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3 Practical issues with diary techniques: Design and analysis

Introduction

In previous chapters, we have discussed the different techniques that can be applied in using diary method for data collection. We have also discussed the methodological rationale for using the diary method. As illustrated, while solicited diaries are an established technique for gathering structured data on how often a particular activity or event occurs over a defined period of time, they can also provide important visual, semi- and unstructured and longitudinal insights. It is important, therefore, to think through some of the practical issues before planning to incorporate solicited diaries within your research design. When, for example, might solicited diary methods be appropriately used in designing your study? What approach should they take and what sorts of research questions they can be used to answer? How should participants return their diaries to you? How should you construct your diary and should solicited diaries be the sole method or part of a mixed methods study design? This latter point also raises important questions about the different ways in which solicited diaries might be analysed to maximize the insights that can be drawn from the data. Standard statistical, thematic and content analyses commonly used in quantitative and qualitative research can provide useful insights, but they also run the risk of losing the overarching narrative story and the longitudinal and temporal context that can be critical to understanding how and why events unfold over time. In addition, transcripts of audio diaries are typically much longer than written diaries, so the resources required to deal with this additional data need to be factored into the project design.

In this chapter, then, we consider some of the practicalities of using diary methods as part of your research design and provide guidance on analysing textual and visual data collected via this technique, including computer-assisted analysis. We draw on examples from recent research

studies to consider not just traditional approaches to analysis, but how visual, time sequencing and narrative forms of analyses have been adopted to provide valuable and novel insights from this methodological technique.

Designing studies using diary techniques – what are the practicalities?

In what follows, we discuss some of the practical issues in designing and applying solicited diaries as a form of data collection. Firstly, it is important to consider the sorts of questions that solicited diary techniques can help to answer, whether as a single methodological technique or as part of a multi-method research design. Bolger et al. (2003) suggest a threefold typology of research questions that lend themselves to using solicited diary methods:

1. *Those designed to gain reliable individual information over time*

Using diary techniques can be useful where accuracy about an individual's experiences, practices, habits, actions and so forth are important to determine. Not only are solicited diaries less subject to the vagaries of memory, retrospective censorship or reframing of data given by participants than other methodological techniques, but they can also be useful where a researcher is interested in uncovering routine, everyday processes and events that may be viewed as trivial – and thus easily forgotten by the respondent (Milligan et al., 2005). In these circumstances, change over time may be less important than gaining an accurate and in-depth understanding of individual experiences of the phenomena of interest.

2. *Those designed to obtain an understanding of within-person change over time and individual differences in such change*

Here, solicited diaries can help to answer research questions where the focus is on gathering an accurate understanding of how a purposively defined range of individuals' thoughts, experiences, embodied actions and reactions, etc., to phenomena of interest may (or may not) change over time. Such individual-level data can then be used to analyse between-person differences in those experiences. Change over time and understanding between-person comparisons are at the core of this type of research question.

3. *Those designed to conduct causal analysis of within-person changes and individual differences in these changes*

Here, the focus is on understanding the underlying causes of changes within an individual in relation to the phenomena of interest and how these may vary between people. Time may play an important role in understanding an individual's embodied responses to internal factors (whether physical, cognitive or emotional) or external (social or environmental) factors. As Bolger et al. (2003) put it, 'diaries can help us to understand the antecedents, correlates and consequences of daily experiences' (p. 586). The emphasis of the research here, then, is to uncover the processes that underlie within-person variability.

Secondly, before adopting solicited diaries as part of any research design, it is important to think about the abilities of the research participants. As Jacelon and Imperio (2005) point out, written solicited diaries require, firstly, literacy – that is, the ability of participants to read and write in the language in which the study is being conducted. Secondly, they require physical capacity in terms of the vision to read and the hand co-ordination to record their diaries either on paper or electronically. This infers that diary techniques may be suitable only for more literate (and hence better-educated) participants, and, as such, can introduce a level of participant bias from the outset. However, claims that diary methods can be exclusionary are often overstated as researchers have demonstrated that with careful thought, this technique can be used successfully with so-called vulnerable groups, e.g. young disabled men (Gibson, 2002), children (Buchwald, 2009), people with dementia (Bartlett, 2012) and those with chronic fatigue syndrome (Kempke et al., 2013), to name but a few. This is an issue we return to in more detail in Chapter 5. Importantly, as we have already suggested, the solicited diary need not be confined to the written word where writing ability may act as a barrier to participation, rather audio and video diary alternatives can usefully be offered.

