A Best Practice Guide to Qualitative Analysis of research to inform healthcare improvement, re-design, implementation and translation

Guidance Document

September 2020

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NSW GOVERNMENT | AGENCY FOR CLINICAL INNOVATION

Tables

Figures

1.1 Background & Purpose of this Guidance

Qualitative research is used to understand, describe and explain social, cultural and individual phenomena (Flick, 2018). The field is broad, and the methods employed for data collection vary. Central to qualitative research is the idea that experience is a form of essential evidence. Understanding experience provides critical insights into key values, beliefs, processes, and phenomena from the perspectives of individuals in their lived social and personal worlds. Historically, qualitative data has not been perceived as evidence in the same way that evidence generated from large datasets, validated questionnaires, and randomised controlled trial study designs has.

This guide does not provide an overview of the methods for qualitative data collection but starts from the premise that the Agency for Clinical Innovation (ACI; The Agency) and its network staff will have already been engaged in the collection of data or information about an issue or topic. This data may have been derived from face to face individual interviews or group interviews (for example, focus groups) or it may have been collected using electronic methods (emails, chat forums, mobile phone apps, electronic/text diaries and/or journals or open survey responses) or the data might have been collected in a hard copy format and material mailed in by participants from their home or other settings. Qualitative data collected by interview formats, or emailed responses and diaries for example is referred to in this Guide as talk-generated data, while descriptive observations of participants, or organisational settings, or completed timelines of life events is called text-generated data. Collection of data in visual formats such as, photo interviews or video methods is termed digitally-generated data. For the purposes of this Guide we focus on talk and text generated data.

1.2 How the Guide is organised

The information presented in this Guide has been organised by type of data source that might need to be analysed for The Agency. Material has been compiled from lecture content from A/Prof Palmer's annual qualitative research interviews and analysis short courses, and drawing on texts and methodological articles to create a resource for ACI staff to use in the post data collection phase of qualitative projects.

Each section contains "at a glance overviews" to guide the selection of appropriate analytical approaches per data type. Decision matrices have been prepared to illustrate why one method of analysis may be more fit for purpose than another. Tips and hints have been included to support practical application of the Guidance. The Guide is organised by analytical approaches that fit for: talk and text generated data. Digitally-generated data analysis is not covered. Before we begin, here is a brief overview of qualitative analysis in the context of healthcare delivery, re-design, implementation and translation.

1.2 Qualitative analysis in context of healthcare delivery, re-design, implementation and translation

> Qualitative data analysis… "refers quite specifically and narrowly to systematic procedures followed in order to identify essential features and relationships". (Wolcott, 1994)

Qualitative analysis is an essential feature of healthcare system re-design and improvement efforts, and it is key to the creation of high quality and safe, person-centred care. Indeed, if the association between improved patient experience and health outcomes is to be realised and embedded in healthcare systems, then, qualitative analysis is central to identifying the key mechanisms of action that may inform system design (Doyle, Lennox, & Bell, 2013). Qualitative analysis is often a major component of getting evidence into practice, and for new approaches to become embedded as core practices. The analysis illuminates the contextual features that might hinder or facilitate change and can point toward the identification of implementation and translation strategies to embed a new practice.

Healthcare organisations have commonly relied on gathering feedback from patients to improve experiences and processes. This data has typically been collected using satisfaction surveys and other approaches that rarely capture experiences in a way that points to the key areas for improvement or change. Maben et al. (2012) highlight this by distinguishing between survey generated evidence and interview generated evidence. Here, the example illustrates the experiential gap between a standard satisfaction of care survey and what an interview might yield.

Figure 1. Comparison of survey of satisfaction with care evidence and interview evidence as generated by asking the same participant the same research question.

Survey question and response	Extract from narrative interview
Q. *'Overall, did you feel you were treated with respect and dignity while you were in hospital?'*, **A.** Ticked box 'Yes, always'	*"The other thing I didn't raise and I should have done because it does annoy me intensely, the time you have to wait for a bedpan . . . elderly people can't wait, if we want a bedpan it's because we need it now. I just said to one of them, 'I need a bedpan please'. And it was so long bringing it out it was too late.*
Q. *'Overall, how do you rate the care you received?'* **A.** Ticked box 'Excellent'	*It's a very embarrassing subject, although they don't make anything of it, they just say, 'Oh well, it can't be helped if you're not well'. And I thought, 'Well, if only you'd brought the bedpan you wouldn't have to strip the bed and I wouldn't be so embarrassed".*

Source: Maben et al. (Maben et al., 2012)

This example sets the scene for the importance of qualitative analysis for the healthcare improvement, re-design, implementation and translation landscape. It shows how a satisfaction of care survey might tell us that a patient is very satisfied with staff but in terms of evidence of experience and areas to change, reliance on this alone could overlook important experiential elements of care for people such as the embarrassment of waiting for a bedpan, or feeling that the problem is framed incorrectly. These qualitative distinctions are important for redesigning healthcare systems to be person-centred. We now turn to how to conduct qualitative analysis for talk and text generated data.

2.1 Getting ready for qualitative data analysis

Most talk generated data results from semi-structured or in-depth interviews and group interviews or focus groups. This data is primarily audio recorded or video recorded and then transcribed into a document ready for analysis. Transcription can be completed by the interviewer or facilitator, or it can be completed by professional agencies that provide transcription services. Transcripts from these interviews usually include line by line numbering—this way you know where to go back and find an important theme or if you are working within a team and/or if multiple members are analysing data, this be helpful to guide the analyses. Different types of transcription rules apply. Transcripts might contain detailed (verbatim) information with pauses and "ums" and "aahhs" of participants – pointing to the use of a discourse or conversation analysis, or they might be abridged without this content – pointing to thematic or another method of qualitative analysis.

A few considerations for transcription

- Decide who will do the transcription (for example, you, another researcher, or a transcription service).
- Decide what level of transcription you want and/or need (for example include or do not include "um" and "ahhs", pauses).
- Ask transcribers, or make a note for yourself, not to transcribe asides and cross talk in the interview or the focus group.

2.1.2 De-identification of qualitative data

A first step in the analysis of talk-generated data that is prepared in the form of transcripts is to de-identify data as soon as possible and ideally before data analysis commences. Full anonymisation is usually not promoted in qualitative research as sample sizes are not only typically smaller, but more often than not it is likely that someone else will recognise a part of a story from a participant even with a pseudonym allocated. This is because qualitative studies are often about providing insight into unique experiences or health conditions, and if our participants include healthcare professionals it is likely that stories and data can be recognisable. For this reason, the most appropriate term used for this step in preparation for analysis is de-identification. Key principles for the de-identification stage include developing and updating an anonymous ID system that will allow you to link de-identified materials back to the original sources if needed.

Definition of key terms	
De-identification	… is the removal of identifying information from a dataset, and this data could potentially be re-identified e.g. if the identifying information is kept (as a key) and recombined with the de-identified dataset. (A. N. D. S., 2018)
Anonymisation	is the permanent removal of identifying information, with no retention of the identifying information separately. (Service, 2018)

A simple way to de-identify data is by assigning codes in place of names in all transcripts, or computerised records (such as open-ended survey responses). More commonly qualitative interview analysis involves the allocation of pseudonyms to participant names and the names of suburbs, healthcare services and staff. See Figure 2 for an example of the de-identification process in preparation for qualitative analysis. Note - be sure to keep a record of original participant IDs and allocated codes and pseudonyms in case re-identification is required, but always ensure that these files are stored separately of the transcripts to make it less likely for anyone else to re-identify participants.

Figure 2: An example of the de-identification processes for qualitative analysis

ID	Name	Pseudonym	Birth date	Postcode	Occupation
001	Jane Smith	Helen	01/01/1991	1000	GP
002	John Hancock	Hayden	02/02/1992	1001	Nurse
…	…	…	…	…	…

ID	Pseudonym	Occupation
001	Helen	GP
002	Hayden	Nurse
…	…	…

Original transcript

Interviewer: Thanks for coming everyone. Let's introduce ourselves starting with names and occupations.

Participant 1: Hi, my name is Jane Smith and I'm a GP at Big Bird Superclinic in Sesame Street. I started there in January 2019.

Participant 2: Hi everyone, I'm John Hancock. I'm a nurse at Bert and Ernie Family Practice.

De-identified transcript

Interviewer: Thanks for coming everyone. Let's introduce ourselves starting with names and occupations.

Participant 1: Hi, my name is Helen (or ID001) and I'm a GP at [clinic 1] in [street]. I started there in [month] 2019.

Participant 2: Hi everyone, I'm Hayden (or ID002). I'm a nurse at [clinic 2].

A NOTE ON ALLOCATING PSEUDONYMS

Decisions about pseudonym allocation vary in qualitative research but there are a couple of principles that are important to follow.

√ CONSIDER A PARTICIPANT'S DEMOGRAPHIC BACKGROUND

√ CHECK THE BIRTHS, DEATHS AND MARRIAGES REGISTRY FOR COMMON NAMES USED AT THE TIME OF A PERSON'S BIRTH YEAR

√ KEEP CONSISTENT WITH CULTURAL BACKGROUNDS. FOR EXAMPLE, IF YOUR PARTICIPANT'S NAME IS JOHN THEN ALLOCATION OF ROBERTO IS NOT APPROPRIATE

Journals may also prefer different de-identification processes. Some journals prefer codes to names and some researchers also ask the study participants to allocate their pseudonyms.

