknesses, as well as to facilitate understanding. As researchers often focus on the theoretical and conceptual elements of their work, rather than developing an in-depth and nuanced understanding of the research methods they are using, implicit associations can develop.

A well-established and pervasive classification for research methods is qualitative or quantitative. Classifying research into qualitative and quantitative essentially provides us with an easily accessible shorthand that allows us to determine which types of research methods are more suitable for the research question we are asking. The classification allows us to access the qualities of the available types of research with respect to their suitability for our research question (Table 2.1). That is, whether the design is suitable for achieving the research objectives; whether the methods and analysis could

Table 2.1 Established norms of qualitative and quantitative research

	Qualitative	**Quantitative**
Research type	Exploratory	Descriptive or causal
Dominant paradigm	Interpretivist	Positivist
Research questions	Fluid: modification can occur throughout the research process	Static: fixed prior to data collection
Data format	Unstructured words/text	Structured numeric representations
Methods	Interviews, focus groups	Surveys, experiments
Determination of findings	Understanding developed through immersion in the data	Meaning extracted through interpreting statistical analysis
Data characteristics	Rich, in-depth, contextualised	Aggregated, decontextualised, generalisable
Data quality expectations	Consistency, authenticity, credibility and reflexivity	Reliability and validity
Strengths	Ecological validity Deep understanding/nuanced	Generalisability across groups Predictions/forecasting
Weaknesses	Lacks breadth Context specific	Lacks depth/nuances Decontextualised

be justified as appropriate; if the sample was collected in a way that adds to, rather than detracts from, the 'quality' of the data. Qualitative research is, as such, understood to be less structured and more exploratory in nature. It is, generally, focused on words rather than numbers, and is used to explore research questions that are fluid rather than fixed. In contrast, quantitative research is associated with structured designs and data. It attempts to provide conclusive answers to descriptive or causal questions through the use of numbers to test research hypotheses. These research questions are fixed prior to data collection.

The division between qualitative and quantitative research developed partially because research was constrained by the ways in which we could communicate with people or observe events, as well as how we were able to analyse different data types. So how did resources previously constrain research? Looking at the resources required for survey research, historically researchers would have to either personally interview, telephone, or send a questionnaire out to participants individually. How many participants were obtainable depended on the method chosen, the time available to collect the data, and the number of people that could be recruited to act as interviewers. Generally speaking, the fewer resources there were available to the researcher, the longer it would take to collect the data. With survey research, the large volume of data was collected in a standardised form that was designed to allow statistical analysis. In contrast with qualitative research, interviews would generate a large volume of data that the researcher would have to immerse themselves in, perhaps reading and re-reading the raw data to determine key themes. Overall, research in the pre-digital environment was essentially constrained by resources such that we could either access a large number of people/events with relatively shallow data, or get large volumes of data from a few people.

The data storage and processing characteristics of the digital environment mean that research in the digital environment does not face many of the constraints faced previously. In some cases this is because the data formats are new (Chapter 3), in others it is because familiar data formats are processed in a different way (Chapter 6). Text mining of social media, for example, structures words in a highly systemised way similar to the coding of quantitative data, yet questions addressed through data mining techniques can be unambiguously exploratory. In contrast to these historical constraints and boundaries on research, we can now design a digital questionnaire and make it available online at very low cost, and invitations to participate can be posted on multiple online forums. Consequently, the scaling issues associated with obtaining a large enough sample size for quantitative research are no longer constraints to us as digital researchers. A caveat worth noting though is that as the online environment becomes more popular for research so the response rate and completion rate of online surveys etc. continues to fall. In addition, qualitative analysis software can deal with volumes of text so large that previously, it would have been impossible to analyse manually.

Research in the digital environment is quite likely to take a multi-methods or mixed methods approach, combining elements of both qualitative and quantitative research to address a research problem (Cenni and Goethals, 2017; Hughes et al., 2017). Resource constraints no longer require digital researchers to make a choice between qualitative or quantitative research methods. The technological context has reduced the resources required to communicate with large numbers of participants (or examine of a large number of events), and to scrutinise large volumes of text. The digital environment has changed how we communicate, making reaching large numbers of participants more accessible. It has also, through the digital archiving of behaviours, made the storage of huge volumes of behavioural data possible – think, for example, of the data held by Google concerning our search behaviours, or the details held by online retailers concerning how we navigate through their websites when making a purchase. In addition, software developments mean that the qualitative analysis of large volumes of text is accessible. Digital research does not fit neatly into conventional classifications such as qualitative or quantitative, so the short-cuts used to understand the strengths and weaknesses of non-digital research cannot be accessed to understand the strengths and weaknesses of digital research. We are no longer constrained by the resource issues that historically led to the division of research into qualitative and quantitative.

Why we classify research is worth reflecting on here. What purpose does the classification of research serve? Classifying research helps us to identify general strengths and weaknesses of the research types. Classifying research according to the methods that are most appropriate for us to answer a particular question serves the purpose of enabling us to quickly identify the skills and resources we need to address our particular research problem, and provides us with arguments we could use to justify our research choices. As established classifications become less relevant, we need to rethink the 'boundaries' used to classify research. If our research classifications are not constrained by methods, then this leads to the question: *What is the most appropriate way to classify, and as such understand, our digital research?*

JUSTIFYING RESEARCH IN THE DIGITAL ENVIRONMENT

Breaking down how we think about our research can help us to identify potential issues we might encounter when doing our research, as well as pointing us towards the strengths of our research. There are a number of models of research that can help us to think about the research questions we are asking at a higher level. They make us consider macro-level questions such as how our approach to research impacts on what we will extract

from our data (e.g., intellectual projects), and what type of knowledge we aim to produce (e.g., theory, research, practice) (Wallace and Wray, 2016). Models of research can also help us consider questions that are more micro-level, that is, focused on the place of our particular research project within the greater body of research that already exists (e.g., stages of research), and how the different elements of research – theory, methods and context – fit together to make a robust research project (McGrath and Brinberg, 1983). The high level of abstraction of these models means they continue to hold value in the digital research context. However, as they were designed to help us unpick research in a stable research environment where certain things are accepted as known (e.g., characteristics and value of qualitative and quantitative research), they need to be augmented with a clear understanding of the socio-technological context when used in a dynamic digital environment.