Taking a structured, semi-structured or unstructured approach to diary design

Having confirmed that solicited diaries will usefully and appropriately contribute to the overall goals of the study, you now need to think

through which form/s or which diary technique are most appropriate for gathering the data required to achieve the research aims and objectives. Diaries may be highly structured – where all activities are pre-categorized by the research team – or they can be semi-structured and involve a mix of specific questions with an option for free text or they can be in an open format, enabling participants to record activities and events in their own words. A key question to be asked, then, is whether a structured, semi-structured or unstructured approach is most appropriate for your needs? For instance, are you interested in how many times specific events, phenomena or activities and their variables occur over a prescribed length of time? Or are you more interested in a person's thoughts, feelings or the unspoken and often personal actions or experiences that may not be deemed important by the respondent when engaging with more reactive research techniques? Is a visual record or recording of specific phenomena over time important to the research question? What part might new technologies play in your diary study? These sorts of questions will be important in helping you to decide whether a structured solicited diary in which predefined phenomena are recorded and counted over time is most appropriate to the gathering of the data you require, or whether a semi- or unstructured approach (either audio or written) to diary recording is more suitable. Additionally, you need to consider whether your study requires the gathering of more visual data over time – or indeed whether some combination of the above is required. How you structure your diary and the instructions given to your participants for the completion of their diaries will depend on the approach you take.

Structured approaches to diary keeping typically involve a lot of guidance and instructions for participants. Furthermore, individuals are expected to respond to predetermined questions and to keep their responses within the parameters of the study aims and topic. Below is an example of how a structured food diary may be designed in order to understand an individual's nutritional patterns over a prescribed period of time. As well as providing space for the information the participant is required to enter in a way that aids the quantification of data collection, the participant also needs to be given clear instructions on how he or she should complete it.

How to Complete Your Food Diary

- Please complete your food diary for X days in a row.
- Please avoid completing your diary over special times of the year that do not accurately reflect your regular eating patterns (such as birthdays, Xmas or other religious festivals or celebrations).
- Try to describe the food you eat and how it was prepared. For example, was it grilled, fried, boiled or roasted? If you had cereal did you add sugar and milk? What kind of bread, rice or pasta did you eat, e.g. brown, white? What kind of milk did you drink, e.g. skimmed, semi-skimmed, full fat? If you had a hot drink did you add milk and how many teaspoons of sugar?
- Your food diary should be a record of what you eat and drink each day and should include everything – even those things that you know are not as healthy for you as others.

Day & Date	Time	Food Description	Amount
Monday 16 September 2014	8.30 am	White toast butter and marmalade	2 pieces
		Boiled egg	1
		Coffee with milk and two sugars	1 cup
	10.30 am	Coffee with milk and two sugars	1 cup
		Muffin	1
	12.30 pm	Egg salad sandwich with butter and mayonnaise	2
		Crisps	1 small bag
		Orange juice	1 small carton
		Apple	1
	3.00 pm	Coffee with milk and two sugars	1 cup
		Chocolate biscuit	2
	5.30 pm	Lamb chops, roasted potatoes, carrots	Medium plate
		Green beans with gravy	Medium serving
		Apple pie with custard	
		Wine	1 glass
	8.30 pm	Cocoa	1 mug
		Plain digestive biscuit	2

However, while this kind of solicited diary can provide important information about the dietary habits of the individual over the course of a day and beyond, portion size and *perceptions* of portion size can differ. For instance, are the slices of bread taken at breakfast large or small? Are they thick or thin? Are the chocolate biscuits fully covered in chocolate or just top coated? Is the glass of wine a small glass or a large glass? This level of detail can be important where accuracy of actual intake is required. To address this issue, some researchers using structured diary techniques have incorporated visual data gathering (food photography) as part of their research design. Here, participants were asked to take photographs of their meals/snacks (often using disposable cameras) in order to gain a clearer picture of the size and detail of the actual food intake. Researchers may even provide extra equipment to ensure a consistent approach to food photography, such as a 12" ruler to be photographed next to the plate of food (Gregory, Walwyn, Bloor, & Amin, 2006) or a piece of premeasured string to standardize the distance from which photographs of food are taken (Small et al., 2009). In doing so, the visual data gathered from the food photography can be used to enhance the validity and reliability of the written diary data.