Figure 3: Examples of the areas for de-identification of qualitative data

Here is a list of data variables that you should consider de-identifying:

- Names.
- All geographic details smaller than a state (e.g. street addresses, postcode).
- All elements of dates except for year (e.g. birth date, admission date, discharge date).
- Contact details (e.g. phone numbers, email address, Medicare number or equivalent).
- Full-face photographs in digitally-generated data.

2.1.2 Quality checking for analysis

Once you've de-identified talk generated data, you are ready to undertake analysis!

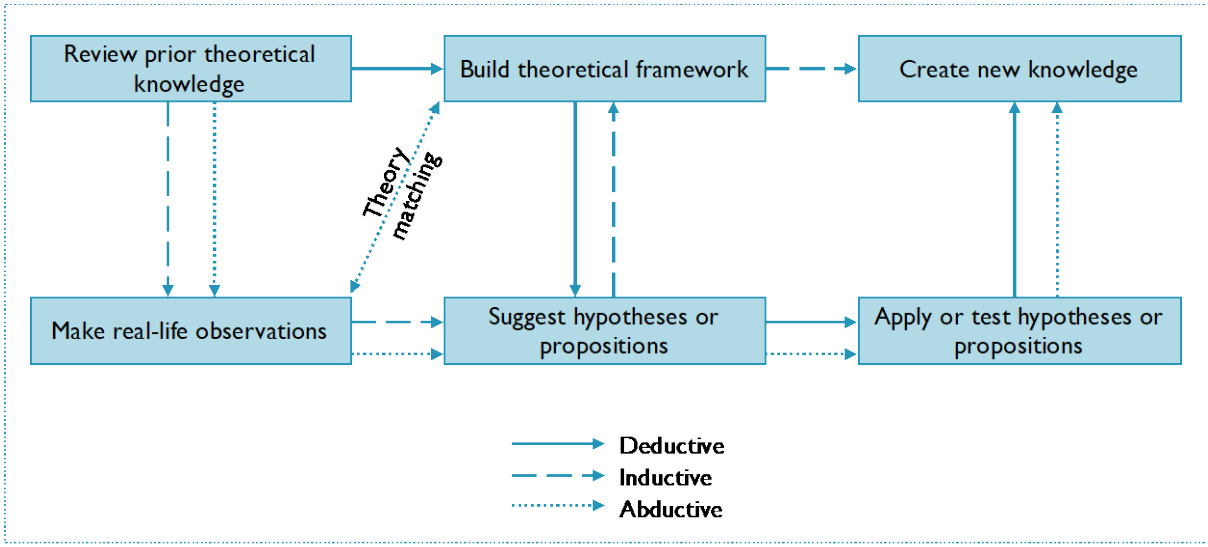
Qualitative analysis can commence as soon as you receive your first data (e.g. first interview, first focus group). Take note of patterns that emerged in an interviewed and create small summary overviews of the participant and the interview. Starting analysis iteratively means that you can also check for data completeness and data quality. In some methods, such as grounded theory, listening to audio files and reviewing transcripts as data is collected is an important methodological step. Grounded theory relies on the development of preliminary themes as data is collected so that these themes are subsequently tested in later interviews or groups to explore, confirm or examine these early themes and identify new ones.

Data completeness	Ensuring data quality
Missing data can be: • "Off the record" remarks. • Ethically sensitive material that requires changes to the data to achieve anonymisation. • Topics which emerge spontaneously and were not addressed previously. These may not inform the research question at hand but may point to future directions in subsequent studies. **Decide how to manage missing data ahead of starting analyses.	• Check every audio and audio-visual recording for sound/visual quality. • Have an audio back up if the interview data is going to be critical to answering your research question. • Review your questions to ensure that they are truly open-ended – dichotomous and closed questions should be avoided in qualitative interview studies. • Check all transcripts against original data source, for larger qualitative studies of 30 or more, 10-20% of cross checking is recommended.

For more information and examples, see Saunders, Kitzinger, & Kitzinger (2015).

2.1.3 Inductive, Deductive and Abductive approaches to qualitative data analysis

Regardless of whether you are analysing talk or text generated data, you need to explore which approach to qualitative analysis you will be undertaking. This can be shaped by the research question you are trying to address. In short, these analytic approaches are ways of connecting and generating ideas from your data (Reichertz, 2014) but they produce different outcomes from the analysis.



Reproduced from Wieland 2016. Based on Spens & Kovacs 2006.

Figure 4: Overview of inductive, deductive and abductive research processes

Definition of approaches to qualitative analysis

Inductive	Inductive logic consists of inferring categories or conclusions based upon data. The meaning is from within the data (Thornberg & Charmaz, 2014)
Deductive	Begins with a specific theory, framework or rule and examines how the raw data support the rule. (Reichertz, 2014) It can substantiate or disconfirm existing understandings of a phenomena and add to a framework – a theory or framework can be used to "code" the data.
Abductive	Selecting or inventing a provisional hypothesis to explain a particular empirical case or experience, and pursuing this hypothesis through further investigation (Kennedy, 2018). Abduction is about discovering new concepts, ideas and explanations by finding surprising phenomena, data, or events that cannot be explained by pre-existing knowledge.

2.1.4 How data analysis methods fit with data types

The matrix and decision tree below has been prepared to assist you to choose a data analysis approach that fits with the data collection technique employed (interviews, focus groups, surveys). The symbols in the table below indicate which analysis is best suited to the type of data collection technique employed. Here, it is important to note that some analytical methods do have specific data collection rules that should be followed while others are somewhat more fluid. Again, this is shaped by the research question that you seek to address.

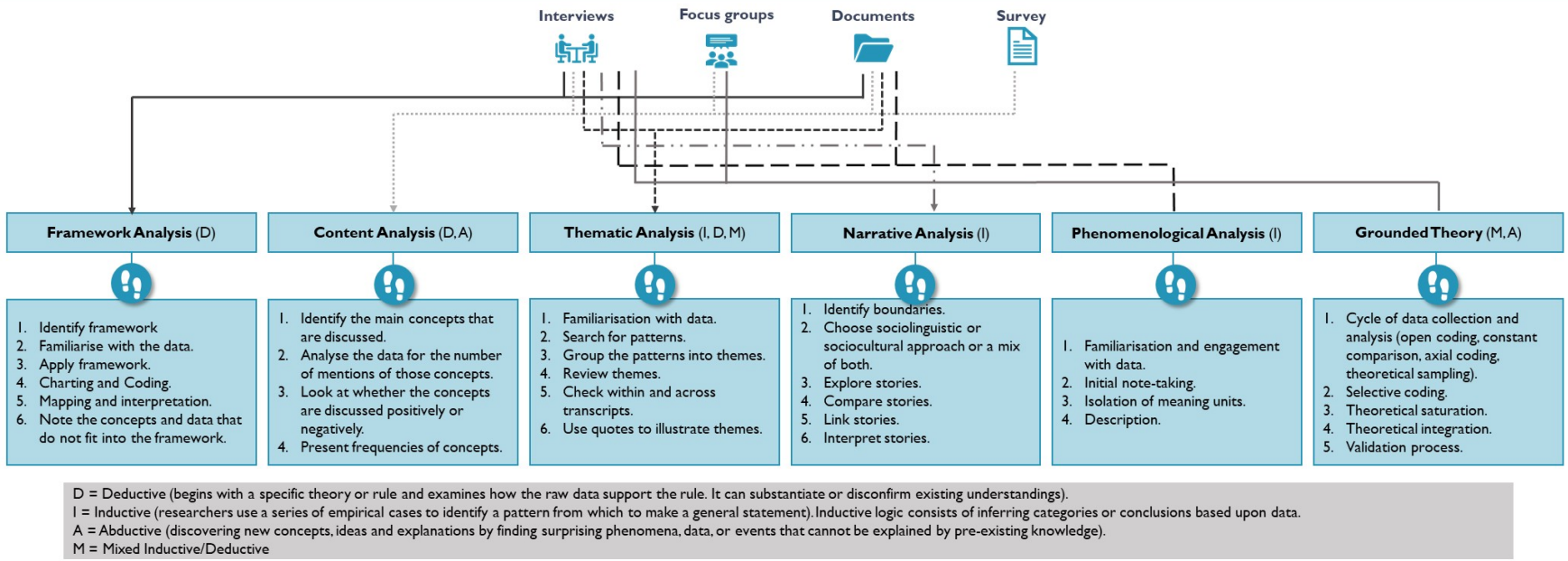
Key

Data collection method	Symbol	Description
Interview		Data analysis is usually performed on the transcripts generated from audio recordings of interviews however you can also analyse directly from the recordings. Inductive and deductive approaches are best. Inductive approaches include thematic or narrative analysis, wheras deductive approaches employ a framework or theory.
Focus group		Data analysis is usually performed on the transcripts generated from audio recordings of focus groups and the notes generated by the observer. The analysis is largely inductive but could be used for abductive testing.
Document		Data analysis can occur directly from the document which may be field notes or diaries of participants. Documents could also include archival data, articles, policy documents and other text sources. Here an inductive or deductive approach can be employed.
Qualitative Survey		Qualitative surveys consist of open-ended questions developed by the researcher/s (Braun, Clarke, Boulton, Davey, & McEvoy, 2020) which are then self-administered and presented in a fixed and standard order to all participants. Qualitative responses collected via text response survey questions can be collated and analysed directly from the data export (for online surveys) or other document (for paper and pen surveys). These responses may use any one of the three approaches – inductive, deductive and abductive.