We, as digital researchers, need ways of unpicking the macro- and micro-level questions that surround digital research, and these questions need to be suitable for the dynamic and uncertain digital environment. At a macro-level, we need questions that allow us to unpick how underlying purposes, perspectives and approaches will impact on what we investigate and consider worth reporting on. Macro-level considerations are influenced by our socio-cultural, disciplinary and personal contexts as these all impact on our values, interests, knowledge and beliefs. So, for example, disciplines differ in their emphasis on groups (e.g., sociology) or individuals (e.g., psychology), the applicability of their results to practice (e.g., anthropology) or policy (e.g., public health), and the importance of the particular context (e.g., business/management in contrast to geography). There are also differences in how individuals, disciplines and/or institutions view digital phenomena (e.g., as 'just' another context, or as a new dimension of study) and in how open different audiences are to research that has considered digital phenomena, or has used digital methods.

At the individual (micro) level we have views concerning the value of different types of research, we may have developed particular research skills and interests, and we are influenced by our own values and the individuals and groups with whom we interact. As individuals we may be digital natives or technophobes, we may see the digital environment as progressive or harmful. While at the socio-cultural level we deal not only with culturally embedded assumptions and our social history, but also with specific socio-cultural historic events. (So, for example, while writing this I am thinking about the UK referendum result that has just been announced, and the implications of the vote to exit Europe for me, the UK and the other countries in the European Union. How, for example, will exiting the EU impact on roaming changes for mobile phones, or privacy laws? Will it change access to European data, and if so, how quickly?) Digital factors are also relevant for/to our socio-cultural environment. These might, for example, be reflected in privacy laws and our access to data about ourselves. These influences all impact on what

we choose to research, what we want to achieve with our research, and how we approach our research. While the macro-level questions ask us to consider how the research we are doing fits into the broader socio-cultural and digital context we are living and working in, the micro-level questions are more specific to choices we make when developing our research design.

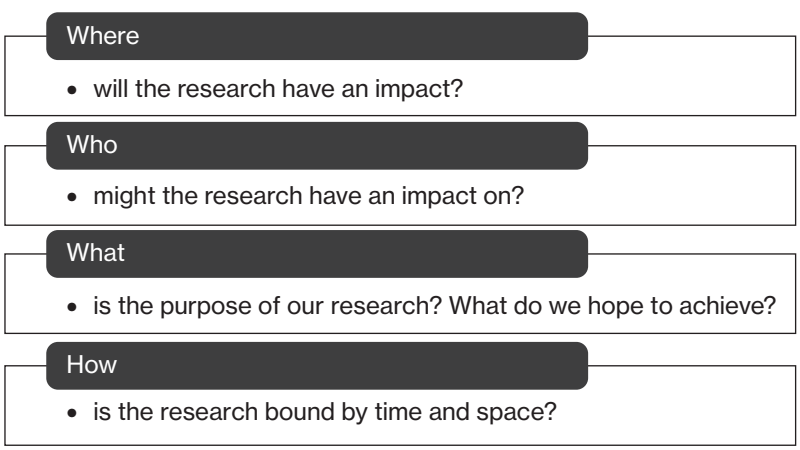
Macro-level areas for consideration

Considering the macro-influences that impact on our digital research choices will help us to develop robust research designs that:

- are more likely to produce value within our particular socio-cultural historic context
- identify potential pitfalls in the type of research we want to undertake and take those pitfalls into account
- explicitly consider and incorporate our research aims, and, as such, help us to achieve them.

So what are the macro-level issues that we can consider with respect to digital research? Macro-level issues are concerned with the higher-level goals concerning our research, and what we are trying to achieve. They help us to think about our research, and can alert us to gaps in our thinking. Nevertheless, we cannot simply answer each question independently, as different influences can interact with each other. Rather we need to consider our responses, and their impact on our research, holistically.

There are four macro-level questions that need to be addressed:



Where will the research have an impact?

In relation to the first question above, digital research can have an impact in the digital environment, in the non-digital environment, or across both. Looking back to the established/emerging matrix in Figure 1.1 (Chapter 1) provides a starting point for considering where the digital research is intended to have an impact. So, for example, if research deals with a digital phenomenon (e.g., examining trolling behaviours towards public figures) then its impact is likely to be confined to the digital environment, whether this impact is through individuals having a greater understanding of trolling, or government legislation concerning trolling. However, if the research is digital because it investigates a non-digital phenomenon through digital means, then the impact of the research may either be confined to the non-digital domain, or be seen in both the digital and non-digital domains. For example, digital researchers might use online surveys to examine how public figures cope with trolling behaviours and their recommendations could include guidelines for individuals concerning how to behave in the digital domain as well as recommendations for law makers concerning penalties for the perpetrators of trolling. Understanding where research could be applied helps us make decisions throughout a research project. Extending the previous example, it will help us at the beginning of our research to frame the research objectives we are interested in (e.g., focus on information that will help individual actions, or information that will provide evidence for policy changes), it will help us during our research to make research design decisions (e.g., what constitutes 'coping', how is trolling defined), and it will help us at the end of our research when choosing how to communicate the findings of our research (e.g., specific journals, popular outlets or a blog, a formal report submitted to legislators).

Considering where we intend research to have an impact also involves considering our research methods choices, as the method(s) used impacts on the type of knowledge produced. What evidence do we have, for example, that opinions expressed in the digital environment reflect behaviours in the non-digital environment? How valid are research findings based on digital (non-digital) data collection when applied in the non-digital (digital) context? How can we show that digital samples do not suffer from selection bias? How do we show that emerging digital methods can provide valid insights into general attitudes and behaviour? If the insights eventually gained through the use of digital research methods appear to contradict existing knowledge we need to consider more closely the impact of the methods used on knowledge production. Studies that compare the results of digital and non-digital research into the same phenomenon (e.g., influence of friendship groups) address this issue in a limited way. However, what these studies overlook is that new methods produce new types of knowledge, so just because the digital method does not (re)produce the knowledge found with its non-digital counterpart, it does not mean that the knowledge gained through the use of digital methods is not valid. It might be that the digital method produces a more accurate/authentic account of

the phenomenon under study, or it might be that the characteristics that underpin the digital method access different aspects of the phenomenon being scrutinised. That is, the insights gained using the different methods might be complementary; not 'better', just different.