Qualitative approaches to the solicited diary also involve the participant being given a clear set of guidelines on how to complete the diary and the frequency with which this should be undertaken, but diary completion may take either a semi- or unstructured format depending on the purpose of the diary. Below is an example of a less structured approach involving adult carers. In less structured diaries, participants are given a set of headings or themes linked to the research objectives and asked to record their experiences of a phenomenon, their activities, thoughts, feelings and so on in relation to those themes at regular intervals over an agreed period of time. In many instances, participants are given the opportunity to include other issues that may not be part of the predefined themes, but which they feel are important to them in relation to the study aims.

Thank you for agreeing to help us with our study. We would like you to fill in your diary every evening for xxx consecutive days/weeks. If you are not able to fill in your diary on a particular evening, please try to fill it in as soon as possible the following day. If you miss several days, please do not

give up, just start over again on the next day you are able to, and leave the pages for the missed days blank.

Here are some points we would like you to bear in mind when you are filling in your diary:

- We are interested in your day-to-day experiences of life while caring for your family member; this involves all of your daily experiences, not just those associated with your caregiving role.
- Remember that this is YOUR diary. We are interested in finding out as much as possible about the care and support you give to your loved one (physical and emotional), the support you receive on a daily basis from social and health-care services and your experiences of this support. This also includes your experiences of other forms of help or support that you may receive from the voluntary sector, friends, family and neighbours. We are also interested in how your caregiving role affects your own daily life, such as your ability to go out to work, to go out and socialize and your own health and well-being. So please tell us as much as you can about yourself – no matter how unimportant or repetitive it seems. For instance, if you have made plans to go shopping but then had to cancel it because the weather was too bad to take your loved one out and you had no one to sit with him or her, or if you felt under the weather and decided not to go, please tell us. We would rather have too much information than too little.
- We recognize that as a carer you may have little free time to yourself so please feel free to write as much or as little as you are able.
- Please don't worry about spelling, grammar or 'best' handwriting but try to write as clearly as you can, using a pen. Alternatively, if you prefer to write using a computer that is fine too.
- Please fill in the day and date in the space provided on each new diary page. NAME will arrange to collect your diary on a weekly basis.

If you have any questions about the diary, please phone NAME on TELEPHONE: XXXXX or email her at: EMAIL ADDRESS. She will return your call/contact so you do not have to pay for the call.

SEPARATE PAGE

Please enter the day and date here:

Please write your daily diary entry here. (Please continue overleaf if necessary. You may write as much or as little as you are able.)

FREE TEXT

These two examples draw on opposite ends of the structured–unstructured diary continuum. Where appropriate, it is also possible to combine elements of both structured and unstructured data gathering in solicited diaries. Milligan et al. (2005) in their study of the impact of communal gardening and social activity on the well-being of older people, for example, sought to gather unstructured weekly diary data on people's engagement with a social and a communal gardening activity intervention. However, they were also keen to assess the potential impact on participants' health and well-being over time. To facilitate this, the diary was designed to ask participants to complete a short series of structured questions from a validated health and well-being survey at the beginning of each weekly diary entry. This was followed by a series of semi-structured themes designed to encourage participants to write about their experiences and feelings related to their engagement with the gardening activity and other activities they had been involved in over the course of that week.

Unstructured approaches to diary keeping take a similar approach but with the participant simply being asked to record at regular defined intervals whatever he or she feels is important/relevant in relation to the phenomena of interest without additional prompts. Thomas (2007) took an unstructured approach in her investigation into living with HIV-related illnesses in Namibia. Participants were informed of the broad aims of the study, but the researcher made it clear that they could write whatever they liked in their diaries (p. 77). A key advantage of the unstructured, free format diary approach is that it allows for greater opportunity to recode and analyse the data. However, the labour-intensive work required to prepare and make sense of the data may make it an unrealistic option for research projects where time and resources are limited, or where the study sample is large (Corti, 1993).