By now it should be clear that qualitative analysis can be approached differently depending on the research question that one seeks to address. For some theorists, sticking to inductive approaches is important and signals a commitment to honouring the participant's voice, story and values. For others, qualitative data might be collected to expand a theoretical framework or confirm and disconfirm elements this. In either approach it is important that the participant's voice and ways of explaining terms, experiences and phenomena remain recognisable in the analysis. In Figure 4 we provide some further details of the different deductive, inductive and abductive methods of analysis for text and talk generated data. These range from framework and content analyses (deductive), thematic and narrative (inductive), to grounded theory (abductive).

	When to use	Research question/s best suited	Strengths	Weaknesses
Framework analysis	• When it is important to be able to compare and contrast data by themes across many cases, while also situating each perspective in context by retaining the connection to other aspects of each individual's account. (Gale, Heath, Cameron, Rashid, & Redwood, 2013)	• Identifying form and nature of what exists, examining reason for, causes of, what exists, appraising effectiveness of what exists, identifying new theories, policies, plans or actions. (Ritchie & Spencer, 1994)	• Can be adapted for use in inductive or deductive analysis (or a combination of the two). • Easy to identify relevant data extracts to illustrate themes. Data is used to determine if there is sufficient evidence for a proposed theme or confirmation of a core concept within a theory.	• Cannot accommodate highly heterogeneous data, i.e. data must cover similar topics or key issues so that it is possible to categorise it. • Can overlook nuances in participant's responses in an effort to code the data to the framework.
Content analysis	• When you have large documents or transcripts on one topic and you want to look at frequency of concepts.	• What is the dominant word (concept) used? • Is the concept discussed positively or negatively?	• Can provide a good overview of the main concepts being discussed by a participant or within a document. • Can summarise a large amount of data easily.	• Cannot explore the concepts in depth and the surrounding meaning-making undertaken by participants. • Overlooks emerging themes and is criticised for being a quantitative approach to qualitative data analysis.
Thematic analysis	• When you want to identify the patterns of how participants respond to a question. (Braun & Clarke, 2006)	• What are the important patterns within and across interview transcripts? • How have particular concepts been used in context and why?	• Highly flexible approach that can be modified for the needs of your study whilst providing a rich, detailed and complex account of the data. (Nowell, Norris, White, & Moules, 2017)	• Flexibility can lead to inconsistency and lack of coherence when developing themes. (Nowell et al., 2017) • Trying to code too many patterns and themes.
Narrative analysis	• When you are collecting stories from participants.	• Those that explore either the structure of narratives or the specific experiences of particular events, e.g. marriage breakdown. • Finding out information which is life changing, undergoing social/medical procedures, participating in particular programs.	• Gives insight into how individuals structure communication for effect and how they construct meaning from their life experience. • Provides insight into relationship between experiences and identity.	• When only one approach is used, the perspective is limited (e.g. using only one of the socio-linguistic or socio-cultural approaches). • Data collection needs to be in-depth and open-ended responses and can be time consuming for analysis
Phenomenological Analysis	• When the rich detail of people's experiences of a phenomenon is to be explored, described, communicated and possibly interpreted. • Phenomena about which there are few in-depth data.	"What has been the experience of … for you?"	• Can document changes in feelings and experiences in depth and over time.	• Needing to clarify which form of phenomenology is being used (e.g. existential, hermeneutic, etc). • Bracketing is difficult to do, is time consuming and can be hard to judge when this process has been completed.
Grounded theory	• When there is little or no prior knowledge of an area. • When all related aspects of an observation of a sample of people need to be explored. • When there is need for new theoretical explanations built on previous knowledge to explain changes in the field.	• Those relating to interaction between persons or among individuals and specific environments.	• Can tease out the elements of the operation of a setting or the depth of an experience.	• Too much fragmentation of the data may lead to a loss of the bigger picture.

Figure 5: Overview of data analysis techniques matched to data type



3.2 Qualitative analysis of talk generated data

3.2.1 Thematic analysis

Thematic analysis is the most commonly used approach for text and talk data analysis, in this Guide we have presented content analysis as a preferred method for the analysis of text generated data even though sometimes it is used to analysis transcripts generated from interviews. There is no hard and fast rule regarding the use of content analysis in the context of interviews but you should consider the purposes of your research and what you are trying to address in making this decision. Sometimes thematic and content analysis are presented together as thematic content analysis, though usually it is better to consider them as separate data analysis methods.

Content analysis typically involves the identification of core concepts and analysing text or text documents (e.g. policy documents) for the frequency of mentions. Whereas thematic analysis is about the identification of patterns and themes as described by participants.

Thematic analysis and content analysis at a glance:

Thematic analysis	Content analysis
• Cuts across data. • Attention to description by participants. • Searching for core concepts or themes. • Coding, collecting codes under subthemes and themes and comparing emerged clusters compromise data analysis. • Uses the voices of the participants to describe and then synthesise. • Requires creativity from the researcher. (Vaismoradi, Turunen, & Bondas, 2013)	• Thematic analysis considers latent content (developing themes) and manifest content (developing categories) in data, content analysis chooses between the two. • Content analysis does not give attention to context of the data. • Content analysis identifies core concepts and then counts for frequency.

The steps for conducting thematic analysis and content analysis are the same, with thematic analysis employing a few additional steps. Deciding on which approach to take comes down to the aims of each approach and whether these align with your aim/s and research question/s.

AIMS

Content analysis	Thematic analysis
Describe the characteristics of the document's content by examining who says what, to whom, and with what effect. (Bloor & Wood, 2006)	Identify, analyse and report patterns (themes) within the data. (Braun & Clarke, 2006)

Thematic and content analysis are typically considered to be independent of theory and can be applied across a range of theoretical and epistemological approaches. The tip box below shows something of the key aspects of thematic analysis that might help you conduct your analysis.

Key aspects of thematic analysis: (King & Horrocks, 2010)

1. Themes imply some degree of repetition;
2. Themes are identified within individual transcripts and across transcripts;
3. Themes are distinct from each other;
4. Themes are relevant to the research question!

Key aspects of content analysis:

1. Can simplify very large documents.
2. Categories are identified through word frequencies, keywords and graphical representations.
3. Categories are relevant to the research question!

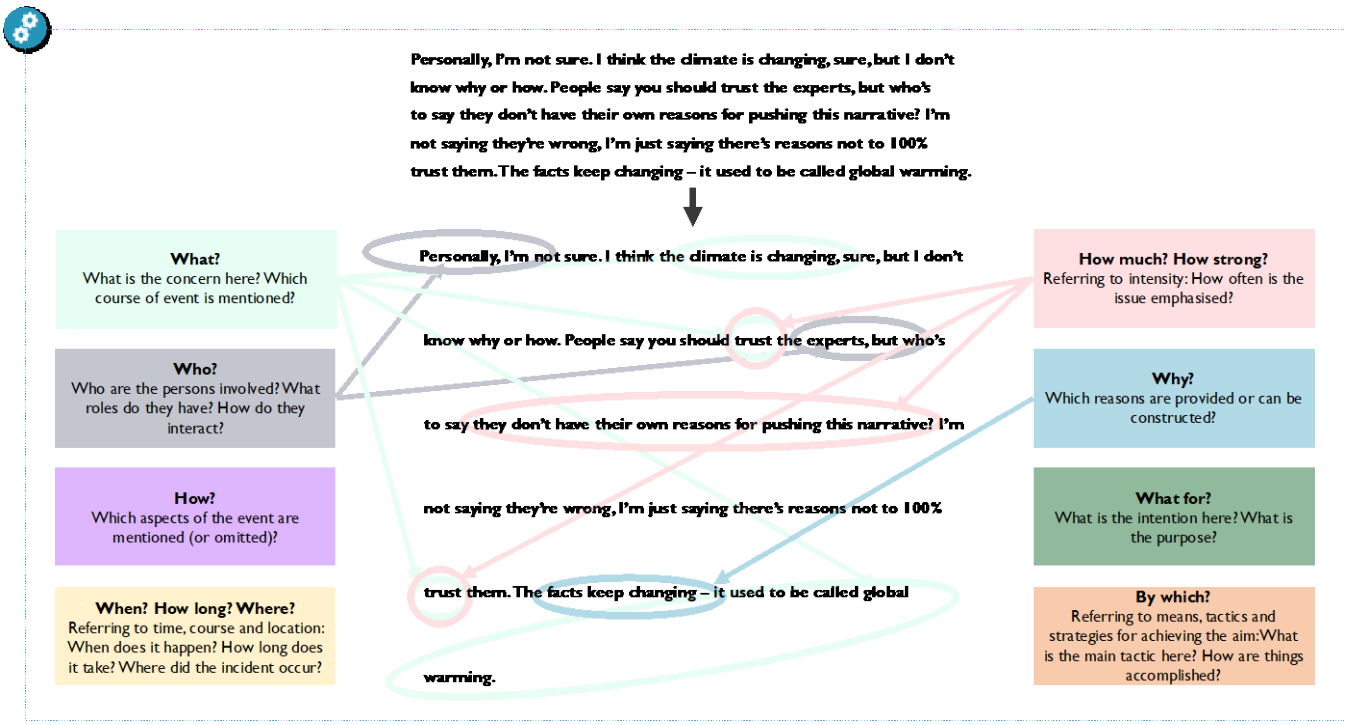
The steps for conducting thematic analysis and content analysis are shown below. Before getting started, become familiar with the terms in the glossary as well as the coding examples.