Unpacking the implications of using digital research methods (with a digital or non-digital phenomenon) needs to include some consideration of the relationship between the method of research and the type of knowledge that can be produced by or through the method used. Borrowing from the qualitative/quantitative distinction used within established research methods, as researchers we are aware of the type of knowledge produced by each. Thus, when we conduct qualitative research we are not aiming to produce generalisable knowledge that might be used by policy makers to make funding decisions, and when we conduct quantitative research we do not aim to produce in-depth knowledge that might be used in clinical practice. Particular research methods develop different types of knowledge that serve different purposes. So when considering how digital methods impact on knowledge, the questions then become 'what type of knowledge is produced by the digital research methods I have used?' and 'how does this knowledge differ (if at all) from the knowledge produced by the (non-digital) methods previously used to study this phenomenon?' As more research occurs through (and on) digital research we will accumulate greater understanding of the type of insights digital methods can provide.

Developing our conceptual understanding of digital methods and how different methods produce knowledge and provide insights into phenomena is critical to advancing digital research. Understanding the influence of methods is particularly important when we attempt to consider how insights from individual projects fit into accumulated disciplinary and/or context-related knowledge. For example, if digital research methods produce findings that counter findings from non-digital methods, then we need to reflect on whether these different findings are due to methodological, contextual or phenomenological differences between the new research and the research field.

Who might the research have an impact on?

As well as considering where our research will have an impact, we also need to consider who our research will have an impact on as identified in the second question; that is, who is the audience for the research. The purpose and scope of the research will influence the number of stakeholders with whom we wish to engage. There are four broad groups of stakeholders we will consider here: academics, practitioners, policy makers and the public. Each group will be interested in particular aspects of the research, and we may need to engage with them in different ways. These audiences are not confined to digital research, however, the digitalised environment now has a huge impact on how we interact with them.

A typical social science PhD may be self-funded, without an external organisation expecting results/insights to be delivered to them. However, some PhD studies may be funded by national governments, which are financially supporting a doctoral student or an industry group that is contributing towards the cost of a PhD. These groups of stakeholders may desire (or require) engagement at different stages of the research study. Externally funded research projects such as those supported by European funding, or the Research Council UK, will have specific and stated requirements as to who, when and in what form the research should be communicated back to these stakeholders. Overall, the amount, format and timing of dissemination of research should be clarified at the outset of the project.

Digitalisation has created opportunities for greater transparency and communication of research to multiple stakeholder groups, not only as the research is being conducted, but also as a means to disseminate findings of research. How research may be communicated digitally impacts who will be able to access the research, and as such, who the research impacts. Consideration should be given to digitally excluded members of the public, particularly if the outcomes of the research may have social or cultural impact, and alternative channels should be found such as locally organised face-to-face debriefing and feedback sessions. For example, for a research project that investigates citizen engagement with local government services, the results should not only be posted on the local government and research websites but offline dissemination should also be planned (e.g., posters, town-hall meetings and presentations, leaflets).

In order to maximise the impact of our research the dissemination of research findings requires planning as different groups will perceive different platforms as their norms for obtaining information. Policy makers may refer to research websites, practitioners across different professions may gather information via LinkedIn updates to their chosen groups or via webinars on newly created insights, academics may be more likely to read disciplinary relevant email updates, etc. So the digital media used to engage and communicate with our research stakeholders needs to be targeted wherever possible.

What is the purpose of our digital research?

While considering where the research is likely to have impact, and who relevant stakeholders are, is relatively straightforward, the third question of unpacking the underlying purpose of digital research, whether conducted through digital or non-digital research methods, is more involved. Drawing from Wallace and Wray's (2016) types of intellectual projects, digital research can aim to:

1. develop understanding of a digital, or non-digital, phenomenon
2. challenge understanding of a digital, or non-digital, phenomenon
3. aim to promote change in some practice (e.g., organisational practice, government policy), or some person (e.g., an individual's or group's behaviours or attitudes).

Researchers trying to develop understanding reflect on and question what is already known from an impartial standpoint (Wallace and Wray, 2016). The neutral stance adopted by researchers is nevertheless affected by subtle influences that derive from their socio-cultural, disciplinary and/or personal, as well as the digital, context. Research of this type is generally attempting to build on what already exists. Having considered existing knowledge it looks at how that work can be extended through, or developed in, the digital context. This may, for example, involve transferring concepts or methods from the non-digital to the digital arena. The underlying aim of this type of research is to build on existing knowledge. Consequently, this type of digital research does not question the overall validity of existing digital, or non-digital, research knowledge, rather it builds on existing knowledge or 'stands on the shoulders of giants' (Newton, 1676). For example, this approach to research could include testing existing theoretical understanding of word of mouth by applying it to electronic word of mouth communication using email, social media or online discussions. On the downside, research of this type can be quite incremental in the way it advances knowledge.

Digital researchers that challenge existing thought have already made a value judgement about existing knowledge – that is, they have decided that existing knowledge is lacking in some way (Wallace and Wray, 2016). This challenge might be concerned with how the existing research is understood in, or transferred across to, the digital environment, or it might be a more fundamental challenge to the underlying assumptions of the phenomenon. Digital researchers can challenge both the applicability/suitability of non-digital knowledge in the digital context through digital and non-digital methods, and, through digital research methods, the validity of non-digital knowledge itself. For example, we could take the pre-established concepts regarding word of mouth communication and through research, determine that these concepts are not entirely suitable for electronic word of mouth, that the ways of communication have in some way changed and that either previous work can be refuted or we may suggest new, more relevant theories on electronic word of mouth.

As researchers who challenge existing knowledge can take an inherently combative stance towards that knowledge, it is important that those researchers are aware of their own prejudices. As researchers, we need to consider the extent to which it is our socio-cultural, disciplinary and/or personal influences that lead us to take a negative stance towards existing knowledge or practice. Without an understanding of why we might believe the current knowledge is lacking, and an understanding of where that belief derives from, we are unlikely to be able to clearly articulate our beliefs. This type of research can be very insightful with respect to how context impacts on knowledge. However, there is a danger of discarding useful knowledge alongside outdated ideas, if we are not aware of our own prejudices.

Digital researchers who are looking to change some practice or some person may be aiming to prompt those changes either in the digital sphere, the non-digital sphere, or both.

This type of research is directly targeted at making some change in the world, not just at understanding it (Wallace and Wray, 2016). Changes that involve digital practices or people's digital behaviours would fall under the banner of this type of research – for example, research looking at how to maximise personal branding, or website usability studies would be relevant here. While this type of research is highly practical, it may not advance theoretical or methodological understanding of the phenomenon studied.

