Bartlett, Ruth, and Christine Milligan. "The rise of technology and its influences on diary methods." *What is Diary Method?*. : Bloomsbury Academic, 2015. 51–68. *Bloomsbury Collections*. Web. 26 Apr. 2023. <<http://dx.doi.org/10.5040/9781472572578.ch-004>>.

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4 The rise of technology and its influences on diary methods

Introduction

In this chapter, we consider how the influences of technology and social media are changing the nature of diary keeping and impacting on diary-based research. Drawing on the growing body of literature concerned with electronic diaries, capture technologies (such as cameras and mobile phones), internet-based research and web-based applications, we discuss how emerging technologies and modern forms of communication, including microblogging, all have the potential to change the meaning and nature of diary keeping and the potential medium through which diary data might be gathered. As we increasingly record our actions, feelings and experiences – both visually and in written format – on the internet, our inner thoughts and private lives become increasingly more public and immediately accessible, leaving them open to scrutiny and interpretation by others. The introduction of the Facebook timeline provides just one example of how people's lives are being chronologically constructed and recorded through the internet. The proliferation of 'selfies' on Instagram and other photo sharing sites is another new development in human behaviour, which has a potential bearing on diary method. However, these technologies also bring with them ethical and reliability challenges that cannot be overlooked. In this chapter, then, we begin by discussing why and how technologies are used in diary-based research before considering these issues and how these technologies are opening up a new medium through which diary methods might be applied and data gathered.

Technological trends in diary-based research

In the last decade, the application of technologies in diary-based studies has expanded enormously. Since 2000, there has been a significant rise in published diary studies involving technologies, with the majority of

studies published since 2007. Reviewing this literature, the application of technologies in diary-based research can be divided into three broad trends. The first of these is computerized or electronic diaries using handheld devices, such as the Palm. Handheld devices first came out in 1996 and researchers began using them soon afterwards. The second trend is that of 'capture' technology such as cameras, voice recorders and mobile (smart) phones; these technologies are developing at an extremely rapid pace, but diary-based researchers saw their potential some time ago (Brown, Sellen, & O'hara, 2000). The third trend involves online and web-based technologies. A closer examination of each of these applications will help to elucidate how these technologies are changing the nature of diary keeping and impacting on diary-based research.

Computerized or electronic diaries using handheld devices

One of the most well-established technological trends in diary-based research is computerized or electronic diaries using a handheld device. There are several types of handheld device available, but they have in common time-set features and allow items (such as questions and auditory alarms) to be programmed in. Users enter data using a touchscreen and stylus. The latest models are equipped with Wi-Fi and GPS capabilities and other advanced functions and features. The widespread use of this technology is evidenced by the fact that specific software packages have been developed for researchers, as described below. Thus, electronic handheld devices or computers provide researchers with a potentially ideal way of capturing quality diary data in a rigorous and systematic way.

With the proliferation of PDA devices, there are PDA software programmes that have been developed specifically to conduct diary studies. One software package that is readily available, and regarded as particularly useful for marital and family research, is the Experience Sampling Programme (ESP). ESP is a free and user-friendly programme for running basic diary studies on PDAs with little or no software programme experience (Laurenceau & Bolger, 2005, p. 93).

Computerized or electronic diaries are often used in structured diary studies to capture numerical data and assess variables. In such studies, the diary functions as a survey: participants respond to predetermined

questions set by the researcher. For instance, in one study of the link between alcohol use and intimate partner violence, participants were asked to complete a structured diary over a sixty-day period about their alcohol and drug use on a daily basis using a Palm Z22 handheld computer. Participants were trained to use the device and each participant designated a time to be prompted by an alarm to complete the diary (when privacy was ensured and compliance would be maximized) (Moore, Elkins, McNulty, Kivisto, & Handsel, 2011). A total of 8,280 diary entries were received and the researchers found that the 'improved power that comes with assessing variables on a daily basis' improved the quality of data (p. 325). Researchers tend to use electronic diaries to answer research questions that are too complex to answer by simpler designs but are sufficiently simple to gain meaningful answers from the data it is possible to collect (Burton, Weller, & Sharpe, 2007, p. 559).