Definition of terms used in thematic and content analysis

Latent	The latent content is interpretations of the underlying meaning or the 'red thread' between the lines in the text.
Manifest	Content visible in the data with limited interpretation on the part of the researcher.

Coding is commonly the first step that is described in data analysis (including thematic analysis, narrative analysis and discourse analysis). The term coding can be used interchangeably with identification of the patterns. Some people talk about line by line coding and the development of coding frameworks, here we are interested in coding to identify common patterns to determine the themes. Figure 6 provides an example of an interview excerpt which has been coded according to Flick's (Liamputtong, 2009) list of basic questions for coding strategies. In Figure 7 Flick's basic questions for coding a examining are then re-applied to re-examine the data repeatedly (using these same questions), which then helped to identify themes. The approach presented in Figure 6 can also be used to create a narrative summary of an individual transcript too.

Figure 6: Flick's Who, What, When, Where, How and Why approach to analysis.



Adapted from Liamputtong 2009.

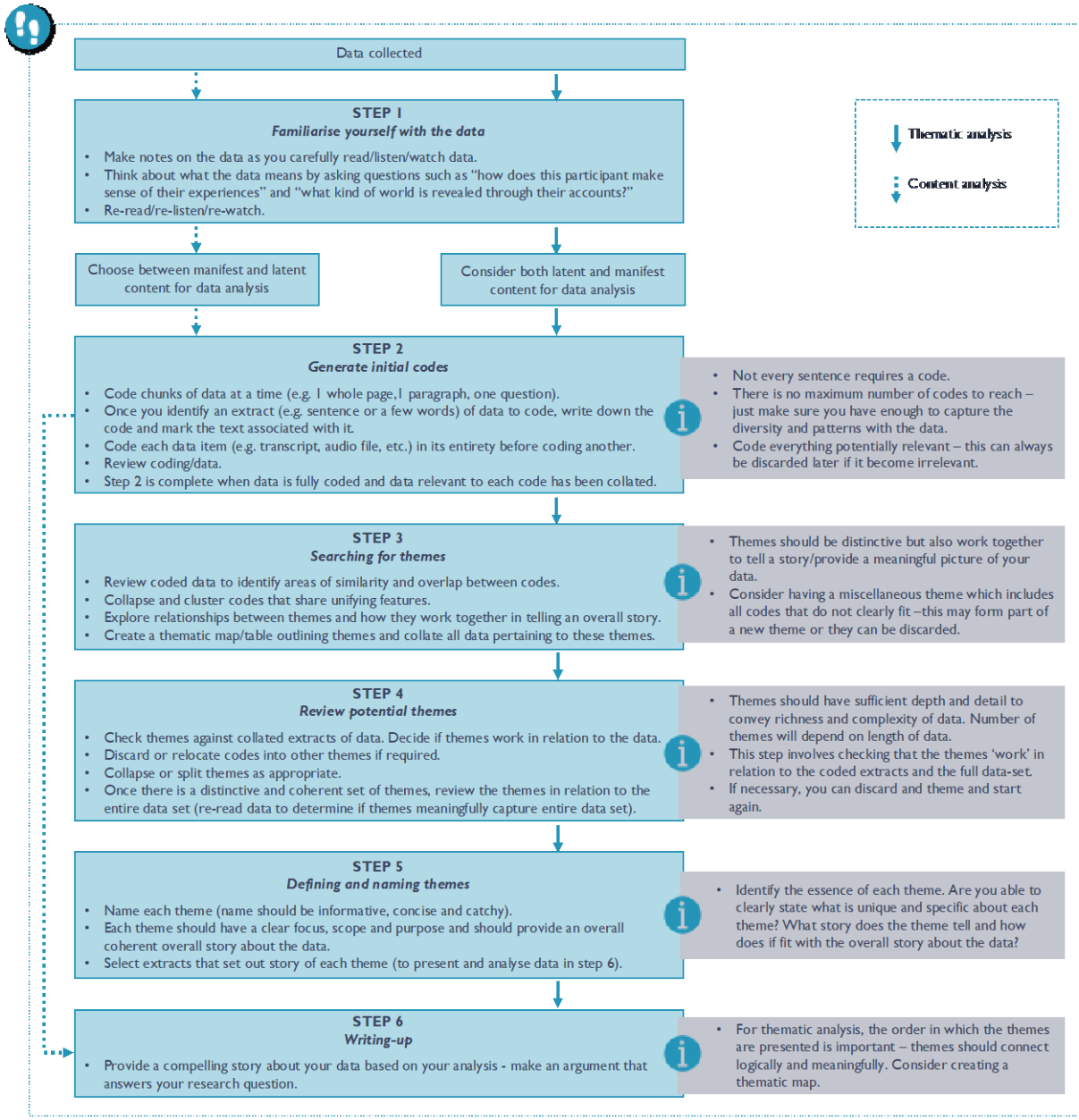
Figure 7: Coding Example of Interview Text

Interview extract	Example codes
Personally, I'm not sure. I think the climate is changing, sure, but I don't know why or how. People say you should trust the experts, but who's to say they don't have their own reasons for pushing this narrative? I'm not saying they're wrong, I'm just saying there's reasons not to 100% trust them. The facts keep changing – it used to be called global warming.	• Uncertainty • Acknowledgement of climate change • Distrust of experts • Changing terminology

Example codes	Themes
• Uncertainty • Leave it to the experts • Alternative explanations	Uncertainty
• Changing terminology • Distrust of scientists • Resentment toward experts • Fear of government control	Distrust of experts
• Incorrect facts • Misunderstanding of science • Biased media sources	Misinformation

Sourced from https://www.scribbr.com/methodology/thematic-analysis/

Figure 8: Steps for conducting thematic analysis and content analysis



Adapted from Vaismoradi 2013 and Bengtsson 2016.

3.3.3 Narrative approaches to analysis

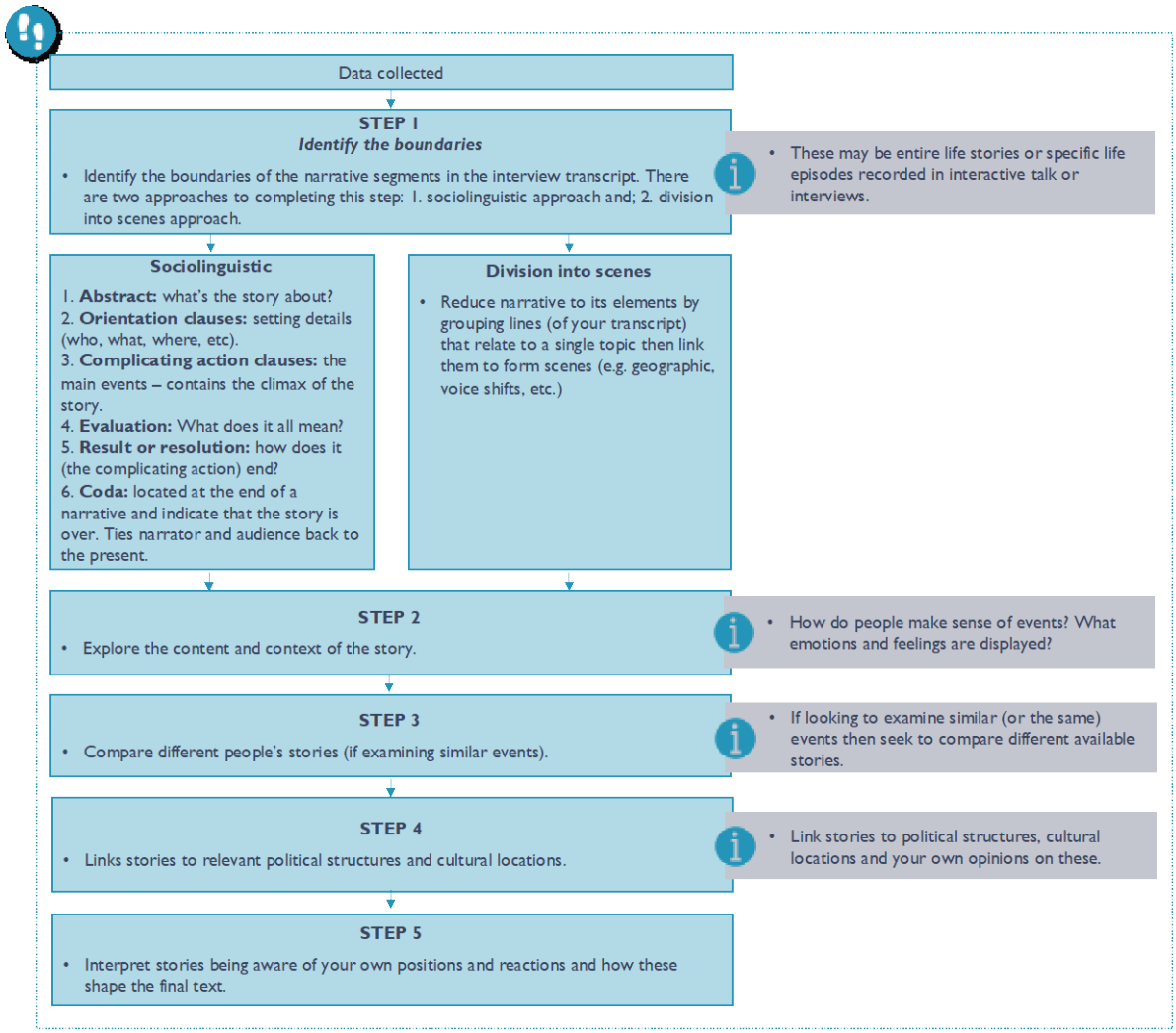
Narrative analysis is intended to be used when the focus is on the complete stories told by research participants (Grbich, 2007) and uses broad interpretative frameworks by the participant and the researcher to make sense of particular incidents in individuals' lives. There is no single narrative analytical method, however, many approaches share basic understandings and characteristics. Narrative analysis may be used to explore the relationship between experience and identity, or the types of stories told by participants and what the implications of these are (Palmer 2007). The steps for conducting narrative analysis shown below are based on the two main versions of narrative analysis by Labov (sociolinguistic) (Labov, 1997) and Grbich (sociocultural) (Grbich, 2007).