How is the research bound by time and space?

The fourth macro-level question brings to the fore the reality that digital research occurs in a dynamic, uncertain environment. New digital technologies are being developed and released at an increasing rate (e.g., virtual reality headsets, driverless cars), new data are produced so quickly that it is now impossible to keep up with it (e.g., several quintillions of data produced every day), and new practices continue to be adopted by digital users (e.g., the adoption of applications ('apps') to remotely run households). Researching in this environment requires us to pause and consider how the phenomena we are interested in are specific to the time and space we are considering. Effectively we need to consider whether what we are interested in is a fad or meme (e.g., cat selfies), a fashion (e.g., particular hashtags #throwbackThursday) or a trend (e.g., uptake of mobile commerce). We can do this by considering:

- the level of embeddedness of our topic in time, that is, the time period of the research
- the socio-cultural perspective we are taking (both in terms of ideology and value)
- the particular technology(ies) or platform(s) (place) where the phenomenon is manifested
- the digital and non-digital environmental space (or ecosystem) where the phenomenon is found.

How is digital research bound by time?

A feature of the digital environment is its immediacy. Individuals and organisations are able to react instantly to events and this can result in a 24/7, always on, expectation of interactions within the digital environment. Events in this digital environment can, nevertheless, have different temporal characteristics that we need to consider in relation to how they impact on our research. Temporality is so important to digital research that we have devoted a whole chapter to it (Chapter 4). In digital research, temporality can include whether activities are cyclical (e.g., holiday destination internet searches, seasonality of clothing purchases, the release of a new version of mobile phone software). Temporality can be important in relation to understanding unusual events

(e.g., the 2013 Boston marathon bombing, the 2016 EU Brexit referendum, or an outbreak of a specific computer virus), and temporality can be considered in relation to how a particular phenomenon develops over a period of time (e.g., number of adopters of a technology, adoption of a particular type of behaviour). The first two aspects of temporality can originate from either inside or outside the digital environment, the third is related to developments in digital phenomena.

Some external environmental events can be anticipated, so we can plan for the digital phenomena that emerge from them. For instance, the cyclical nature of some website searches (e.g., flu vaccine availability), seasonal purchases (e.g., clothing choices), changes in services related to demographic trends (e.g., websites designed specifically for older users), and events such as elections (though not their outcomes), can all be predicted. The temporal characteristics of these events are due to broader environmental developments, but as their predictability makes them relatively easy to anticipate, we can incorporate them into our research designs. Other external environmental events cannot be predicted (e.g., an airplane disaster and the tweets associated with it, or understanding rioting by urban residents through digital postings on YouTube, Facebook, etc.). These events are unusual, occur in an ad-hoc manner, and represent rich opportunities for researchers to look at a specific digital phenomenon. Nevertheless, their unpredictability means that they usually need to be researched retrospectively.

Temporality can also be considered in relation to purely digital phenomena rather than broader environmental events. We might, for instance, be interested in considering how the time over which a particular technology has been available impacts on its use (e.g., changes in tweet content), or in comparing technological life cycles. For example, researching the patterns of technology adoption across cultures through looking at social networking sites such as Facebook and Weibo. A further element when considering temporality is that there may be interaction between events and the development stage of the digital phenomenon – for instance, the digital response to the Boston marathon bombings would have been different if it had happened five or ten years earlier as the communication platforms available evolved over that time period, resulting in a wider variety of media with which to use as a response mechanism. So some consideration may be needed concerning whether temporal factors related to the external environment interact with temporal factors in the digital environment.

Research is bound by time when time impacts on the usefulness of the research findings. Insights derived from researching one type of platform, for example, might become obsolete when a different type of platform emerges (e.g., Twitter changing communication behaviours). Findings based on data that have been impacted by unpredictable environmental events, or at a particular point in a cyclical phenomenon, might not be typical, reducing the value of those findings. These temporal factors have greater potential to impact on digital research due to the dynamic nature of the digital environment.

How is digital research bound by socio-cultural perspective?

The socio-cultural context of digital users, research participants and researchers can all impact on digital research. The questions we, as researchers, ask reflect the interests and concerns of our socio-cultural context (i.e., the reflections of our age, country, etc.) even if we are not aware of how those specific interests came about. For example, research on environmentally responsible behaviours occurs due to a general acceptance that people have an impact on planetary resources and climate patterns, as well as a responsibility to try to minimise that impact. What we consider important and/or interesting is dependent not just on our own skills, abilities and interests, but also on the interests of those around us – we do not work in a vacuum. What our participants choose to share or withhold is impacted by social norms, as is how digital users behave.

The socio-cultural environment reflects the ideology of the time and place – what is considered acceptable and ethical in terms of behaviour (e.g., slavery, racism, privacy), as well as what is acceptable in terms of research practice (e.g., deception, the notion of participants of research as 'subjects', researching the dark web – the part of the internet accessed only through certain networks, and which is not searchable by search engines. A wide variety of interactions take place on the dark web, such as illegal trading, and media exchange for those interested in pornography but also those people who wish to pursue legitimate but untracked interactions); both have ideological elements. The socio-cultural context shapes our values. For instance, whether we consider economic development more important than protecting the environment is not unrelated to how economically developed the country we live in is, and whether we consider relationships more important that individual success is, at least partially, culturally determined. As such, the socio-cultural environment provides an unconscious lens through which we problematise particular issues, interpret the digital context, and determine which research practices are acceptable. The more we are aware of how our socio-cultural environment impacts on our thinking, and on our research choices, the more we can consider how they interact.

How is digital research bound by technology/platform (place)?

The digital technologies used in the digital environment are not context-free, and various platforms exist that can be used for similar and different purposes (e.g., SnapChat versus Pinterest versus LinkedIn as described in Tuten and Solomon's (2018) social media zones). What we need to acknowledge here, as researchers, is that the technologies and platforms we select to study, that is the digital place we choose, can itself create boundary conditions that relate to what we will discover. For instance, if tweets are used as part of the research design, the message, until recently, was confined to 140 characters, though shortened hypertext links or ow.lys are often used to include further message content.

This limit constrains the data that are produced and subsequently collected, and would have knock-on effects to the insights that were drawn (e.g., depth of understanding of an issue). Other forms of data, such as a blog post, are less constrained.