There is a vast body of literature pertaining to the use of electronic diaries in health and social research. This suggests that electronic diaries hold the potential to gain more accurate data than interviews alone about the associations between variables, such as the process of symptom experience (Burton et al., 2007). Take, for instance, a study of stress and triggers in children with headache disorders, in which handheld computers were programmed to signal an auditory alarm three times per day (just after awakening, after school/afternoon and before bedtime) at individually tailored times that were established with the child during the initial study visit. Times could be set differently for weekdays and weekends if requested by the child (Connelly & Bickel, 2011, p. 856). By using an electronic (as opposed to paper) diary, the researchers were able to programme questions about sleep in the morning assessment and test assumptions generated by other studies about the associations between triggers and symptoms.

Other areas of the literature discuss electronic versus paper-based diaries and the advantages of one over the other. The general consensus is that electronic diaries are not necessarily 'better' than paper-based diaries but they can be more useful (than paper diaries) in certain study designs. This includes studies that 'place a high premium on equally spaced reports', as an electronic diary allows the researcher to verify the time of completion (Green, Rafaeli, Bolger, Shrout, & Reis, 2006, p. 104) – the study of stress and triggers in children with headache disorders would fall into this category – and studies that require participants to remember

to make several entries over the course of one day. For example, in one study of female patients with an eating disorder, participants were asked to complete a brief questionnaire about their emotional state and urged to be physically active nine times a day when signalled to do so by the electronic device they were given (Vansteelandt, Rijmen, Pieters, Probst, & Vanderlinden, 2007). The stratified time sampling procedure, and in particular, the frequency of reporting allowed the research team to identify some key characteristics about living with an eating disorder (p. 1721). Moreover, because data had been collected electronically, the research team were able to verify the time of entries, minimize the time between an experience and the recording of it and thus have more confidence in the validity of the data set than would have been possible if sourced from paper diaries.

Electronic devices are used, then, because they can enhance quality of data. They do this not only by producing verifiable data entries but also by increasing compliance. Generally speaking, researchers find that after a short amount of training (approximately twenty minutes) most participants can use electronic devices with ease, making retention more likely. The training procedure is likely to involve demonstration of the device and a chance to practice using it, as these researchers did:

During the training session, each participant was asked to practice responding on a training Palm Pilot, on which a sample diary was installed. This was done to illustrate that the responses, once entered, were irretrievable, both by the participant and by his or her partner. During the practice sessions, the experimenter reviewed the entire diary, item by item, explaining each style of question and allowing participants to ask any questions about word or item meanings. Participants were encouraged to repeat the diary as many times as they needed until they felt comfortable with the device and with the meanings of the items. (Howland & Rafaeli, 2010, p. 1446)

Compliance in this study of empathy between couples was high; of a total of 21 possible days, couples fully responded on average 18.5 days (Howland & Rafaeli, 2010). Similarly, in another electronic diary study, in which researchers developed three web-based interventions aimed at increasing patient's self-management skills and quality of life, researchers found a

high adherence to the diary protocol (83 per cent) particularly with older people and shorter diaries (Nes, Eide, Kristjánsdóttir, & van Dulmen, 2013). Compliance is critical for a diary-based study; it means the data set is more complete: there is less missing data, which is vital when it comes to the analysis of data as valid conclusions can be drawn about the phenomenon under investigation.

In terms of data analysis, because the study design is typically structured and aimed at capturing numerical data, statistical techniques and packages tend to be used to make sense of data sourced from electronic diaries. Indeed, one advantage of using an electronic diary is that diary data can go directly to a database, such as SPSS, thereby reducing the cost of data coding (Rönkä et al., 2010). Once diary entries have been transferred, cleaned and checked for completeness, researchers can begin the process of analysis, which typically involves examining for associations. Take, for instance, a study of spousal support amongst patients with Type 2 diabetes. Using descriptive analyses, researchers calculated the number of spouses who reported providing diet-related support, persuasion and pressure during the 24-day electronic diary period, before using multilevel modelling to test study hypotheses related to the links between spousal support and diabetic-related distress (Stephens et al., 2013). In this way, the electronic diary can speed up and enhance the analytical process by reducing the amount of time required to prepare the data set.

