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## Perspectives: Qualitative computing and NVivo

Perspective influences the way we approach any new experience – including the way we approach the use of software for qualitative analysis. The history of qualitative data analysis software (QDAS) has influenced the current trajectory of software development, and this history is also linked to current researcher perceptions of advantages and disadvantages of software. Depending on when current qualitative research experts chose to adopt (and in some cases subsequently abandon) QDAS, they have different understandings of the purpose and applicability of software tools. Many of us who use, teach and write about QDAS encounter both positive and negative claims regarding the software that are obsolete but have survived as part of the discourse among qualitative methods instructors and scholars. In this chapter we place some of the claims and counterclaims in perspective before providing you with a brief exploration of how NVivo, as one example of QDAS, can assist analysis of qualitative data.

### In this chapter:

- Discover how the use of software can support you in doing qualitative research.
- Understand the historical context and ongoing development of this type of software.
- Consider issues and objections people have raised about the use of software for qualitative research.
- Begin with a tour of an existing database to understand the overall composition of the software.



## Qualitative research purposes and NVivo

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Researchers engage in projects involving interpretation of unstructured or semi-structured data for a variety of reasons. These might include exploration, description, comparison, pattern analysis, theory testing, theory building, or evaluation. Methodologists routinely urge researchers to assess the fit between purpose and method, with the choice to use a qualitative approach being determined by the research question and purpose, rather than by prior preference of the researcher (Maxwell, 2013; Richards & Morse, 2012). Qualitative methods will be chosen in situations where a detailed understanding of a process or experience is wanted, where more information is needed to determine the boundaries or characteristics of the issue being investigated, or where the only information available is in non-numeric (e.g., text or visual) form. Such investigations typically necessitate gathering intensive and/or extensive information from a purposively derived sample.

### How NVivo supports qualitative analysis

QSR International, the developers of NVivo, promise only to provide you with a set of tools that will *assist* you in undertaking an analysis of qualitative data. The use of a computer is not intended to supplant time-honoured ways of learning from data, but to increase the effectiveness and efficiency of such learning. NVivo was developed by researchers, and continues to be developed with extensive researcher feedback to support researchers in the varied ways they work with data. The efficiencies afforded by software release some of the time used to simply 'manage' data and allow an increased focus on ways of examining the meaning of what is recorded. The computer's capacity for recording, sorting, matching and linking can be harnessed by researchers to assist in answering their research questions from the data, without losing access to the source data or contexts from which the data have come. In some instances, researchers reported that the software opened up new ways of seeing their data they missed when managing the information without software.<sup>1</sup>

The average user of any software program typically accesses only a small portion of its capabilities; this is no doubt true for users of NVivo also. If you are using NVivo for a small descriptive project, you can work without having

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<sup>1</sup> Examples include exploring multiple meanings in the data (L. Richards, 2002), challenging researcher assumptions and first impressions of the data (Garcia-Horta & Guerra-Ramos, 2009), becoming aware of gaps in the collected data (Wickham & Woods, 2005), revisiting data with a new conceptual lens (Sin, 2007), fending off an uncritical reification of method (Ozkan, 2004), reflecting on the social construction of evidence (Kaczynski & Kelly, 2004), and unpacking some of the tacit views of research transparency among qualitative researchers (Jackson, 2009).

to learn complex procedures, but if you are undertaking complex analytical tasks, you can find the additional tools you need. Choices about what tools to use and how to use them are entirely up to you.

Using NVivo during the analysis of qualitative data will help you:

- Manage data – to organize and keep track of the many messy records that go into making a qualitative project. These might include not just raw data files from interviews, questionnaires, focus groups or field observations, but also published research, images, diagrams, audio, video, web pages, other documentary sources, rough notes and ideas jotted into memos, information about data sources, and conceptual maps of what is going on in the data.
- Manage ideas – to organize and provide rapid access to conceptual and theoretical knowledge generated in the course of the study, as well as the data that support it, while at the same time retaining ready access to the context from which those data have come.
- Query data – to ask simple or complex questions of the data, and have the program retrieve from your database all information relevant to determining an answer to those questions. Results of queries are saved to allow further interrogation, and so querying or searching becomes part of an ongoing enquiry process.
- Visualize data – to show the content and/or structure of cases, ideas, concepts, sampling strategies, timelines, etc., at various stages of the interpretive process, and to visually represent the relationships among these items in a range of (often interactive) displays.
- Report from the data – using contents of the qualitative database, including information about and in the original data sources, the ideas and knowledge developed from them, and the process by which these outcomes were reached.