As digital platforms differ from each other, certain platforms may have characteristics that make them more valuable as vehicles for collecting certain types of data or for providing insight into different types of behaviour. For example, complaint behaviour may be more effectively researched through investigating TripAdvisor review data than Facebook. Young people's perceptions about higher education may be more usefully explored through discussions on the Student Room website forum. Usage of urban outdoor spaces may be reviewed by town planners through the analysis of digitally recorded CCTV videos illustrating patterns of human movement. Thus media, technology and platform chosen should not only relate to the research objective but also how the resulting data will be bounded by the platforms chosen. The point here is not that one of these forms of data is generally 'better' than the other, but that it is important to ensure that we are aware of the limits of our potential data sources prior to data collection, and that we have asked whether our data will enable us to examine/explore our research question in sufficient depth.

As researchers, we also need to consider how the findings from one technology or platform can apply to another. Any unquestioning application of the findings of a study using one technology to another technology is false, just as we need to consider how a study undertaken in non-digital contexts (e.g., church communities) cannot automatically be applied to other non-digital contexts (e.g., addiction recovery communities). We cannot automatically assume that a model developed using one digital platform will be applicable to another (although it may be). For example, messages posted on Facebook cannot be considered as equivalent in format or in purpose as tweets on Twitter or pictures on Instagram, and models of digital communication networks developed on Facebook may not transfer to Twitter or Snapchat.

How is the research bound by the digital and non-digital space?

Individual technologies and platforms do not exist in isolation; they exist in a complex ecosystem with shared content, ownership structures and competing characteristics. That is, they exist in a technological space that itself exists alongside and interacts with a non-technological space. Technologies and platforms compete with each other for their 'share' of the digital user, but the share they gain does not just depend on their technical characteristics, but also on network effects (i.e., the number of relevant/current users they already have). Which technology individuals gravitate towards will depend on a number of complex non-digital and digital characteristics. For example, the Chinese government restricts access to some social networking sites (e.g., Facebook), so other choices have

developed that cater to the needs of Chinese people (e.g., Weibo, RenRen and WeChat), and at the family level, a particular website might be blocked by parents to prevent access by children. Knowledge of the external factors that impact on technology/platform uptake informs us of potential bias in our sampling, or might prove a helpful pointer as to which particular research questions might not be answered via particular platforms.

While technologies/platforms all need to claim a share of the digital user to thrive, they might not need to compete directly. Technologies/platforms can also coexist independently alongside, or be complementary to, other technologies/platforms. Understanding whether one technology/platform competes with, co-exists with, or is complementary to another is important when selecting platforms for data analysis, and when we interpret our findings. An example of complementarity might be an individual using Facebook to keep in touch with a broad group of friends, WhatsApp to have conversations with a family group, and LinkedIn to maintain loose professional networks.

Micro-level areas for consideration

As with any research design, digital research needs to have a starting point. From within the digital environment this starting point could be an interesting digital phenomenon that has not been explored before, or we might be interested in looking at how we can develop a new digital theory, or extend a digital theory to another (digital) context. Alternatively starting from outside the digital domain, we might wonder how a non-digital phenomenon manifests in the digital domain, or be concerned with how pre-existing (non-digital) theory applies in the digital domain. Whatever our starting point, our research design will need to decide what and where/when we are considering, and how we will gain data in relation to that consideration. While these considerations will all impact on our research design, they can also prompt further research design questions. Drawing from McGrath and Brinberg (1983), four questions can help us consider how the different elements of the digital research design 'fit' with each other. These are:

What

- conceptualisations (theories, models or frameworks) are relevant to our digital research?
- methods are relevant to the research?
- is the context of the digital research?
- is the contextualised phenomenon that is relevant to the digital research?

What conceptualisations are relevant to our digital research?

As researchers we move from concrete observations of phenomena in the 'real' world to some conceptualisations based on those concrete observations (i.e., theory development), or we take previously developed conceptualisations and consider how well those conceptualisations explain sets of concrete observations (i.e., theory testing). In other words, we move between the concrete and the abstract in our research. The particular conceptualisations we use are the theories, models and frameworks relevant to our disciplines. Any particular research project either uses these conceptualisations to develop the research aims and/or objectives, or examines unexplained phenomena to develop new conceptualisations (McGrath and Brinberg, 1983). With digital research, we need to consider the relationship between these conceptualisations and the digital environment. Suler (2016), for example, looks at how psychological theories need to be reconceptualised for the digital age. However, using digital methods will not necessarily lead to a 'digital' conceptualisation of the phenomenon, as the digital method might only be used to access the concrete observations. For example, citizens' understanding of their employment rights when examined through questions posed on Q and A websites and forums is unlikely to result in a reconceptualisation of employment rights.

If we are considering phenomena in the digital environment, then we need to consider how our conceptualisations relate to the characteristics of the digital domain. We need to understand the extent to which our conceptualisation is derived from and embedded across the digital environment. For a conceptualisation developed in the digital environment, we need to consider how its conceptualisation is related to the macro-level questions considered earlier. If the conditions under which the conceptualisation previously occurred no longer exist, then we need to consider how those changes might impact on (if at all) our conceptualisation in this time and place. Specifically we need to ask what our current context shares with the context that the theory/model/framework was developed in. For example, research attempting to conceptualise the 'sharing' society needs to consider the movement away from open profiles to private profiles on Facebook as abuses of privacy, perceptions of control over content, etc., changed as the digital platform evolved.

When we want to understand how non-digital conceptualisations apply to problems in the digital environment, we also need to understand how the theory/model/framework was conceptualised. What are the characteristics of the conceptualisation (or the digital environment) that make it interesting to explore in the digital space? How much do we know of the conceptualisation in digital space? Indeed, why do we believe a non-digital theory is relevant in the digital environment? For example, a research study interested in fashion clothing purchasing behaviour and the influences involved may consist of taking non-digital theories of influence and applying them in a digital context, or the researchers involved may take the view that none of the established theories are relevant in the digital context.

What methods are relevant to the research?

Every time we conduct research, we need to consider how we will access information to help us address the research questions we are asking. Understanding how we access information is not unique to understanding digital research. While not the focus of this book, whether we are conducting digital research or not, we need to consider ontology (what we believe exists) and epistemology (how we can know what exists). More pragmatically, we also need to consider whether the methods we propose to use fit with the particular problems we are studying. Because research in the digital environment is less well established and continues to evolve rapidly, we need to consider carefully how our choice of research methods will impact on the data we can gather, how that data can be analysed and, in turn, how that data might shape our findings. For example, we might gather data about attitudes from tweets or personal blogs. Tweets are short, so any attitudinal data are likely to be summative – good/bad – not nuanced. In contrast, personal blogs can be extended, and attitudinal data here may not provide an overall summative statement but instead explore both positive and negative attitudes towards something. As such, the characteristics of the data from a particular data source can shape the research insights found, so when choosing digital methods, we need to ask ourselves questions about those methods in order to help us understand how they might shape our understanding of what we are researching. This will help us choose the methods most appropriate to our research.