Although electronic devices can yield reliable data, it would be wrong to conclude that the quality of data gained from using a computerized diary is inevitably better. A study into the effectiveness of paper and electronic diary modes suggests that rather than making the blanket assumption that paper diaries are untrustworthy or old-fashioned, researchers should take a more 'moderate position' and select the diary mode that 'best suits the needs of the participant and researcher' (Green et al., 2006, p. 102). Other researchers agree and suggest more work is needed to resolve the methodological issues around paper and pencil versus electronic diaries (Laurenceau & Bolger, 2005). This view is helpful, as it takes account of the demands that computerized diary keeping can place on participants, and recognizes the continued utility of pen-and-paper diary method in the digital age.

With the emergence of technology in diary studies, it is also important to bear in mind that there is risk of alienating certain populations who may not use, or feel uncomfortable using, electronic devices on a regular

basis. This might include, for example, frail older people, populations with lower levels of income, educational attainment and higher levels of mistrust, those whose religious or cultural beliefs mitigate against the use of electronic equipment at certain times (such as members of the Jewish community) and others who may feel uncomfortable about having to use an electronic device at certain times of the day (before going to bed, for example). Thus, technologies can adversely affect the nature of the relationship between the researcher and researched, if they are used unthinkingly, insensitively or without providing adequate training and support.

It has been suggested that if the population you are studying is not used to electronic devices, then paper-based diaries may generate better quality data (Green et al., 2006). Correspondingly, if the population you are involving are comfortable with technologies then it might be better to avoid using paper-based methods. That said, researchers should avoid stereotyping or assuming that certain populations (such as older people) are unable to use technology. Instead, it may be worthwhile piloting your research questions and methods of data collection with your target population, in order to ascertain which is most likely to be the best diary method to use.

Use of capture technologies such as cameras, voice recorders and mobile (smart) phones

Advances in technology mean there are increasingly more devices available that allow for the capture of a wide range of information and media; these include analogue and digital cameras, mobile phones and smartphones and voice recorders, collectively referred to here on in as 'capture technologies' (Brown et al., 2000). At the same time, and as noted in Chapter 2, there is a growing interest in sensory methodologies. Together these trends mean that increasing numbers of researchers are using capture technologies in diary-based research as a means of eliciting information and enabling participation.

One of the most well-established applications of capture technology in diary-based research is the video-diary method. Essentially this involves participants keeping a diary of an activity or experience using a video camera for an agreed period of time. Researchers have used video diary to explore the bodily experiences of running (Bates, 2013) and children's experiences of various life events (Buchwald, 2009), such as running away from home (Edinburgh et al., 2013) and learning in school (Noyes, 2004).

The video-diary method privileges action and the visible and is therefore an 'ideal device, with which to unlock bodily experience and bring the sensuous and affective qualities of embodiment to the screen' (Bates, 2013, p. 31). Video diary is a unique and innovative mode of data collection. It is fundamentally different from a paper-based diary, in that it generates moving data and allows for the visualization of phenomena. As such, video-capture technology is contributing to the diversification of diary-based research.

Another common application of capture technology in diary-based research is the photo diary. This involves participants taking photographs, which capture their experiences and activities, and usually talking to the researcher about them afterwards – a technique known as photo elicitation (Prosser & Schwartz, 1998). The approach originated in anthropology and ethnography and is popular with visual researchers. The following studies are just a few examples of how photo diaries are used to investigate areas of academic interest:

- twenty-two secondary school children in New Zealand were issued with disposable cameras to explore sexualities and school culture (Allen, 2009);
- twenty-two parents of preschool-aged children were asked to keep a photographic diary to record their child's dietary intake (Small et al., 2009); and
- three households in Sweden kept a photo diary of their family bulletin boards to research this form of communication (Nässla & Carr, 2003).