There is a widely held perception that use of a computer helps to ensure rigour in the analysis process. In so far as computer software will find and include in a query procedure, for example, every recorded use of a term or every coded instance of a concept, it ensures a more complete set of data for interpretation than might occur when working manually. There are procedures that can be used, too, to check for completeness, and use of a computer makes it possible to test for negative cases (where concepts are *not* related). Perhaps using a computer simply ensures that the user is working more methodically, more thoroughly, more attentively. In these senses, then, it can be claimed that the use of a computer for qualitative analysis can contribute to a more rigorous analysis. Even so, human factors are always involved, and computer software cannot turn sloppy work into sound interpretations, nor compensate for limited interpretive capacity by the researcher. As much as 'a poor workman cannot blame his tools', good tools cannot make up for poor workmanship.

If you are coming to NVivo without first meeting qualitative methodology or methods, then you are strongly advised to read some general texts such as Bazeley (2013), Flick (2009), Maxwell (2013), Patton (2002), Richards (2009), Richards and Morse (2012), or introductory texts from within your own discipline. Then use the

recommended reading lists in those texts to further explore the methodological choices available to you. Qualitative methods are a rich, diverse, and complex sphere of knowledge and practice. Be careful about adopting the first approach you encounter (e.g., ethnography or phenomenology) as the only approach, or assuming that because you are working from data up that you are doing grounded theory. Learn about the relevant methodological debates regarding data collection, management and interpretation before fully framing your research.

Perhaps surprisingly, the tools described in this book are 'method-free', in so far as the software does not prescribe a method but rather supports a wide range of methodological approaches. Different tools will be selected or emphasized and used in alternative ways for a variety of methodological purposes.

We reiterate that no single software package can be made to perform qualitative data analysis in and of itself. The appropriate use of software depends on appreciation of the kind of data being analyzed and of the analytic purchase the researcher wants to obtain on those data. (Coffey & Atkinson, 1996: 166)

There are, nevertheless, some common principles regarding the most effective use for many of the tools, regardless of methodological choices. For example, the labels used for coding categories will vary depending on the project and the methods chosen, but the principles employed in structuring those categories into a branching coding system are common to many methods where coding takes place. These common principles allow us to describe in general how you might use the various tools. It is then your task to decide how you might apply them to your project.

## **The evolution of qualitative data analysis software**

Alongside the various strands of qualitative methods applied and refined in the 1980s, university faculty from Australia, Germany, and North America began independently developing software programs to facilitate the analysis of qualitative data. The developers of these software programs believed that a primary purpose of their enterprise was to facilitate data management and promote the rigour of qualitative research.<sup>2</sup>

Initially, these early developers were working in isolation, unaware of parallel developments by other researchers (Davidson & di Gregorio, 2011; Fielding, 2008). After networks of researchers began informally sharing their experiences with software in qualitative analysis, the first Surrey Research Methods conference was held at the University of Surrey in the UK in 1989. This

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<sup>2</sup> For detailed discussions on the purpose and evolution of NUD\*IST and NVivo, see Richards and Richards (1994) and T. Richards (2002).

conference established a dialogue between developers and early users (Fielding & Lee, 2007).

By 1990, Renata Tesch was able to catalogue over 26 qualitative analysis software packages. These were mostly MS-DOS or Unix based at the time, although she also discussed other platforms. She framed their capabilities in terms of the qualitative approaches they were intended to support – structural analysis, content analysis, interpretational analysis, text retrieval, and theory-building. In the conclusion to her book, Tesch candidly acknowledged that the rapid pace of software development (combined with the time that elapses between conceptualizing and distributing a book) meant her book was already out of date.

This sentiment helps explain the creation, in 1994, of the Computer Assisted Qualitative Data Analysis (CAQDAS) networking project in the UK (<http://caqdas.soc.surrey.ac.uk>). By establishing an internet presence and a location where more recent advancements could be posted without the delays of paper publishing, the CAQDAS site became a cutting-edge source of information about qualitative software, without formal financial ties to any developer. This project was funded for many years by the UK Economic and Social Research Council (ESRC). Shortly thereafter, Weitzman and Miles (1995) produced comprehensive comparison tables of the range of tools provided in 24 programs available at the time.