Characteristics of the sociolinguistic and sociocultural approaches to narrative analysis.

Sociolinguistic	Sociocultural
• Focuses on plots or structures of narratives and how they convey meaning. • Focus is the text and sequence of events. Does not focus on the interaction between the "actor" and the "audience", power relations, shifts in meaning, development of shared understandings. • Context not taken into account.	• Looks at the broader interpretive frameworks that people use to make sense of particular incidents in individuals' lives. • Lives and stories are narrated as meaningful, coherent entities and usually involves past-present-future linking. • Personal narratives are concise and relate to specific incidents which means that themes and coding are not necessary as stories are complete entities. • Reliance on frameworks is avoided and treats the stories as complete entities in themselves

These two approaches can be used individually or in combination as shown in the steps below. To use the sociolinguistic approach, follow the prompts in the "sociolinguistic" box at step 1. To use the sociocultural approach, follow step 1 from the "division of scenes" to step 5. To combine the approaches, start with the sociolinguistic option for step 1 and continue until you complete step 5.

Figure 9: Steps for conducting narrative analysis



Adapted from Grbich 2007.

You can find an example of each of the components of the sociolinguistic approach below.

Figure 10: Example of the sociolinguistic approach to narrative analysis

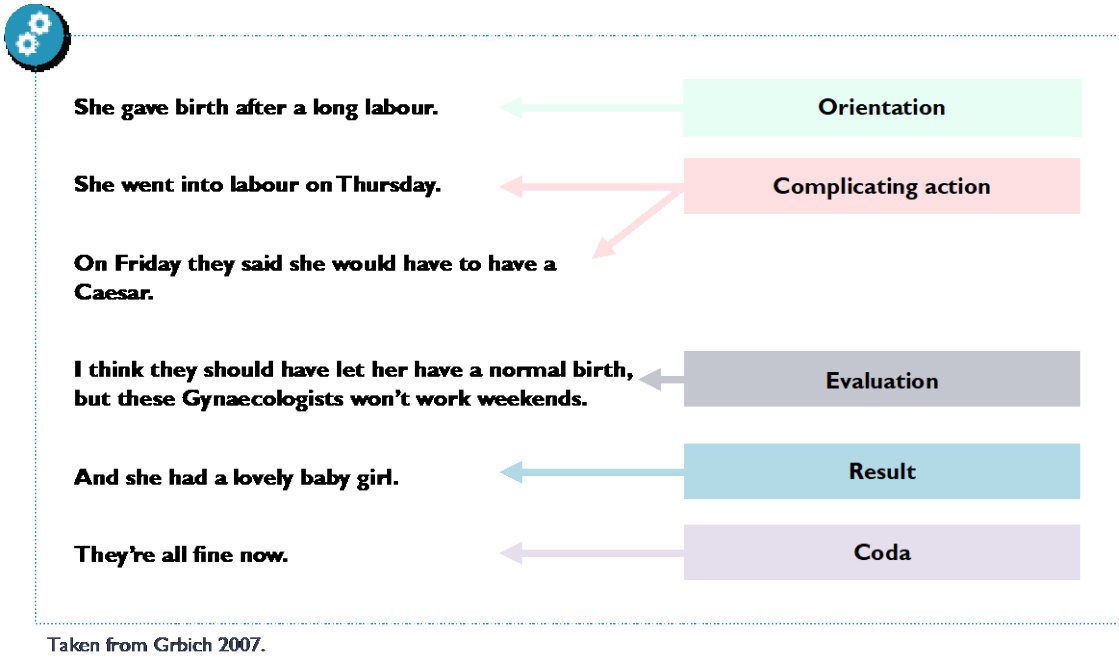
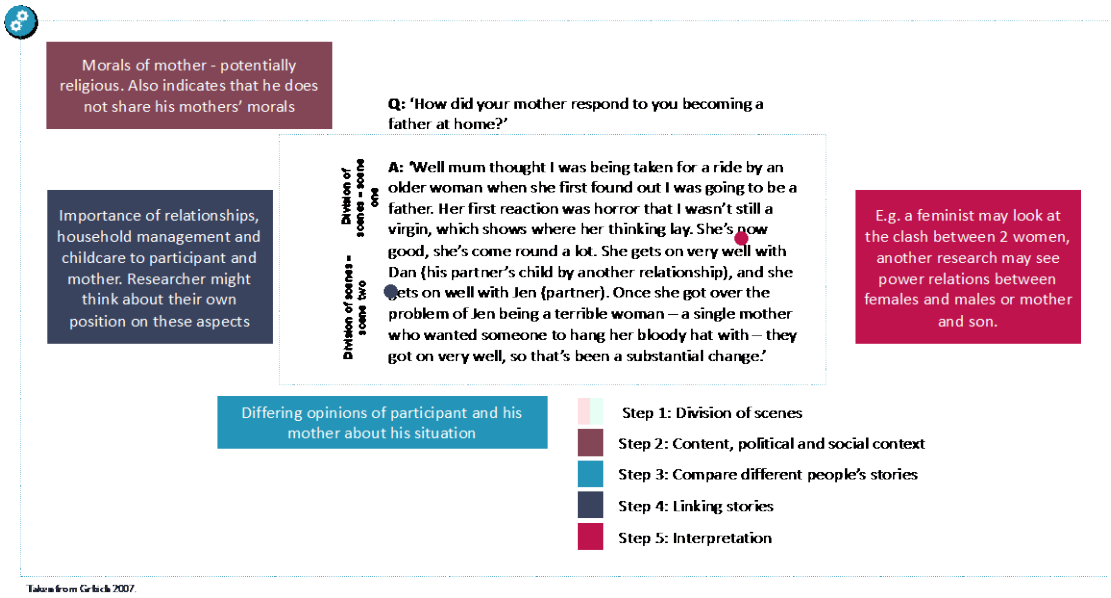


Figure 11 shows a worked example of the sociocultural approach

Figure 11: An example of the sociocultural approach using the division of scenes option for step 1



Lindemann Nelson's 4 Story Characteristics (Lindemann Nelson, 2001)

One approach to narrative analysis is Lindemann Nelson's Narrative Repair. Lindemann Nelson focuses on the stories of groups of people whose identities have been defined by those with the power to speak for them and to constrain the scope of their actions. This approach places people's stories side by side with narratives about the groups in questions and offers insight into the processes of social critique and transformation. The 4 story characteristics of this narrative approach are shown below.

Depictive	Representing an account of real or imagined sets of events. The stuff of actual life, things people do and experience, their interactions with others, there is a temporality to stories—a sense in which time passes but this may fly in different directions.
Selective	Stories are selective in what is depicted. Stories represent a process that may resemble a beginning, middle and an end. There is more to a story than a recording of events—the events in a story are selected to tell something of an experience or a happening.
Interpretive	The actors, events and places in a story are characterised. People do things in stories and the stories are told from within a point of perception—from a particular angle or way of seeing what's going on.
Connective	Stories draw connections to other stories and within the story being told. Events are not only temporal but they are causally told, there are motifs and symbols drawn on that help us to make sense of what is going on. "It's in a story's ability to mean and to convey meaning" [that the difference from other forms is seen] (Nelson 2001, p.15)."