Issues of completion and submission of diary data

Whatever the design or structure of the solicited diary, careful thought needs to be given to the frequency and time span over which diary completion should take place. Requesting participants to complete detailed data too often over too long a period of time can result in poor or non-completion and dropout. Conversely, leaving too long a gap between diary completion not only can result in dropout, but can also be subject to the problems of recall failure. Giving careful consideration to: (a) the

time span an event or activity can be accurately recalled by a participant; (b) the length of time a research project needs to gather data in order to meet its objectives (e.g. Are different times of the day, week, month or year important?); and (c) the length of time a participant can reasonably be asked to continue completing diaries is therefore critical to the success of the solicited diary method. Yet these are not always easy questions to answer, and while some researchers maintain the dangers of respondent fatigue means that diaries are only successful when completed over relatively short periods of time, such as one or two weeks (e.g. Keleher & Verrinder, 2003), others have demonstrated that with the right rationale, incentive and support, diary data can be successfully gathered over an extended period of time. For instance, in a study of:

- professional identity formation amongst medical students, weekly audio diaries were successfully gathered from 17 medical students over a period of **18 months** (Monrouxe, 2009);
- the 2001 foot and mouth epidemic in the UK, weekly diaries were successfully gathered from 54 participants drawn from farming and related rural communities affected by the disaster, also over an **18-month period** (Mort, Convery, Baxter, & Bailey, 2005);
- household consumption and expenditure in Gambia and Tanzania, some participants chose to keep a diary for **12 months** because they were keen to show the researcher the effects of seasonality on their economic well-being (Wiseman et al., 2005);
- crying and mood, 97 female participants kept a crying and mood diary that ranged from **40 to 73 days**, corresponding to the duration of two consecutive menstrual cycles (Bylsma, Croon, Vingerhoets, & Rottenberg, 2011);
- sport stressors and coping strategies, 13 female adolescent athletes maintained a weekly audio diary for **one season – 16 weeks** (Tamminen & Holt, 2010);
- gardening and social activity amongst older people, as referred to earlier, weekly diaries were gathered from around 100 participants over a **nine-month period** (Milligan et al., 2005).

So, there is no 'right' or 'wrong' period of time for keeping a diary. Each study will be different, and you will need to decide for yourself the methodological rationale and resources that will be required for whatever time frame you decide upon.

Critically, in each of the studies listed, it made methodological sense for people to maintain a diary for an extended period of time; participants were not being asked to keep a diary over a relatively long time just for the sake of it. In the study of crying and mood, for example, the goal was to repeatedly sample crying episodes from everyday life. This was achieved as within the 1,007 diary entries generated, every participant cried at least once, and for many individuals multiple crying episodes were reported (Bylsma et al., 2011, p. 391). These episodes may not have been captured if participants had been asked to keep their diary for only one or two weeks. Likewise, it made methodological sense to collect data over the course of an entire season when investigating stressors and coping strategies amongst athletes (Tamminen & Holt, 2010). Hence, the duration of data collection is an important methodological consideration in diary design.

Moreover, in each of the studies listed, a member of the research team regularly engaged with participants to advise on progress, check up on a participant where a diary had not been submitted (e.g. due to illness or holidays) and to encourage continuation of diary submission throughout the life-course of the project. Additionally, in the study by Mort et al. (2005), they were also able to provide a small sum of money for each weekly diary completed in acknowledgement of the work involved in completing the diaries. This was paid to participants on monthly visits to gather the diaries. We return to this topic of providing financial incentives to participants in Chapter 5. The point here is that with appropriate support measures in place, concerns about respondent fatigue can be addressed enabling solicited diaries to be used as a research tool over fairly long periods of time.

Diary completion and submission has, in the past, tended to be in the form of a handwritten, paper-based diary that is either collected at agreed intervals by a member of the research team or posted to the research team in prepaid envelopes. Advances in technology and people's familiarity with, and access to, the internet, email and other modern means of communication has meant that while some participants may still prefer to handwrite their submissions, there has been an increased adoption of diary completion and submission in electronic formats. This has the advantage of increasing the turnaround time of submission, reducing the need for transcription of the written diary and for increasing communication options through email and so forth. Even where video and audio diaries are undertaken in personal settings, the use of the electronic submission is increasing. However, these developments also raise issues of

data security that is of increasing concern to ethical review boards and hence cannot be ignored. We return to this in Chapter 4.