Common tools across current programs include the ability to write memos and track ideas, index or code data with thematic or conceptual labels, add demographic or other categorical information for the purpose of comparing subgroups, run searches to examine constellations or patterns, develop visual models or charts, and generate reports or output from the data. Lewins and Silver (2007) provided a good overall map of these common tools and the common research activities they support.

These software programs became collectively known as qualitative data analysis (QDA) software (Yuen & Richards, 1994), also commonly referred to as QDAS.<sup>3</sup> For the most part, program developers promoted and sold their own products via their own start-up companies, and they offered training in how to use the software. Although the early presence of these programs represented a great diversity of features, purposes and software platforms, the software development trajectory since then has become fairly typical (Norman, 1998). The early diversity of programs and their notable limitations in handling only a narrow methodological approach or data type gave way to programs containing more features. This allowed for more diverse applications through any one

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<sup>3</sup> Because the acronym CAQDAS often conflates the collaborative networking project in the UK with the genre of software, we prefer the term QDA software or QDAS to refer to the software and we reserve CAQDAS for the collaborative network.

software program. A few products took the lead around 2005, some have fallen by the wayside, and as of today the CAQDAS networking site provides reviews of only nine qualitative analysis programs.

To more fully investigate the influence that different QDAS options have on the research process, and to re-examine whether the choice of one of the current programs over another has an influence over the research findings, organizers of the Netherlands Association for Qualitative Research (KWALON) designed a comparative investigation (Evers, Silver, Mruck, & Peeters, 2011). Experts in several of these software packages (ATLAS.ti, Cassandre, MAXQDA, NVivo, and Transana) independently analysed a common set of data. These participants were in widespread agreement that they came up with very similar conclusions regarding the primary research questions and that the impact of a particular QDAS in analysing the data was negligible. This corroborates the claims by Gilbert, di Gregorio, and Jackson (2013) that over the last 20 years QDAS software has simultaneously become more comprehensive, more applicable to a diverse range of methodologies, and more homogeneous.

### Issues raised by using software for qualitative data analysis

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'Tools extend and qualitatively change human capabilities' (Gilbert, 2002: 222). Users of NVivo's tools can face opposition from those who express doubts about using software for analysis of qualitative data, or who simply have an aversion to technological solutions. Nonetheless, the development of software tools (and technology in general) has a significant impact on how research is done. The constantly expanding use of the web to provide access to data is now extending and changing the range of qualitative source data as well as the structure of surveys and survey samples. The advent of social networking will have an as yet unknown influence on social research and method. Historically, the widespread use of tape recorders in interpretive research changed both the level and kind of detail available in raw material for analysis, and as video recording became more common, data and method changed again.

Given this context, it is dangerous to adopt a simplistic understanding of the role of QDAS. Tools range in purposes, power, breadth of functions, and skill demanded of the user. The effectiveness with which you can use tools is partly a software design issue because software can influence your effectiveness by the number or complexity of steps required to complete a task, or by how information is presented to the user. It is also a user issue because the reliability (or trustworthiness) of results obtained depends on the skill of the user in both executing method and using software. The danger for novices using a sophisticated tool is that they can 'mess up' without realizing they have done so (Gilbert, 2002).

Historically, the use of QDAS has facilitated some activities (such as coding) and limited others (such as seeing a document as a whole or scribbling memos alongside text). In so doing, early computer programs somewhat biased the way qualitative data analysis was done. Historically, also, qualitative researchers were inclined to brand all 'code-and-retrieve' software as supporting grounded theory methodology – a methodology which has become rather ubiquitously (and inaccurately) associated with any data-up approach – with the implication that if you wanted to take any other kind of qualitative approach, software would not help.<sup>4</sup>

Concerns about the impact of computerization on qualitative analysis have most commonly focused around four issues:

- the concern that computers can distance researchers from their data;
- the dominance of code-and-retrieve methods to the exclusion of other analytic activities;
- the fear that use of a computer will mechanize analysis, making it more akin to quantitative or 'positivist' approaches; and
- the misperception that computers support only grounded theory methodology, or worse, create their own approach to analysis.