3.1.3 Phenomenological Analyses

Phenomenology focuses on the lived-experience of an individual. It aims to bring in-depth insights to that greater contact with the world and generate understanding into the essential nature of a particular phenomenon under investigation. The participant is the research partner researcher takes a reflective stance in order to understand own experiences and those of another person experiencing the same phenomenon. (Usher & Jackson, 2014)

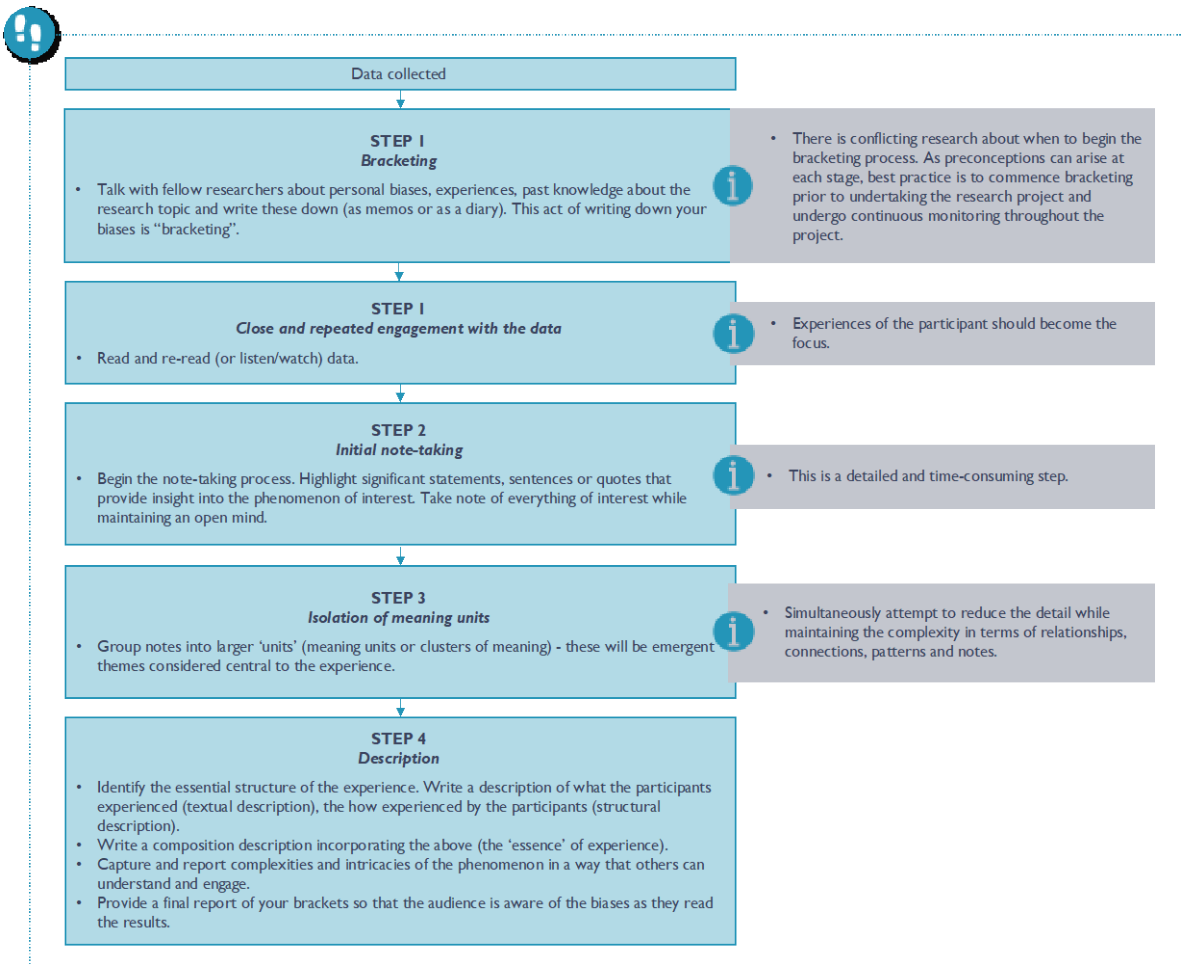
There is no single accepted approach to data analysis however the core focus of all is an interest in understanding what it is like to be human and what constitutes our lived world. The steps below have been adapted from Moustakas (Moustakas, 1994) and Creswell (Creswell, 2007) as found in Usher and Jackson (Usher & Jackson, 2014).

Glossary of terms used in phenomenological analysis

Bracketing In order to find the core meanings of your data, you must "strip away" all preconceptions, beliefs and prior understandings of the phenomenon you are looking at. This neutral stance is called bracketing.

Meaning units The separation of parts of a unified description (e.g. paragraph, block of data collected about a particular subject) that is based upon meanings – this is called a "meaning unit".

Figure 12: Steps for conducting phenomenological analysis



3.1.4 Grounded Theory

Grounded Theory is an iterative approach to data analysis and is adopted when one seeks to generate new theories from data sources. Interpretive explanations are constructed iteratively throughout the data collection and analysis phases (Grbich, 2007). There are two competing approaches to Grounded Theory (Straussian and Glaserian), with most researchers opting for the Straussian method as it is more prescriptive than the Glaserian approach. The Glaserian approach also requires the researcher to have a high aptitude for

conceptualisation and skill in the use of theoretical coding which can make it difficult to conduct. Various hybrids of the two versions exist and most researchers currently use Charmaz's grounded theory approach (van Niekerk & Rhode, 2009).

Definition of terms used in Grounded Theory

Open coding	Word by word, line by line analysis, questioning the data in order to identify concepts and categories (which can then be further broken apart). (Grbich, 2007) Discover, name, define and develop as many ideas and concepts as possible without worrying about how they will ultimately be used.
Axial coding	Identify the relationships among the open codes. Take one category and link it to all the subcategories which contribute to it. (Grbich, 2007) See example below.
Selective coding	Validation of the relationship between a central core category by drawing together additional categories of context, conditions, actions, interactions and outcomes, together with the focusing of memos and the generation of theory regarding this category. See example below.
Theoretical memo	Descriptive record of ideas, insights, hypothesis development and testing by the researchers. (Grbich, 2007)
Theoretical saturation	This is the endpoint of theoretical sampling and is achieved via constant comparison. It refers to interpretations of data an occurs when researchers are satisfied with the theory they have derived from the data and that this theory will fit any data that might still be collected.
Theoretical sampling	Process of data collection for generating theory from data collection, coding. The researcher analyses the data decides what to collect next. It is the "seeking and collecting pertinent data to elaborate and refine categories in your emerging theory". (Grbich, 2007)
Constant comparison	Process whereby each interpretation and finding is compared with existing findings as it emerges from the data analysis. After the coding step has taken place and categories begin to emerge, each emerging category is compared with other categories for similarities or differences. See the step 4 of the Ethnography process. (Lewis-Beck, Bryrman, & Futing Liao, 2004)

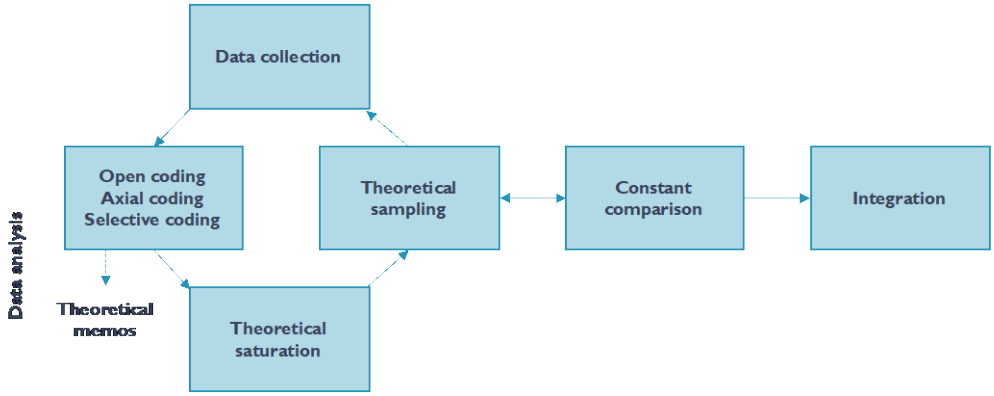
Figure 13: Examples of coding for Grounded Theory

Open code	Axial codes	Selective codes
Wanting experiential learning; constantly learning; working in a good environment; pioneering social media and easily adapting to change; feeling entitled due to unique qualifications, as compared to previous generations; possessing the personal skills and characteristics needed; being groomed	Believing they are ready to be set loose on accounts	Wanting to make a difference
Craving immediate feedback and being motivated by feeling appreciated; detesting getting called out; receiving verbal encouragement and making observations	Seeking external validation	
Mind reading and expectations for a miracle worker; getting called out; not being heard	Silently blaming employers for failures	
Advocating a work-life balance; being cared for as a whole person; accommodating interests and preferences	Wanting a meaningful experience at work and outside of work	

Taken from Gallicano 2013 https://prpost.wordpress.com/2013/07/22/an-example-of-how-to-perform-open-coding-axial-coding-and-selective-coding/

The process for conducting the Straussian approach to Grounded Theory is shown below.

Figure 14: Steps for conducting Straussian Grounded Theory



Taken from Grbich 2007.

As you can see, the Straussian approach to Grounded Theory is not as linear as other approaches to qualitative data analysis. Data analysis commences as soon as your data has been collected, starting with open coding and theoretical memos, then constant comparison, axial coding and theoretical sampling. Once that has been completed, you repeat the process for the next piece of data collected. You can start the selective coding process once you feel you have reached data saturation.