Do we even need digital data?

As digital researchers, we need to consider whether we actually need to gather digital data to explore the phenomena that we are interested in. Here we might need to separate out whether we are interested in the entity (person, organisation or thing) or the digital manifestation of that entity (e.g., tweet, personal blog, navigation behaviour, network connections). The distinction between the entity and its digital manifestation (digital footprint or shadow) is important. If the digital footprint/shadow is of interest, then we need to consider how to appropriately access that footprint/shadow. Here we need to reflect on issues related to authorship and ownership of the data, as well as matters relating to privacy. These issues are explored in more detail in later chapters. In contrast, if our research question focuses on the entity (person, organisation or thing), then we may not need digital data at all as non-digital methods may be better suited to directly access that entity.

It might be that the data manifestations we require are digital (e.g., Twitter, Facebook, Instagram, WhatsApp and WeChat), but to access those manifestations for a particular entity requires non-digital data collection (i.e., recruiting an individual who will allow access to their phone, tablet and computer). When considering the relationship between

an entity and their digital manifestations, we might also want to consider how close the digital manifestation is to the entity. Someone's personal blog is closer to the entity who wrote it than a tweet about that blog, an individual's Instagram account is closer to that individual than a selection of those photos compiled by someone else. This reflection on the relationship between entity and manifestations is concerned with the proximity of the data to the focus of the research, and would be included under primary or secondary data considerations when not in the digital space. However, data in the digital space might not be easily classified into primary/secondary and this is considered in more detail in Chapter 3. The proximity of the material to the individual may also have implications for the content of the data.

Some digital research methods are derived from more traditional research methods, others have developed as we have explored phenomena in the digital space. When we adopt non-digital methods (e.g., questionnaires, interviews, focus groups, experiments), we need to consider how the digital environment impacts on those methods. For example, we may need to consider: How does the participants' ability to look up information online impact on responses to questionnaires or in interviews? How might the loss of body language and facial expression between people impact on the interaction in interviews and focus groups? Or, how might the dynamic possibilities of online research impact on experiments? Overall, when using adaptations of established methods in the digital context we need to consider how the characteristics of the digital environment will impact on those methods.

When considering methods developed in the digital space, we have to explore how well understood those methods are in the digital context we are using them in. Are the methods known in our discipline, for example, or in related disciplines? Have the methods been used with a particular technology or platform? Using a digital method that is already established within a discipline will require less justification to convince others of the value of the findings we produce. If we are introducing a digital method to our discipline, then we will need to fully understand, and be able to explain, how that method relates to accepted methods. Some digital methods that have been used extensively and are now relatively well developed are netnography and geo-location based mapping (see Kozinets, 2010 and 2015). Other digital methods are still under development (e.g., STACKS, an open source research toolkit designed to collect, process and store data originating from various social networks) or require more extensive justification (visualising results rather than providing numbers).

We also need to consider how the development of a digital research methods tool might have impacted on the data it produces. The technical development of some methods (e.g., sentiment analysis) could be criticised for taking too simplistic a view of how sentiment is expressed through language. Similarly qualitative data coding software used in but not limited to digital research, such as NVivo, has been criticised for being overly

reductive and attempting to overlay quantitative analytical approaches onto qualitative data, including social media text and image based data. What we need to ensure is that, overall, we consider the relationship between the research method chosen and the data we gain.

A further consideration is practical. We need to consider, when looking at digital methods, whether we have the skills and/or resources required to implement them (i.e., our expertise). Many of the technical skills required to implement digital research methods fall outside the social science disciplines, such as the ability to write computer code or manipulate complex data sets across different software systems to create an integrated data set. While technical skills can be learnt and/or bought in to a project, there are significant time and financial resource implications in doing this. Other skills may be needed that are found within the social sciences but outside your own subject area, for example, skills in setting up experiments, frequently found in researchers from psychology, some areas of economics and even education. If you are researching in a team then it is valuable to identify the existing skills your team may have in relation to digital research, and if you are in a position to recruit or access other researchers think about where the technical skills gaps lie that need to be filled in order to execute your project. Small scale digital research studies may be successfully conducted without the use of complex or costly technology. However, naïve execution of digital research methods leaves us vulnerable to criticism as we might not be able to determine whether the method genuinely allows us to access interesting and valuable data or whether it is a digital methods equivalent of a cat selfie (i.e., a fad) and only provides data of limited value in terms of representativeness and longevity.

What is the context of the digital research?

The context of the research is related to the event the phenomenon is concerned with (McGrath and Brinberg, 1983). When we undertake any research the context may be of central importance to the research question (e.g., when investigating how people communicate online, the online context is central to the research question), or the context might be peripheral to the research question (e.g., when examining how information about innovations are spread, no specific context is central to the research question). With digital research the methods might be embedded in the digital context, the phenomenon might be digital, or both might be bound by the digital context. As such, we need to understand how the digital context impacts on our research. For example, the video gaming context can be considered as spanning the boundary between digital and physical spheres, as those people engaged in online video gaming are sitting somewhere either by themselves or with others while they interact online and their physical as well as digital behaviours may be of interest to a researcher. Networks offer a further example: the

context of a network may be a digital social network or a physical social network, which involves actual interaction between people. These networks might consist of individuals limited to either the digital or the physical network, or there may be multiple individuals that span the boundary between both types of network, thus blurring the distinction between the digital and physical networks.

Understanding the context of the research helps us to make choices concerning how we access data for our research problem or question. Considering the context of the research can also help us identify the particular types of event(s) we need to explore to answer our research questions – the context might reveal multiple types of events that are related to our research question, or reveal particularly important time-based elements related to the research question (e.g., gaming behaviour might include cooperative or competitive behaviour, and this could relate to length of association between individuals or groups, or other contextual factors). While the previous factors relate to how we access the most appropriate data for our research, the context also needs to be considered in relation to ethical questions.