Where audio- or video-diary techniques are adopted, the research team needs to ensure that diarists have access to portable and easy-to-use voice or video recording equipment. This may take the form of equipment delivered to each participant and collected by the research team over the agreed period of time for diary completion (e.g. Williamson, Leeming, Lyttle, & Johnson, 2012); by giving participants an individual (video) tape that can be used with a smaller number of shared video or audio equipment in an agreed setting (e.g. Roberts, 2011); or by setting up a single set of equipment in a space that is accessible to all participants (e.g. a workplace or social setting) and which can be used at a time suitable by all participants (Brennan et al., 2010). As discussed in Chapter 4, the emergence in recent years of low cost or freely available computer software apps that can either video or audio record data also opens up wider opportunities for the use of these options given the increasing number of households with access to computers and the internet.

Finally, when designing a diary-based study, it is important not to overlook the important but practical matter of how you will get completed diaries back. This can be a real challenge for researchers, as participants will need clear instructions as to how they should return their diary and any diary-keeping equipment to you. Moreover, even if clear return instructions are supplied, there is no guarantee that participants will return their diaries and equipment without additional reminders or some encouragement. One researcher highlighted the challenges of getting back tape recorders and audio diaries from a group of twenty-four participants with visual impairment; she noted that ‘while many were returned promptly, just as many took upwards of months to come back as participants contacted the researcher to say they were “busy with work and school”’ (Worth, 2009). In this case, all but one of the audio diaries were eventually returned. However, it does illustrate some of the challenges that can arise in getting both data and equipment back and how important it is to plan ahead and factor in time for participants to return their diaries to you.

Dealing with variation and missing data in diary completion

It is worth noting that people approach diary keeping in very different ways. Those adopting semi- or unstructured diary methods will find that

there can be considerable variation in the length of entry and the degree of personal revelations a person will enter into the diary. For example, some diarists may take a very reflective approach to their diary keeping that conveys their feelings and emotions around their experiences of the phenomena of interest, while others will write shorter, more straightforward and factual account of events (Milligan et al., 2005). This difference in approach to diary entry is perhaps reflective of two things: firstly, as Sheridan (1993) noted several decades ago, some people will inevitably be more predisposed to being diarists than others and will use the opportunity to reflect on their everyday lives, while others may view it as a more boring and repetitive activity to be undertaken as quickly as possible. Secondly, the length of time diarists are able or willing to devote to completion may depend on what else is going on in their lives versus the time they can devote to what needs to be a regular task over a specific time period.

The latter point also raises the important issue of non-completion and how this is dealt with in the analysis. In structured approaches, it is important that non-completion is recorded prior to analysis in the same way you would approach non-completion in other forms of statistical data analysis. In more qualitative approaches, it is important to consider the extent to which this non-completion impacts on the overall temporal flow of the diary. In a longitudinal study, if there is a simply one week of missing data, it may be possible to discover why this occurred (e.g. due to illness or holiday). While it is important to acknowledge these missing data, it may have limited impact on the overall diary keeping. If, however, the diary was completed over a fairly short timescale, for example days or a few weeks, then large chunks of missing data may significantly affect the veracity of the temporal narrative in which case the diary in question may need to be discarded. Where missing data falls somewhere between these two extremes, there will inevitably be a judgement call to be made. In these instances, it is important to consider how reliable the remaining data is in terms of its contribution to the wider study. On such occasions, peer scrutiny of the data with other members of your research team (if relevant) or a research colleague may be a useful way of confirming whether or not the data are sufficiently reliable to include.

Analysing diary data

Techniques and the resources required to analyse diary data will depend on the approach taken, the purpose for which the diary has been