With photo-diary method, some researchers will use analogue (disposable) cameras, while others prefer to use digital cameras. The latter is probably the better of the two options as society becomes more and more digitalized. However, both options may rely on the researcher having access to sufficient numbers of cameras to disperse to all participants and therefore can have cost implications (see Table 4.1 for an overview of the strengths and limitations of each method).

Another relatively new development in diary-based research is the use of mobile phone technology. Several studies have used mobile phones to generate data about activities of research interest; in each case, participants were prompted to send information at specified intervals using a mobile phone. For example, Plowman and Stevenson (2012) recruited fourteen households with children aged three to four years to their

Toys and Technology study; the researchers sent text prompts six times at varying intervals between nine and five on the prearranged day and asked participants to respond within thirty minutes with a picture of their child along with text (p. 543). Similarly, a group of Finnish researchers recruited twenty-seven families with adolescent children to their mobile diary programme about family dynamics. It involved participants answering a series of questions via short text messages over the course of one week. Other researchers have used mobile phone technology to capture information about children's pain; twenty-two children aged eight years and over who had recurrent pain for at least three months received a text message six times a day for a week instructing them to report their pain in numeric values (Alfvén, 2010). It is noteworthy that in these studies, there were no, or very few, dropouts which suggests that mobile phone technology is an effective data collection tool, especially with children and young people. Moreover, in all these studies participants used their own mobile phone which helped to reduce costs and the need for training.

Finally, it is worth mentioning that there has been some use of voice-mail functionality in diary-based research. In the voice-mail method, participants use mobile or landline phones to make reports to a dedicated voice-mail line instead of recording events on paper (Palen, Salzman, & Street, 2002). In this article by Palen et al., researchers report using the method in two separate studies: the *Going Wireless Study*, which investigated novice users' experience of adapting to mobile telephony over a six-week period, and the *Wireless Life-Cycle Panel Study*, which was an extension of the original study, involving 200 novice users of mobile telephony (pp. 89/90). The method was used alongside semi-structured interviews and generated useful data about people's use of mobile phones. However, we could find no other studies that have used this approach, which suggests it is an unusual, possibly outdated or ineffective, mode of data collection in diary-based research.

Web-based platforms and applications

Another growing trend is internet-based diary research and the use of emails, web-based applications and social sharing sites such as Facebook and blogs to generate data. Diary researchers recognize that such applications are useful platforms for not only gathering valuable data but

also recruiting participants. Participants to an internet-based migraine headache study (described below) were recruited, for example, via online discussion boards and websites; indeed, the whole process, including consenting participants to the study, collecting data and diaries, was conducted electronically. Such studies show how internet-based diary research allows the researcher to explore people's lives and 'access the social at a distance' (Bancroft, Karels, Meadhbh, & Jade, 2014, p. 139). This kept costs down and reduced the potential demands of face-to-face communication on the participant.

A conventional headache diary was formatted for the internet to collect daily headache data over four months using a time-series design. Women between eighteen and fifty-five years who were not pregnant or post-menopausal, and whose headaches met migraine criteria, were recruited primarily via the Internet, completed online consent forms, and were screened via telephone. They completed health history questionnaires and daily diary pages containing scales and open-ended questions, which were saved to a database (Moloney et al., 2009, p. 693).

Other researchers have used email function to collect diarized data, which again removes the practicalities and costs associated with collecting a physical diary. Such studies are carried out in a similar way to a paper-based diary but rely entirely on email communication. Take, for instance, a relatively unstructured study of aftercare received by patients who underwent inpatient psychotherapy treatment; the 297 participants recruited to the study were instructed thus: 'Once a week on your fixed writing day, please take 15 to 30 minutes to write an e-mail to your therapist. Write about your deepest thoughts and feelings about the most emotionally important topic of the past week that is significant for your actual situation or your future... Your therapist will answer your e-mail within 24 hours' (Wolf, Chung, & Kordy, 2010, p. 73). The study was designed as an intervention and the method was described as an 'email bridge' rather than a diary, but nevertheless the approach taken by researchers in this study shows

the potential of email communication for diary-based researchers. Furthermore, it illustrates how different language can be used to describe the solicited diary method.