Ethical questions that arise from the context include the potential to take data out of context. As digital researchers, we have the ability to isolate and atomise data in more ways than previously possible. For example, it is an easy task to perform hashtag searches for key words on many social media platforms but how were those keywords used in relation to the context they are describing? Once we lose Krippendorff's (2004) 'keyword in context' ideas about content analysis, then those words can be given very different meanings from their original intent. As such, it becomes relatively straightforward to remove data from their context and in doing so, open up the possibility of misinterpretation or selectively choosing 'soundbite' data to fit our purposes. The edit and retweet function on platforms such as Twitter can also assist in distorting an original context. Contemporary, tribal, sub-culture 'slang' and language usage in digital communication should be treated with care to avoid misrepresentation.

Another contextual issue that we need to consider carefully surrounds whether data are public or private (see also Chapter 6). This established division within research methods is linked to issues of consent, which are also explored in Chapter 7. Data produced online might be intended for public or for private distribution. An online newspaper article, a tweet, an open-access blog and searchable YouTube videos might all be considered as being produced with the expectation that they would be publicly consumed. In contrast, a Facebook post, an email, a Wikipedia correction and a text message are not produced with the expectation of public consumption. Consequently the specifics of the digital context of the data can lead to consideration of how we report that data. Reporting practices associated with non-digital data (e.g., interviews) such as quoting verbatim are not necessarily appropriate for online data (e.g., tweets) as the data can be traced back to individual research participants through straightforward internet searches. Even if the

original data were created with the expectation of it being consumed publicly, digital research does not remove our responsibility as researchers to protect the anonymity of our participants.

We also need to consider who owns the data we are collecting. This is not a straightforward question in the digital environment as individuals who consume digital services (as well as researchers themselves) are not always aware of the terms of use associated with those services. This can make it difficult for the researcher to untangle who to seek consent from for their research – specifically, should they ask the digital service provider as the legal owner of the data, or should they seek permission (if at all possible) from the producer of the data? Data ownership is given further discussion in Chapter 6. This issue has implications for both the relevance of, and feasibility of gaining, informed consent.

Whether the data are produced actively or passively is also a contextual issue that we need to reflect upon and this is discussed in more detail in Chapter 6. Active digital data include the manifestations of deliberate actions by a 'participant.' These could include any comment or image posting made, as well as online purchases, and connection invitations accepted. These actions are known to the participant and might be equated to their active identity construction. Passive digital data occur naturally, for example, the navigation data produced when someone is searching for and purchasing a particular item or geo-spatial data created by an advertising app. While participants may be aware of this passive data collection, it is not something they generally pay attention to when they are going about their daily lives.

The context of the research can also alert us to ethics questions that we need to consider. For example, if we are interested in researching particular types of people, we might recognise that they represent a vulnerable group. This would require us to take measures to help ensure that the safety of vulnerable participants was not compromised by taking part in the research (Cresci, 2015). For example, research focusing on the integration of recent immigrant families, or the use of illegal pain medication by chronic disease sufferers. Interestingly, the anonymity of digital research can be more comfortable for some vulnerable groups than the personal exposure associated with non-digital data collection. The digital context can act as a buffer zone, which is perceived by the research participant as offering a safety mesh through which to voice their experiences in matters ranging from product complaints to articulating domestic abuse.

Finally, thought should be given to collecting data across multiple contexts. That is, a research study may be investigating a phenomenon across several contexts and each context needs to be considered individually and also together as a whole. Further to this, the layering of contexts could inadvertently reveal the identity of an individual or group. This issue is of particular relevance to the anonymisation of data and how much information needs to be removed to ensure that anonymity is maintained.

What is the contextualised phenomenon that is relevant to the research?

Contextualising the phenomenon in many ways reflects the macro-considerations of time, place and space discussed earlier, but at the micro-level, it is applied more specifically within the research design frame. Within this contextualisation, the phenomena being investigated in digital research may, or may not, be digital; it may be deductive (i.e., derived from theory) or inductive (i.e., observed in the digital space or non-digital place); it may, or may not, be confined to a particular digital or non-digital space/place. However the central phenomenon of interest is conceptualised; to fully develop an understanding of that phenomena we need to identify, define and even explore its boundaries. Questions to consider here include:

- How is the phenomenon of interest bound by time, place and space?
- How do time, place and space impact on the proposed research methods?
- What is the impact of the socio-cultural context on the research study?

Contextualising the phenomenon helps us to separate out the different influences related to that phenomenon. In the digital space, this requires us to think about the extent to which the phenomenon is digital and/or a digital manifestation of non-digital behaviour. That is, what 'space' does this phenomenon occupy? This is likely to require us to carefully consider interactions between the (digital) environment where the phenomenon is observed, and the need or desire the behaviour fulfils. For example, social network platforms fulfil a need to interact with others, the dark web fulfils a desire for privacy, and navigation data fulfil a desire to understand customer movements. Thinking of each phenomenon in terms of the need it fulfils can also help us to identify whether it is likely to be an enduring aspect of the digital environment (i.e., potentially a new trend), or whether it is likely to be more fleeting (i.e., a fad), or something in-between (i.e., a fashion). Contextualising the phenomenon includes us considering what it is about the digital environment that enables the phenomenon to either emerge on, or transfer to, the digital context. Depending on the amount that is known about the phenomenon we are interested in, contextualising the phenomenon might itself be integral to answering our research questions. If this is the case, we might not be able to address all of the above issues when developing the research. However, maintaining an awareness of these issues can help us to identify potential contributing literature that might not otherwise have been considered.

Contextualising the research will also involve thinking about the extent to which it can be understood in, or through, digital methods – how are the methods used impacted by time, place and space? In some instances, research might not be fully realised by drawing data from within the digital context – that is, the research question goes beyond

the boundaries of the digital context. In others, the research question might be answered with only digital data. Whether or not the research can be fully addressed from within the digital environment may be related to whether the underlying focus of the research is the entity that acts in or on the digital space, or the manifestations of the entity's action (i.e., a person, versus that person's digital footprint). If the focus of the research is the entity outside the digital space, then the relationship with their digital manifestations needs to be explored to determine what can be understood through digital research methods and what needs to be explored through non-digital means (for more discussion see Chapter 5). This is akin to considering the problem of using behavioural intentions to infer actual behaviour, or of using self-report measures to assess individual characteristics. It is not that inferences cannot be made, just that we need to be aware of the disconnect that exists between how we are assessing the data and what we are making inferences about.