constructed and the size of the research team. In projects where one sole researcher is analysing written diary data on his or her own the process is relatively straightforward. However, projects involving multiple team members and forms of data are likely to be complex and require greater practical effort so materials can be shared (Pink, 2009). For example, for many large-scale structured diaries, following diary submission there is an intensive process of editing which includes checking entries against the structured questions and entering onto a database. Where a structured diary has been adopted with the objective of counting actions, events and so forth, the diary data can be either descriptively analysed or more commonly analysed using statistical (often regression) techniques. A study by Tennen, Affleck, Coyne, Larsen, and Delongis (2006) of depression history and daily reactions to pain amongst women with fibromyalgia, for example, used structured daily diaries with scaled responses to a series of preset questions over a thirty-day period. The data were then analysed using multilevel analyses to address within-person relations; these data were then scaled up to give generalized results. As Wickham and Knee (2013) point out, even where you may be using structured approaches, one of the strengths of solicited diary method is the temporal nature of the data gathered and recognizing that the data are realized both 'in the moment' and over time. They highlight how important it is to recognize this in the analysis and argue that examining temporal processes in the diary data enables a much more nuanced understanding of events or processes. For instance, it is possible to examine lagged effects that facilitate more dynamic research questions such as 'Does yesterday's experience/action etc. influence today's?' (p. 1184). This allows for a deeper analysis of within-person variance.

While statistical approaches to analysis are more commonly applied to structured diaries, they can also be applied as one element of the analyses of more semi- or unstructured diaries. Here, it may be important not just to understand how events or phenomena unfold in the diarist's own words, but also, for example, to consider how many times he or she refers to the specific phenomenon of interest. Linguists may also be concerned not just with the unfolding story, but also with an analysis of the language used and the frequency of particular elements of that language. However, it is also possible to use these more linguistic approaches to diary analysis in other ways, such as discourse analysis. This may be particularly appropriate where the research design makes use of audio diaries where *how* an

entry is recorded, the tone of speech used in recording the diary entry etc. may be as important as what is said.

Within semi- and unstructured approaches to solicited diaries, the objective is to analyse the more free flowing data, whether written (electronically or on paper) or oral. Following transcription, this can be undertaken through either traditional thematic or constant comparative approaches, where the core technique is to examine, compare and categorize data until no new categories emerge. The overall aim is to identify themes arising either within an individual's data over time or across a sample of participants with similar or differing characteristics. This involves the coding of verbatim entries. Processing can be very labour-intensive, in much the same way as it is for processing semi-structured or unstructured interview transcripts. Using highly trained coders and a rigorous unambiguous coding scheme is very important, particularly where there is no clear demarcation of events or behaviour in the diary entries. Where appropriate, a well-designed diary with a coherent pre-coding system can help to reduce the degree of editing and coding required.

However, it is important to bear in mind that while thematic and constant comparative approaches to analysis are useful for identifying themes in the data set, this type of approach relies on cutting up data by code or thematically to achieve an across-person analysis. While this can be a useful and valid approach, as with other narrative approaches, it can also result in the loss of the personal story and temporality of that story that is being told through the diary. As a consequence some researchers choose to adopt a narrative approach to the analysis, where the researcher attempts to make sense of the storylines or narrative threads that run longitudinally through the diary in order to convey the meaning and contextual detail that is important to understanding and explaining the storylines that run through the diary (Thomas, 2007).

Factors to consider when analysing video, photo and audio diaries

Video, photo and audio diaries require a slightly different approach to analysis. Video diaries produce moving images as well as spoken words that need to be sifted through and coded. While photo diaries obviously produce still images which are meaningful to the participant, they also require sifting through and coding in some way. Audio diaries produce significant amounts of monologue and often contain background sounds,

which may or may not be important to decipher. Thus, the basic approach to analysing audiovisual materials is the same as that required for the analysis of data collected through conventional methods – that is, ‘a process of abstraction’ in which the audio diary will need to be transcribed, and the research team will need to select and follow some kind of systematic coding process (Pink, 2009, p. 120). The main difference, however, is that there is an ‘increased complexity in the data’ collected from audiovisual materials, and so the task is likely to be more time-consuming and requires the researcher to do more filtering of what is not required for the study (Noyes, 2004, p. 203). Moreover, audiovisual materials are ‘evocative’ and thus one’s whole body and sensory range is likely to be engaged in the interpretative process (see Pink, 2009 for a more detailed discussion). In fact, one of the first issues to consider in the analysis of audiovisual materials is your reaction as a researcher to what you see and hear in the diary. The process of identifying and noting the parts of a diary that you find most compelling, and why, adds another important layer of meaning-making. As one researcher explains,

I endeavoured to gain an initial sense of common themes across photo diaries, noting images that seemed incongruous or different. I also documented images that drew my attention. Reflecting on why such images interested me in conjunction with participants’ explanations provided insights into young people’s critique of some factors of school’s sexual culture. (Allen, 2009, p. 490/1).