Another recent example of using email diary technique in social science research is an investigation into the impact on commuters of the London 2012 Olympic Games (Jones & Woolley, 2014). Twenty-three commuters were recruited to this study, which involved participants receiving an email asking them to produce a log of their journey, detailing anything they thought was different or significant, on each of the working days during the Olympics. The method achieved an 85 per cent completion rate (157 entries received) with eight of the diarists achieving 100 per cent completion (Jones & Woolley, 2014, p. 9). Clearly, then, email diary and digital communications more generally have the potential to add significant value to the researcher's methodological toolkit.

This brings us onto the topic of blogging – discrete 'posts' on the web usually written in chronological order by an individual. There is growing interest in the academic community about blogs, blogging and bloggers. Researchers are interested in the communication processes at work and the ways in which bloggers perform identity in blog entries. For example, Lee and Gretzel (2014) examined cross-cultural differences in travel blogs; Barker and Gill (2012) analysed levels of sexual subjectification in the Bitchy Jones diary blog; Blinka, Subrahmanyam, Smahel and Seganti (2012) compared the blogs of English-speaking and Czech-speaking teenagers; others have explored the ethics of blogging from the perspective of librarians (Powers, 2008) and examined the online identities of frequent bloggers (Bullingham & Vasconcelos, 2013). The phenomenon of video blogging has also been examined (Parker & Pfeiffer, 2005) and blogging has been used to create a research diary (Olive, 2012). All this illustrates how blogging has become a key communication tool for the digital age, with the practice itself becoming a well-documented research topic. But are bloggers diarists, and are the blogs they produce solicited diaries?

In Chapter 1, we outlined the difference between unsolicited and solicited diaries and emphasized that our focus in this text is on solicited diary method. We gave an example of a diary blog – the extract from a home care worker – and re-emphasized our interest in solicited diary method

for research. However, blogging is akin to diary-writing and a common practice amongst proficient internet users. Arguably, this form of communication has re-energized and popularized the traditional form of diary keeping and might be regarded as the twenty-first-century equivalent of an unsolicited diary. The key difference is, of course, that online diarists – ‘bloggers’ – *are* writing for an audience to provoke debate and comments. The intended audience is unlikely to be a researcher, but an individual records his or her thoughts, feelings and activities in the blogosphere, *because* he or she wants others to read and engage with it. This differs from the traditional unsolicited diary that has never been intended for public use. Arguably, then, the boundaries between unsolicited and solicited diaries are becoming blurred and will continue to blur with the development of multi-author blogs and the proliferation of blogging. Clearly, blogs offer the diary researcher a potential source of data (Hookway, 2008). However, it is yet to be seen how these newest technologies can be utilized by diary researchers as data collection techniques.

Finally, it is noteworthy that researchers are increasingly using Facebook and other social media sites, because they provide publically accessible information about a person's life. As others in this series have discussed, online research is becoming increasingly prevalent as researchers discover that rich data can be collected via the internet (Hooley, Marriott, & Wellens, 2013). For instance, researchers have studied the extent to which health-care providers use social media sites (such as Facebook) in clinical practice to find out more about a patient (Jent et al., 2011). Similarly, there has been some work on the ethics of clinicians using Facebook to detect suicide ideations by clients with serious mental health problems (Lehavot, Ben-Zeev, & Neville, 2012). While these examples are neither diary-based studies nor concerned with solicited data, they do show how social media sites provide a time-structured digital platform for people to express their thoughts and feelings in a way that might be useful in a solicited diary-based study. Moreover, the information provided through these sites is not dissimilar to that gained through the Mass Observation Study – that is, it provides a useful glimpse into the everyday lives of people across Britain. Thus, it may be that it is used by researchers over time. Table 4.1 outlines the strengths and limitations of the range of technologies we have reviewed.