### Closeness and distance

Early critiques of QDAS suggested that users of software lost closeness to data through poor screen display, segmentation of text, and loss of context, thereby risking alienation from their data. Despite enormous changes in technology and in software, these attitudes persist in some communities of practice. The alternative argument is that the combination of full transcripts and software can give too much closeness, and so users become caught in 'the coding trap', bogged down in their data, and unable to see the larger picture (Gilbert, 2002; Johnston, 2006).

Qualitative software was designed on the assumption that researchers need both closeness and distance (Richards, 1998): closeness for familiarity and appreciation of subtle differences, but distance for abstraction and synthesis, and the ability to switch between the two. Closeness to data – at least as much as can be had using manual methods – is assisted by enlarged and improved screen display, improved management of and access to multiple sources and

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<sup>4</sup> Kelle (1997) traced the assumption that programs were written to support grounded theory to the need for a methodological underpinning for analysis, and grounded theory is one of the few methodologies where authors have been prepared to be explicit about what it is they actually do in analysis – although, as Kelle goes on to point out, 'a closer look at the concepts and procedures of Grounded Theory makes clear that Glaser, Strauss and Corbin provide the researcher with a variety of useful heuristics, rules of thumb and a methodological terminology rather than with a set of precise methodological rules' (1997: paragraph 3.4).



types of data, rapid retrieval of coded text and easy ability to view retrieved segments of text in their original context. Other tools are designed to provide distance, for example, tools for modelling ideas, interrogating the database to generate and test theory, or summarizing results. These take the researcher beyond description to more broadly applicable understanding. Tacking back and forth between the general and the specific, exploiting both insider and outsider perspectives, is characteristic of qualitative methods and contributes to a sophisticated analysis.

### **Domination of code and retrieve as a method**

The development of software for textual data management began when qualitative researchers discovered the potential for text storage and retrieval offered by computer technology. Hence, early programs became tools for data storage and retrieval rather than tools for data analysis, because that was what computers were best able to do. The few programs that went beyond retrieval to facilitate asking questions about the association of categories in the data, particularly non-Boolean associations such as whether two concepts occurred within a specified level of proximity to each other, were less rather than more common, and in these early stages were given special status as second-generation 'theory-building' programs (Tesch, 1990).

Computers removed much of the drudgery from coding (cutting, labelling and filing); they also removed the boundaries which limited paper-based marking and sorting of text.

When recoding data involves laborious collation of cut-up slips and creation of new hanging folders, there is little temptation to play with ideas, and much inducement to organize a tight set of codes into which data are shoved without regard to nuance. When an obediently stupid machine cuts and pastes, it is easier to approach data with curiosity – asking 'what if I cut it this way?', knowing that changes can be made quickly. (Marshall, 2002: 67)

Simply making coding more efficient was not, in itself, a conceptual advance from manual methods of data sorting. Criticism that segments of text were removed from the whole, creating a loss of perspective, was frequently levelled at computer software (apparently without recognition that cutting up paper did the same thing, with even greater risk of not having identified the source of the segment). Fears were expressed that computers would stifle creativity and reduce variety as code and retrieve became the dominant approach to working with data.

Most problematically, the facility for coding led to what Lyn Richards commonly referred to as 'coding fetishism' – a tendency to code to the exclusion of other analytic and interpretive activities, which biases the way qualitative



research is done, and which often contributes to a report that comprises only 'themes from the data'. Prior to the development of computer software for coding, more emphasis was placed on reading and rereading the text as a whole, on noting ideas that were generated as one was reading, on making links between passages of text, on reflecting on the text and recording those reflections in journals and memos, and on drawing connections seen in the data in 'doodles' and maps. Improvements in the memoing, linking, and modelling tools within current qualitative software now provide ample capacity for these approaches to analysis, allowing the user to strike a balance between coding and reflecting and linking as they work with data.

### Computers and mechanization

Fears that the computer, like HAL in Arthur C. Clarke's *Space Odyssey* series, might take over the decisions and start controlling the process of analysis stem in part from the historical association of computers with numeric processing. Adding to that concern is the computer's capacity to automate repetitive processes or to produce output without making obvious all the steps in the process.

There are software programs designed to automate the coding process entirely, using complex dictionaries and semantic rule books to guide that process, but these are specifically designed for quantitative purposes, and the results of their coding are generally interpreted through the use of statistics with minimal recourse to the original text. Keyword searches within *qualitative* analysis will almost always be preliminary to or supplemental to interactive coding of the data, if they are used at all.