As well as reflecting on what fascinates you about the data, it is important to note any negative reactions too. This is what a team of researchers had to do in their photo-interview-diary study of child labour in the UK. As they reported, ‘A first viewing of the selected images produced in us, the researchers, a sense of disappointment. Images of the children working were scarce; indeed shots containing people of any kind were a minority’ (Mizen, 2005, p. 128). They had expected – or perhaps hoped – to see more images of the children actually working, as this is what the children had spoken of in their interviews. However, on reflection, they soon realized that the children’s photographs provided ‘visual substance and tangible detail to what, for researchers at least, has tended to be as much instinctively as substantively known: i.e. the environments and to some extent the character of children’s work’ (p. 129). Thus, the visual data opened

another way of knowing, one based on what the participant actually saw while they were working, rather than what the researcher imagined they could see.

Where diary studies combine diary method with other methods of data collection, such as interviews and participant observation, a deeper understanding can be achieved during the process of data analysis, as the researcher will vacillate between, and simultaneously explore, both the visual and textual diary and non-diary data in order to make sense of the topic. This is evident not only in the quotes we have included above, but also in other studies that have combined visual diary method with interviews, such as those we refer to below. In these examples, we show how diaries provide scope to look at, and analyse, the interaction between image and text (Plowman & Stevenson, 2012).

Combinations of visual, audio and written data permit multilevel analysis, allowing the researcher literally and metaphorically to 'zoom in' on individual children's uses of different communicative modes with different people, at particular activities in particular moments of time, to 'pan out' by observing the children over time and across different social settings and to explore the relations between these different perspectives (Flewitt, 2006, p. 29).

When filming was completed I worked with the video diary footage in two ways. As research data, each of the video diaries was transcribed, integrated with interview and journal data and analysed thematically. By identifying categories and concepts across the different methods I was able to support my interpretation of the video diaries with other data and consider them within a broader context (Bates, 2013, p. 34).

A second factor to consider in the analysis of audiovisual materials is the subject matter – that is, scrutinizing what is actually visible and audible within an image or film. Such an approach constitutes a basic content analysis and many researchers use the technique to assess the frequency of particular people, places or objects (Plowman & Stevenson, 2012). Aldridge (2007) used the technique in her analysis of 471 images taken by adults with learning disabilities using disposable cameras for a study of a gardening service. By conducting a basic content analysis, the researcher identified various categories and subcategories, such as indoor and outdoor gardening activity, tools and transport, all of which described the

subject matter of the images; 42 per cent of the images contained people, and so one conclusion drawn was of the significance of 'social activity' for adults with learning disabilities (p. 9). A sophisticated and well-established example of content analysis is Video Intervention/Prevention Assessment (VIA) described below. Content analysis is a useful and popular technique, then, for making sense of audiovisual materials.

Video Intervention/Prevention Assessment (VIA) is a qualitative research method that investigates health conditions from the patient's perspective. VIA's primary data consist of visual illness narratives, video diaries made by participants of their experiences living with and managing chronic medical conditions. The visual narratives are viewed and listened to by a data logger and notated in sequential scenes by participant identification number, tape number, and video time code. The content of the audio visual data is logged as text comprising 'objective descriptions' of information that is visible or audible and 'subjective accounts' of what is observed, relating the participant's perspective, emotional tone and psychosocial dynamics of a scene. Within the logs, distinct font headings designate different types of data, so that they can be recognized as such when the logs are imported into NVivo qualitative analysis software for data management, structuring and analysis. Using this software, multiple researchers can code, recode and refine the logs of the visual illness narratives and link their structured analyses to illustrative excerpts from the primary audiovisual data (Rich & Patashnick, 2002, p. 245).

As well as paying attention to content, it is important to bear in mind the action required on the part of the participant to produce audiovisual diary materials and how this might affect the quality of data. Several researchers comment on the dynamic or performative elements of producing a video diary or posing for an image as part of your diary recording – and the importance of taking this account when analysing your data. For example, in one video-diary study involving primary school children, the researcher noticed how the young participants had a tendency to perform in front of the camera, particularly in the earlier stages of data collection while they were still getting used to the novelty (Noyes, 2004). Other researchers who have used video-diary method have found that

adult participants (particularly men) may be self-conscious about filming themselves (Roberts, 2011). While this is not a problem in itself, it may be important for you to consider when making decisions about the duration of diary keeping, in order that you allow time for participants to get used to the diary-keeping process. So, when it comes to analysis there will be sufficient naturalistic data to interpret.