The socio-cultural context also needs to be considered in relation to the phenomenon of interest, and the methods of study. Specific consideration can be used to contextualise the phenomenon in time, including: the lifecycle stage, stability and potential longevity of the technologies/platforms that are associated with the phenomenon or methods; the rate and magnitude of change in the digital environment; whether the specific phenomenon is related to specific events; the prevailing disciplinary research norms and legal restrictions on research; whether there is a cyclical element to the phenomenon; and the planned duration of the research project. In addition, the socio-cultural context can be used to contextualise the sensitivity of the topic with specific groups, as well as the research methods proposed. Both direct and indirect influences are important as while research that considers digital manifestations might have little direct impact on the entity that produced those manifestations, indirect influence is still possible – perhaps, for example, research findings on how to improve website conversion rates lead to website design changes that impact positively on vulnerable consumers who might otherwise not have purchased particular goods.

Entities (e.g., individuals, organisations) that directly provide research data might also be impacted by research findings. When this occurs, there is a possibility that participation in the research directly impacts on the participants. This is sometimes straightforward to identify (e.g., action research in organisations), but can also be more subtle (e.g., knowing about the 'bystander effect' makes people less susceptible to it). As researchers, we need to contextualise what we wish to gain by investigating the phenomenon we are interested in within a framework that allows us to assess the potential benefits and harms that may result from our research. Just because we can research something does not mean that we should, and whether we should is dependent on our socio-cultural context. While this discussion has restricted itself to the direct or indirect participants of the research, wider

stakeholder groups might also need to be considered, and these include all the potential research audiences identified earlier.

Overall, there are various elements we need to consider about the digital phenomenon we intend to research and/or the digital methods we intend to use. These include both macro-level factors related to our research choices, as well as more micro-level factors related to specific research projects.

Digital research design in the changing research landscape

The complexity of digital research whether due to phenomenon, method or both has design implications for us all as researchers. In common with non-digital researchers we have to ensure that the different elements of our research fit together (McGrath and Brinberg, 1983) in order to effectively address our research questions. However, this 'fit' in digital research occurs within a complex, diverse and rapidly changing research environment that is almost impossible for a single researcher to fully understand. As a result of the dynamic nature of the digital environment, successful digital researchers often draw on skills and expertise outside their own discipline, which may involve working in multi-disciplinary teams. The dynamic digital environment presents huge opportunities to provide new insights, but also leads to problems analysing and integrating the different data types/formats. The complexity in the digital environment also lends itself to more complex designs; see, for example, the variations of mixed methods designs identified by Creswell and Plano-Clark (2011). So even if other factors did not impact on the usefulness of qualitative/quantitative labels, the advent of mixed methods as a relatively common feature of digital research makes labelling many research studies as qualitative *or* quantitative problematic.

SUMMARY

In this chapter, we have outlined that some of the previously distinct aspects of research are becoming increasingly blurred in the digitalised research environment. We have clearly delineated both the macro- and micro-level reflections required of a digital researcher when considering research. Importantly we have foregrounded the central role of contextuality and its importance when making digital research decisions. These are all important when considering ethics, expectations and expertise in digital research.

The 3Es

With research in the dynamic digital environment, we, as researchers, have to identify and examine our expectations of research purpose and research practices. We have to consider explicitly how time, place and space impact on the purpose of research (macro-level questions) as well as how we practise research (micro-level). Examining macro-level considerations such as our expectations concerning the longevity of the research we are undertaking will help us unpick what binds our phenomenon to the specific socio-technological context in which it is undertaken. This reflexive practice will also help us to understand when changes in the socio-technological context make it necessary to re-examine the phenomenon of interest. Examining micro-level considerations, such as our expectations of the research methods used, will help us to identify the strengths and weaknesses of particular research designs – possibly prompting us to combine different methods such that one method's weaknesses are mitigated by another method's strengths.

The dynamic digital environment also places demands on us as researchers to identify not just what digital and methodological expertise we have, but also acknowledge where our expertise is lacking. We may, for instance, not fully understand the digital and non-digital ecosystem we are working within, or we may recognise that our ability to extract data from the digital environment is hampered by a lack of technological knowledge. Carefully examining what expertise is needed to achieve our research aims within the complex macro- and micro-level factors will help us to identify who we may need to collaborate with, or what knowledge we need to gain. Alternatively, identifying weaknesses in the research team's expertise might prompt a redesign that plays to the strengths of the research team, yet still achieves the research objectives. Careful consideration of the impact of macro- and micro-level factors, including the expertise needed to deal with those factors, is required to ensure any research insights gained are sound.

Ethics are themselves bound by the socio-cultural context in which the research takes place. What was ethically acceptable in the 1960s when Milgram undertook his obedience experiments where participants believed they were administering electric shocks, or in the 1970s when Zimbardo conducted the Stanford prison experiments, would not be considered acceptable today. Ethics, like language, evolve in a broader context. They are related to societal, institutional, disciplinary and individual norms and values. Examining the macro- and micro-level factors that impact on our research allows us to examine the underlying assumptions we are making. Micro-level factors might mean that established research practices used to protect participants, such as gaining consent, are not fit for purpose in the digital context. For example, if a technological platform protects individual participants' identities what is the purpose of gaining consent when that could reveal participants' identities and inadvertently expose them to 'harm' by uncovering their use of a particular technological platform (think of users of a chatroom that supports domestic abuse suffers)? At a macro-level, consideration of changes in socio-cultural norms – such as what 'privacy' means – might reveal changing standards that open up, or restrict, the use of different data sets. For example, comments on publicly accessible forums may be posted with no expectation of that comment being public (e.g., online communities that support people with specific health issues), these comments may be akin to private conversations over lunch – made

in a public place, but not for public consumption. Consideration of the macro- and micro-level factors that influence your research should help to unpick which ethical issues are pertinent to the research project, and how they can best be achieved.

Overall, the content of this chapter challenges us, as digital researchers, to examine how the contemporary state of dynamic socio-technological context relates to, and impacts on, our particular research project. The questions posed, and issues discussed, help us reflect on the digital context, on our expectations of and for our research, on the expertise need to undertake that research, and on the ethical issues we might need to consider.

Questions

1. What macro-level considerations should you reflect on in relation to your digital research?
2. What micro-level considerations should you reflect on in relation to your digital research?
3. How might thinking about contextuality within digital research impact upon your own research design?

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