4.1 Qualitative analysis of text generated data

4.1.1 Content Analysis

Having explored a little more thematic analysis in the previous section and the distinctions between thematic and content analysis, we now provide an example of content analysis using the text seen provided in Figure 15 from the Agency's guide to telehealth.

Figure 15: An example to describe content analysis

Telehealth is the delivery of healthcare at a distance using information communications technology (ICT). Telehealth is simply the modality used to connect and provide care – it connects clinicians or any other person(s) responsible for providing care to patient/s and carer/s. It can be used for the purposes of assessment, intervention, consultation, education and/or supervision.

In NSW, providing healthcare is challenging, particularly given the large geographical distances and limited resources. The NSW Government is committed to ensuring people living in NSW have equal access to quality care close to home. Integrating telehealth into clinical practice will minimise barriers to access and inequity.

The use of telehealth has long been associated with rural and regional services. Whilst the distance may not be large, it is equally important for metropolitan services to understand that telehealth provides the same benefits to their patients and workforce, alongside its significant role in supporting and providing tertiary care to rural and regional patients.

Advancements in ICT have revolutionised the way we work and deliver services, and telehealth will continue to evolve with these advancements. For example, telehealth now includes enhanced capability videoconferencing platforms, remote monitoring of patients through wearable technologies, special patient monitoring devices and the increasing use of clinical apps.

Embedding sustainable telehealth services into the NSW Health system offers multiple opportunities for patients, their carers, healthcare workers and the system as a whole. All services and models of care are encouraged to consider the use of telehealth as a part of normal practice. This will increase the choices available to clinicians and patients, so there are a variety of options to provide and access care.

All levels of the NSW Health system are responsible for supporting the appropriate use, growth and developing evidence of telehealth applications. From overarching strategies through to the service plans at every LHD and SHN, we all need to encourage and support the workforce to challenge their practice, be creative, flexible and unafraid to explore the possibilities. This cultural shift will ensure that the use of telehealth in clinical service delivery becomes normal practice.

https://www.aci.health.nsw.gov.au/__data/assets/pdf_file/0008/509480/ACI_0261_Telehealth_guidelines.pdf

Word frequency: rank ordered

Word	Frequency
telehealth	11
care	6
services	5
patients	5

Keywords in context

Using the word: care

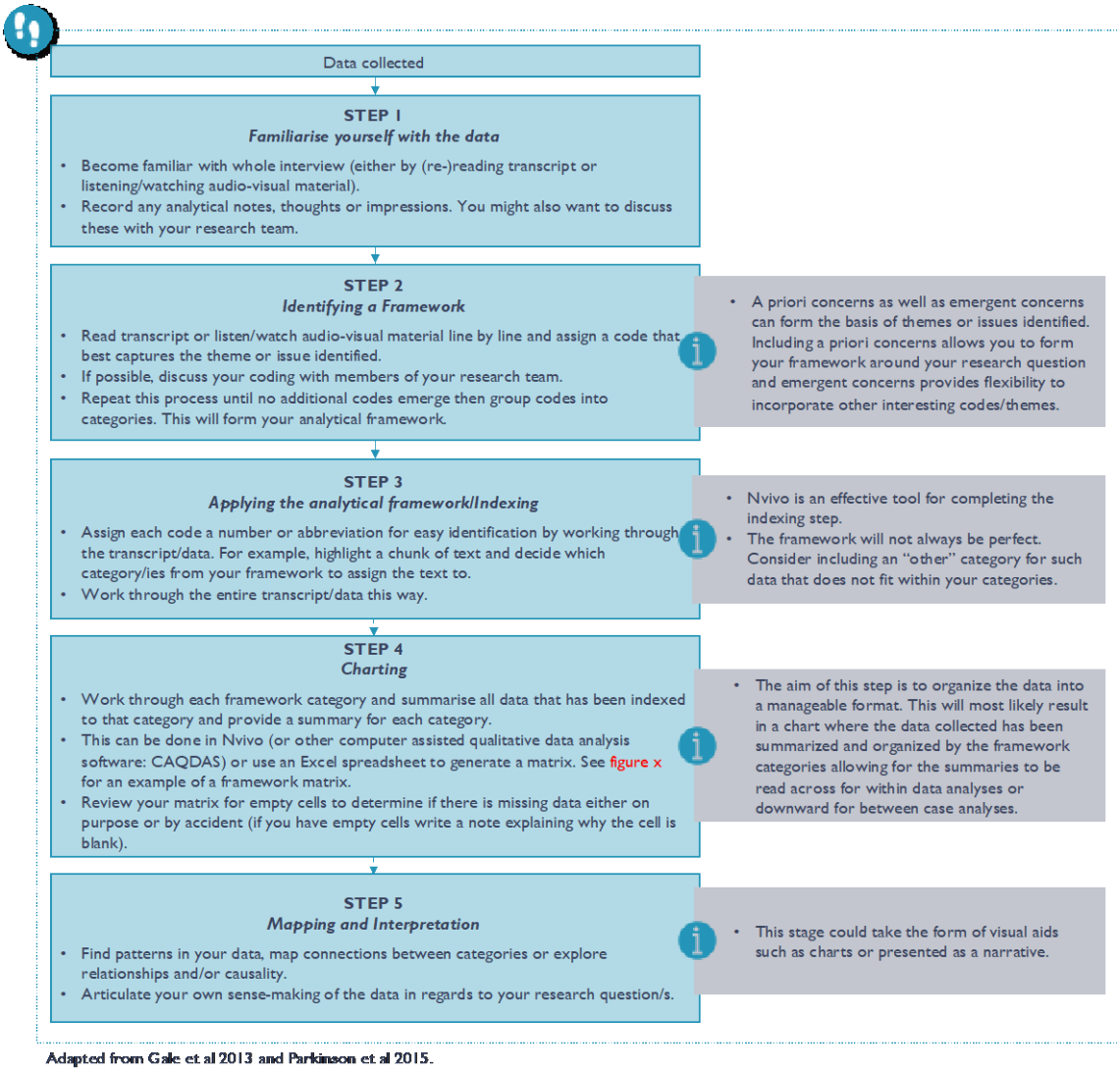
1. providing care to patient/s and carer/s …
2. access to quality care close to home…
3. variety of options to provide and access care …

A content analysis would indicate that care is a primary topic within the document. Mentioned 6 times and was focused on delivery of care to patients, close to home to increase access.

4.1.2 Framework analysis

Framework analysis was developed in applied policy-centred research. It is one of the more structured approaches to qualitative data analysis with several inter-related by distinct stages that allow for theme-based or case-based analysis or a combination of the two which are developed from matrices that are read both across (cases) or downwards (themes). The steps below detail how to conduct framework analysis.

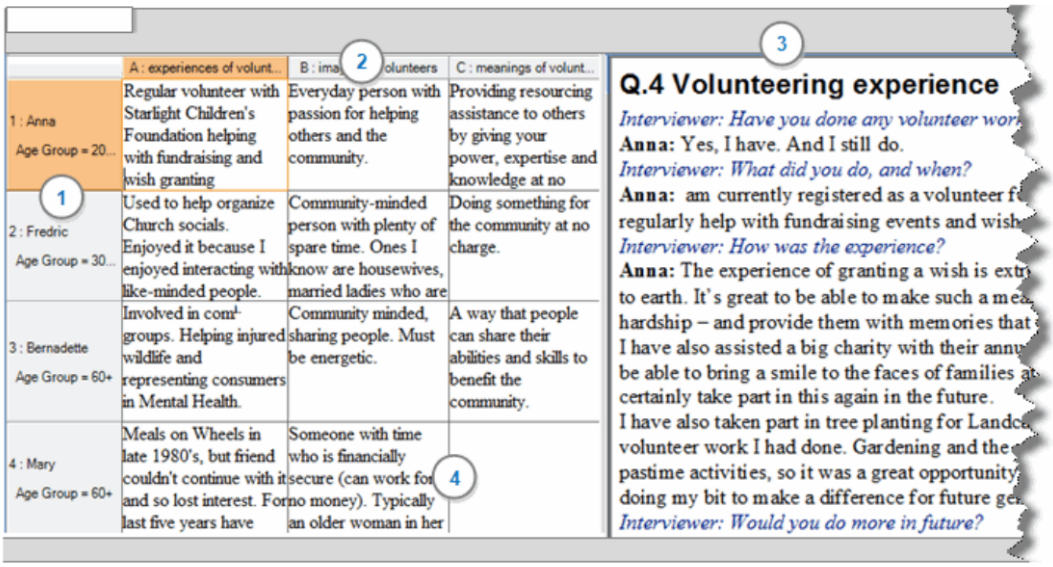
Figure 16: Steps for conducting framework analysis



Adapted from Gale et al 2013 and Parkinson et al 2015.

The figure below shows an example of a framework matrix (from step 4).