Given the complexity and variety of data produced by video and photo diaries, some researchers will purposively select certain aspects of the data to analyse, as opposed to trying to make sense of every single aspect of the data set. With this approach, rather than embracing the complexity of visual data, researchers endeavour to simplify the process. Roberts (2011), for example, approached the analysis of visual diary data collected from university students by focusing on what students *said* in their videos (our emphasis), and made no attempt to analyse anything but the more 'obvious visual components of the diary such as who was present and whether someone was laughing or crying' (p. 681). Similarly, the research team who used video-diary method to investigate young girls' experiences of running away from home focused on what the girls spoke about, rather than trying to make sense of the performative elements of the diaries (Edinburgh et al., 2013). In the main, then, this approach focuses on transcribing and analysing the spoken word in much the same way as an audio diary is analysed, picking up on only the most obvious of visual cues. The key rationale for using visual diaries in such cases may thus be less about the importance or relevance of visual analysis and more about the appropriateness of this type of diary technique for the particular group or individuals being studied. However, it is also common for researchers who have used photo-diary method to sift through images with the participant himself or herself and select a sample for a more detailed depth analysis (photo elicitation). We would suggest that novice researchers, especially those conducting the research on their own, take a more simplified approach to the analysis of audiovisual materials to make the process manageable, moving on to more complex forms of analysis once they feel comfortable with the process or are doing so as part of a larger team of experienced researchers.

Finally, it is important to consider data management, especially the storage of data and sharing of files.¹ Audiovisual diaries typically create very large files which will need to be kept securely on PCs with a firewall system and password-encrypted data files. You therefore need to feel confident

about having the equipment and skills to do this when designing and resourcing your project, enlisting the help and advice of a data technician if necessary. It is also worth emphasizing that researchers typically have audio and video diaries transcribed verbatim, so there will be a text file (as well as audio and video file) per diary. All of this highlights the importance of deciding how and where you will store data safely and systematically at the outset of the study.

In terms of actually managing and sifting the data collected through visual and photo diaries, depending on the size and nature of the study, researchers who work with audiovisual materials typically either develop some kind of matrix on a spreadsheet or in a Word file or use computer-assisted software programs like NVivo or Atlas to facilitate data analysis. Regardless of whether a structured, semi-structured or unstructured approach is taken, the aim is always the same: to use and conduct a systematic analysis of multiple data sources to develop an understanding of the phenomenon under investigation (Alaszewski, 2006b). Below are a few selected examples of how researchers who have collected audio (visual) materials using diary method have approached the management, storage and coding of data.

In a structured study of well-being amongst Chinese students using an online diary, participants were asked to identify and rate the range of emotions they had experienced during the course of a week, data were analysed using the specialist computerized program – Linguistic Inquiry and Word Count – which can ‘handle large volumes of open-ended responses at greatly reduced speeds, without sacrificing consistency in coding’ (Tov, Ng, Lin, & Qiu, 2013, p. 1069).

In a semi-structured study of the transition from medical student to junior doctor using a combination of interviews and audio diaries:

A thematic index was developed to which the entire dataset could be coded. Twenty-five initial categories were devised by the research team and the eight individual researchers subsequently developed thematic indices according to their own understanding of the emerging content of the data. A final overall indexing system was discussed and agreed by all parties in a collaborative research

meeting prior to the first stage of formal analysis. Data were then coded to the individual categories in the thematic framework using NVivo, a computerised indexing system for qualitative data (Brennan et al., 2010, p. 453).

In an unstructured study of visually impaired young people's transition to adulthood using audio diaries, diaries were analysed alongside other data sources as part of a participant case, using an experience-centred approach to thematic narrative analysis (Worth, 2009).

Further discussion of data analysis is beyond the scope of this book. However, techniques for making sense of diaries as a data source and the issues raised by the development and use of specialist computerized programs will be of increasing importance as diary methods diversify and researchers embrace digital forms of data collection. In the next chapter, we discuss the rise of technology and its impact on diary method and make further reference to the process of data analysis in the context of digital technologies.