Table 4.1 Using technologies in diary research

Technology	Strengths	Limitations
Handheld electronic devices or personal digital assistants (PDAs)	Easy to use; convenient; questions can be programmed to suit participant Responses are unchangeable and verifiable, thus enhancing the quality and validity of data Costs of device can be set against no transcription costs and being able to reuse devices in future studies	Participants need to be confident, willing and able to use PDAs; might put some people off taking part in study Training required; this can vary from between five and twenty minutes Cost of equipment, including batteries and battery charger, can be expensive Technological problems – (re)charging batteries seems to be most common one – needs to be quickly resolved Habitual response style: participants may develop a tendency to rapidly skim over the questions without thinking about the actual experience
Capture technologies <i>General points applicable to all</i>	Effective way of collecting audiovisual information that moves beyond time-sequenced observation Certain participants (e.g. children and young people) seem to like it and are used to using these technologies Can take the researcher to places that would otherwise be prohibited, such as a boys' changing room, or unseen, such as a child's bedroom or working environment	Cost of equipment, including batteries and battery charger, can be expensive Some participants may find equipment difficult to use
<i>Specific</i> Photo diary using an analogue (disposable) camera	Easy to operate Restriction on amount of images that can be taken means that participants may give more thought and consideration to what to photograph	Delay between taking and seeing the photo can detract from enhancing behaviour change Hidden costs: processing images; having to drop off and collect camera; not very durable; so easily damaged, in which case replacement cameras may need to be purchased

Table 4.1 Continued

Technology	Strengths	Limitations
Photo diary using a digital camera	<p>No restriction on amount of images that can be taken</p> <p>Photos can be uploaded onto a photo sharing (encrypted) website</p> <p>Allows participant to assess quality of images taken</p>	<p>Can produce too many images that are not relevant to study</p>
Audio diary	<p>Can be useful for gathering information that cannot always be captured using visual representation (e.g. an individual's thoughts or feelings)</p> <p>Can be used clandestinely in situations in which participants do not feel comfortable using a camera to photo an event (e.g. hospital or funeral)</p>	<p>Tend to produce longer transcripts so require more time and resources for transcription and analysis</p>
Mobile phone diary	<p>Easy for participants to use and integrate into lifestyle; no need for training; generates data that it is easy to store and manage</p> <p>Able to control accuracy of recording; user-friendly</p>	<p>Not possible to use mobile phone in some settings (e.g. cinema, while driving, clinical areas)</p> <p>If participants have to use their own mobile phone, there is a risk they exceed their limit and incur personal costs</p> <p>Potential for making mistakes if have to answer large number of questions</p>
Voice-mail diary study technique	<p>Built-in features (such as play and pause and restarting) are useful for transcription</p> <p>Able to review diary entries on submission, rather than seeing them all at the end of the study</p>	<p>There is limited recording time with voice-mail</p> <p>Diffidence amongst people about speaking into a voice recorder.</p>
Internet-based (e.g. email and blogs)	<p>The process can be monitored better; if someone is keeping an online diary, it is potentially easier for the researcher to 'drop in' and see if the participant needs additional guidance or support</p>	<p>Success of the project may depend on having a good IT support team, which can be costly</p>

(Continued)

Table 4.1 Continued

Technology	Strengths	Limitations
	Provides the opportunity for immediate interviews and personalized feedback, which can enhance communication between the researcher and participant	Access to the internet may be a problem for some participants
	Printable diary pages can be used as a back-up plan for people who may not have access to the internet	

Research areas where technologies are embraced or have potential application

There are several areas of research where technologies are being embraced and regularly used to collect data. One of these is health care. Electronic diaries have become a well-established methodology in clinical research, for both tracking symptoms or behaviours and empirically testing clinical and theoretical hypotheses (Connelly & Bickel, 2011). This is evidenced by various pieces of work including a systematic review of the effectiveness of using electronic diaries in pain and symptom research (Burton et al., 2007) and a review on the benefits of using electronic diaries to gain a fuller assessment of clients in their own environments (Piasecki & Hufford, 2007). Health researchers and clinicians realize the potential of electronic diaries and integrate the method into study designs.