Figure 17: Example of a framework matrix



	A : experiences of volunt...	B : ima olunteers	C : meanings of volunt...
1 : Anna Age Group = 20...	Regular volunteer with Starlight Children's Foundation helping with fundraising and wish granting	Everyday person with passion for helping others and the community.	Providing resourcing assistance to others by giving your power, expertise and knowledge at no
2 : Fredric Age Group = 30...	Used to help organize Church socials. Enjoyed it because I enjoyed interacting with like-minded people.	Community-minded person with plenty of spare time. Ones I know are housewives, married ladies who are	Doing something for the community at no charge.
3 : Bernadette Age Group = 60+	Involved in com groups. Helping injured wildlife and representing consumers in Mental Health.	Community minded, sharing people. Must be energetic.	A way that people can share their abilities and skills to benefit the community.
4 : Mary Age Group = 60+	Meals on Wheels in late 1980's, but friend couldn't continue with it and so lost interest. For last five years have	Someone with time who is financially secure (can work for no money). Typically an older woman in her	

Q.4 Volunteering experience

Interviewer: Have you done any volunteer wor
Anna: Yes, I have. And I still do.
Interviewer: What did you do, and when?
Anna: am currently registered as a volunteer f regularly help with fundraising events and wish
Interviewer: How was the experience?
Anna: The experience of granting a wish is extr to earth. It's great to be able to make such a mea hardship – and provide them with memories that I have also assisted a big charity with their annu be able to bring a smile to the faces of families a certainly take part in this again in the future.
I have also taken part in tree planting for Landc volunteer work I had done. Gardening and the pastime activities, so it was a great opportunity doing my bit to make a difference for future ge
Interviewer: Would you do more in future?

1. Rows—each row represents a case. In this example, the cases are people; *Anna, Fredric, Bernadette* and *Mary*. The row headers can display the attributes of the case—in this example, the row headers show the age of the people you interviewed.

2. Columns—each column represents a theme. In this example, the themes are; *experiences of volunteering, images of volunteers* and *meanings of volunteer work*.

3. Associated view—displays source content that is coded at the row (case). In this example, the associated view is showing *Anna's* interview transcript.

4. Cells—each cell is the intersection between a case and theme. For example, the first cell in the matrix contains a summarized version of what Anna said about her experiences of volunteering.

Taken from NVivo 10 Help, n.d. https://bit.ly/30wDntO

Another example of applying a theoretical framework for analysis which is derived from the field of narrative analysis, can be seen in Arthur Frank's Five Dramas of Illness (Frank, 2007). This framework provides a way to explore the first-person narrative of illness experience (the experiences of the sufferer who is also thought to be caught in the conflicts of trying to understand their situation rather than controlling it) in a more categorical approach. Frank believes that five "dramas" of illness frequently occur in autobiographical accounts of illness and these are shown below. This theoretical framework could be applied to published stories (or even interview data) about illness accounts and used to categorise and understand the experience.

Figure 18: Frank's Five Dramas of Illness

Drama of Illness	Definition of Drama
Genesis	Beliefs about the causes of illness (biological-psychological-God).
Emotion work	Living with the estrangement of doing emotion work (modulation of emotional self-presentations – what emotional displays are required or prohibited).
Fear and loss	Loss of bodily function, capacity to work, friends, etc instigate a cycle of fear as to when the losses will end.
Meaning	Stories take care of people, give meaning and affirm experience.
Self	Becoming the next viable you? Turning the "dead" self inside-out into something new and practical.

Taken from Frank 2007

5.1 A final word on qualitative analysis and synthesis

This Guide has presented summative overviews of different approaches to qualitative analysis, when and where one might use an inductive or deductive approach to analysis, and whether this will involve a thematic, narrative or framework analysis. We have given some broad overviews of the field of grounded theory to assist in developing a fuller understanding of the qualitative analysis continuum. There are many more approaches within qualitative methods that can be used and this Guide has not covered the analysis of digitally-generated data (such as photos, videos and other visual materials).

The art of qualitative analysis requires finding the balance between a description that maintains an emphasis on experience and a greater balance again between moving from the description to a synthesis of the findings. High quality analysis is not simply listing out themes and adding in quotes to support these, nor is it about presenting a total count of how many themes were identified. This information must be coupled with the experiential evidence gathered from participants and illustrate carefully the lives, viewpoints and perspectives of individuals. Synthesising qualitative data requires meaningful incorporation of the evidence from the published literature on a topic or field of enquiry. It requires bringing this together with the findings to draw out conclusions and implications and indicate the new areas of research. Qualitative analysis does not merely describe. Qualitative analysis is one of the most fundamental elements for the generation of experiential evidence to inform healthcare re-design, improvement, implementation and translation.

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Appendix

Appendix A: Data management for qualitative analysis some tips and further guidance

Data management encompasses all aspects of qualitative research, this section outlines the protocols and requirements for managing interviews audio files, transcripts and zoom videos. Consider the steps shown below throughout research process and explore these in the context of your organisational requirements and regulations.

Step 1. Develop and follow a data management plan. It could include the following:

a. Protocols for:

i. Making and storing master copies of all important materials.

ii. Data security.

iii. Dealing with missing data.

iv. Reading and reviewing transcripts and other data.

v. Labelling and naming conventions (see table 1 for some examples).

vi. Data storage and deletion (see Data storage).

vii. Data sharing.

b. A master catalogue of all documents, artefacts and files.

c. Timeline of project.

Step 2. Develop and update a research diary. A research diary is a text record of a researcher's thoughts, feelings and activities throughout the project. The diary may include a data tracking log (e.g. how many and which transcripts were read that day or which interviews were conducted, duration of interview and source ID), and thoughts/memos when initially conducting data analysis or during data collection. This helps to reflect on how data collection went and to start an audit trail.

Step 3. Develop and follow a codebook (see "Data Analysis") where appropriate.

Step 4. Decide whether or not you will use Computer Assisted Qualitative Data Analysis Software (CAQDAS) and data management software such as NVivo. Some software programs allow for qualitative data management, storage, collation and analysis. The use of software is dependent on the skills of the researcher/s and whether or not it is worth the time and money to train staff to use the software. You can

find a list of CAQDAS options here: https://en.wikipedia.org/wiki/Computer-assisted_qualitative_data_analysis_software#Comparison_of_CAQDAS_software

Where you store and how you back up your data will be dependent on the information technology systems in place at ACI. This section presents some considerations regarding data organisation, storage and handling. The following table is a reminder of the labelling and naming conventions for organising data.

Table 1. Example of labelling and naming conventions.

	Example label
Source ID key	Sequential study ID, by participant type (D = doctor)
Source ID/Data label	D01, D02, D03
File name/s	D01_audio.mp3 D01_transcript.doc D01_video.mp4
Version control name	D01_transcriptDDMMYY (version date) D01_transcript01AC (version 1, researcher initials)

The following table presents the file formats most commonly used in data storage.

Table 2 Common file formats.

File type	File extension
Images	PNG, JPEG, GIF, PDF, TIFF, RAW, PSD
Documents	DOC, PDF, RTF, TXT
Audio	FLAC, MP3, WAV
Video	MP4

Note: Use high quality, open file formats where possible.
https://en.wikipedia.org/wiki/List_of_file_formats#Document for a full list.

For more information on data management see Corti (Corti, 2008) and Guest (Guest, Namey, & Mitchell, 2013).

You might also like to consider using the following template to think about data management of qualitative research.
Data Management Plan Template

DOCUMENT HISTORY	
Author of this document	
Role on project	
Date created	
Date modified	
DATA MANAGEMENT PLAN	
Project title	
Project description	
Date project commenced/ing	
Estimated date of project completion	
Name of Chief Investigator	
Name/s of Partner Investigators	
Primary contact for the data	
Name of School/Centre	
Lead partner organisation	
Other partner organisations	
Funding body	
DATA TO BE PRODUCED	
What are the characteristics and features of the data?	
What are the methods or processes for producing the data?	
What are your expected file formats?	
Regarding use of existing or third party data are there any requirements associated with its use? For example, confidential data.	
DATA STORAGE AND SECURITY	

Who can access the data? What level of access do they have?	
Where will the data be stored and backed-up?	
Are there any security or restriction issues relating to access or storage?	
What methods will you use to handle sensitive, confidential or private information?	
Detail any restrictions due to ethical or privacy considerations on the data.	
How will information on consent forms relating to retention of data and protection of privacy and confidentiality be managed? For example, de-identification, restricted access, anonymisation of data.	
Give details of any agreements reached with partner organizations concerning ownership of the data.	
Are there any copyright or licensing restrictions on the data?	
Are there legislative regulations or requirements associated with collecting data from/sending to countries/locations outside of Australia?	
Provide information on data retention and disposal including how long the data should be retained	
What sustainable file formats will be used for long term access?	

Who will be responsible for managing long-term access to the data?	
How will data be deleted/disposed of?	
Who will be responsible for deleting/disposing of the data?	
DATA SHARING	
Will any data need to be shared? With whom? How will this happen?	
MASTER DOCUMENTS	
What documents will be master documents?	
How will master documents be created?	
Where will master documents be stored?	
LABELLING AND NAMING CONVENTIONS	
List file naming conventions here	
List data naming conventions here	
MISSING DATA	
How will missing data be identified?	
How will missing data be treated?	
DATA ANALYSIS	
What data will be transcribed?	
Who will complete the transcribing?	
Who will code the data?	

MASTER CATALOGUE OF DATA	
Name	
Creator	
Source	e.g. participant ID
Type	e.g. Word document, physical photograph, audio file
Date collected	
Location	