Research with children is another area where technologies are embraced. Researchers recognize that today's children and young people have grown up with digital media and electronic means of communication and are used to using them, or at least be accustomed to the concept of recording oneself or using an electronic device. For example, Noyes (2004, p. 197) assumed that the children in his video-diary study would be familiar with the idea of a video-diary room from the TV programme *Big Brother*. As well as it being a familiar process, video-diary method is particularly well suited to child research as it allows for a freer form of self-expression and advanced writing and language skills are not required (Buchwald, 2009). It is perhaps not surprising, therefore, that the majority of studies which use

digital technologies involve children or young people. Children and young people are the digital generation (Buckingham & Willett, 2006).

A third research area to embrace the use of technologies in diary-based research is disability studies. Researchers value the flexibility that technologies can provide and will use and integrate a range of approaches to enable the participation of people with a disability in research. We have identified two studies which have used digital technologies with people with a disability (Bartlett, 2012; Worth, 2009); there are many other studies within the disability field that use technologies, including, for example, a photographic study involving adults with learning disability (Aldridge, 2007). While these are not diary-designed studies, they do illustrate their potential for integrating into diary-based studies with different groups of people.

Hence, as well as discussing the research areas where technologies are being used, it is worthwhile identifying those areas where they have some potential application, but are not currently deployed. For example, it is perhaps surprising that audio diaries have not been used to study changes in speech and language, especially in health-related research where such changes can signify worsening or improving health (as is the case with dementia or stroke). Similarly, electronic diaries or mobile phone technologies could be used more frequently within the fields of gerontology and geriatric medicine to investigate, for example, intergenerational changes in family dynamics in the wake of a household member being diagnosed with an age-related condition like dementia, type 2 diabetes or age-related macular degeneration. Digital diary methods would allow researchers to gain contextual/numerical/situational information within which the experience occurs, to inform health and social care practice. They can also provide participants with an alternative means of expression beyond the standard interview.

Questions to consider before using technology

There are many practical, ethical, methodological and epistemological issues to consider when using technologies in diary-based research. Some of these have been alluded to in this chapter, and they are important to highlight and summarize, in order to provide a helpful reference point for both new and experienced researchers. Drawing on the studies reviewed, we have created some core questions, see table 4.2 below, that can usefully be considered before incorporating digital technologies in your research design.

Table 4.2 Questions to consider before using digital technologies

1. Is the technology appropriate for your research area and question?
2. Are participants used to using the technology, or will training be required?
3. Does the technology suit the needs of the participant?
4. How will you respond to any technical problems?
5. Do you have the knowledge and skills to deal with any technical problems?
6. If using a mobile phone or other ubiquitous form of technology, will you issue participants with the device or allow them to use their own?
7. Have you allowed time for developing and piloting the technology?
8. How might the technology affect the research relationship?
9. Have other researchers used the same technology with the same population? If so, what can you learn from their oversights or slip-ups? If not, how do you feel about breaking new methodological ground?

Conclusion

In this chapter, we have considered the ways in which technologies are changing the nature of diary keeping and impacting on diary-based research. We have highlighted the rise of computerized or electronic diaries, the growing use of capture technologies such as video cameras and how researchers are beginning to use the internet, emails and blogs in diary-based research. The advantages and limitations of these technologies have been identified and discussed. In particular, we have highlighted some of the conditions when it might be better to use technologies over paper-based methods.

Finally, however innovative and novel the use of technologies in diary-based research may seem to us now, they will not be to the next generation of researchers. Our approach to photo diaries will need to change, as digital cameras become redundant with the arrival of devices such as smartphones and tablets. In addition, other ‘technological advances will supersede the mobile phone method in time’ (Plowman & Stevenson, 2012, p. 550). Furthermore, advances in wearable technologies and development of miniature sensors, which clinicians are already capitalizing on to gather key data (see, e.g., Bonato, 2005) might well pave the way for a whole new mode of diary-based

research. Clearly, changes in technology are constant, rapid and likely to impact or influence on our lives in unpredictable ways, especially when it comes to using technologies in diary-based research. The scholarly literature struggles to keep pace with the methodological issues facing researchers.