Automated coding processes have a place in handling routine tasks (such as identifying the speakers in a focus group, or what question was being answered), in facilitating initial exploration of texts, or in checking thoroughness of coding. These remove drudgery without in any way hindering the creativity or interpretive capacity of the researcher. They do not substitute for interpretive coding that still needs to be done interactively (live on screen).

One of the goals of this book is to ensure that researchers using NVivo understand what the software is doing as they manipulate their data, and the logic on which its functions are based – just as artisans need to understand their tools. Such metacognitive awareness ensures researchers remain in control of the processes they are engaging in and are getting the results they think they asked for (Gilbert, 2002). More aware, creative, and adventurous users can experiment with new ways of using NVivo's tools to work with their data, just as the good artisan knows how to make his or her tools 'sing' to produce a creative piece of work.

## Homogenization of qualitative approaches to analysis

Primarily in the early literature on QDAS, software was talked about as if it promoted a narrow view of qualitative methodology (Coffey, Holbrook, & Atkinson, 1996). Some current scholars express their concern that unguided novices might still view software as having its own method (Hutchison, Johnston, & Breckon, 2009; Johnston, 2006), while software experts critique the simplified views of software portrayed by individuals without QDAS expertise (Carvajal, 2002; Gilbert et al., 2013; Jackson, 2003; MacMillan & Koenig, 2004).

The oversimplification of qualitative methods has occurred and continues to occur whether software is involved or not. Researchers talk about 'doing qualitative' as if to imply there is just one general approach to the analysis of qualitative data. While there are some generally accepted emphases, different approaches to qualitative analysis are shaped by differences in foundational philosophies and understandings of the nature of social reality, the nature of the questions being asked, and the methodological approaches adopted. Researchers must integrate their chosen perspective and conceptual framework into their choices regarding what tools they will use, what and how they might code, and what questions to ask of the data. *This is the role of the researcher whether or not they use software.*

## Exploring an NVivo project

Throughout this book we will be illustrating the principles and activities being discussed with examples from a number of our own projects, those undertaken by colleagues or students, projects from the literature, and some practice-informed vignettes. To give you an overview of the tools available for working in an NVivo project and of what you might be working towards, we will start by taking a look at the sample project that comes with the software. Because this is a moderately mature project, these instructions are not designed to show you how to make a start on working in your NVivo project, but rather what will become possible as you progress through your analysis.

As you read these instructions and others in later chapters, you will encounter a number of special icons:

- ▶ indicates these are steps (**actions**) for you to follow.
- ✓ indicates a **tip** or series of tips – handy hints to help you through.
- ! indicates a **warning** – ignore at your peril!
- ? indicates where to find this topic or tool in the **Help** files. Access NVivo Help by clicking on the question mark near the top right-hand side of the screen when NVivo is open. NVivo Help also provides a glossary, should you come across unfamiliar terms (you might also check for these in the index of this book as it will point you to where they are described).

In presenting instructions, we have adopted a number of conventions:

- Ribbon tabs are in **bold italic text**. Group names within the ribbon are in *italic text*.
- The three main views in the interface (*Navigation*, *List*, and *Detail*) are in *italic text*.
- Source names and node names are written in *italics*.
- Words that are copied from the screen as part of a click instruction are in **bold**.

### Installing the software

If you don't already have the software on your computer, then your first step to using NVivo will be to install either a fully licensed or a trial version on your computer. These are available through the QSR website: [www.qsrinternational.com](http://www.qsrinternational.com).<sup>5</sup> Use the free *Getting Started* guide to find minimum computer requirements and detailed instructions for installing the software. Basically, insert a disk or double-click the downloaded software and follow the steps as they appear on screen after launch. It is likely that you will be required, as part of this process, to install several supporting programs prior to installing NVivo itself: the installation wizard will guide you through the necessary steps.

Once you have completed the installation, if you own the software, or your institution has a site licence, you will need to have available the licence number that came with your software or is available through your institution. Whether you are using a licensed version or the 30-day trial (a fully functional version of the program that operates on your computer for 30 days without a licence key), you will need to activate the software before you can begin to use it. Activation can be done via the internet, or, if necessary, by phone or email. In addition, the first time you launch the software after installation, you will be asked for your name and initials. This prompt for the current user occurs once only, unless you change the default option to always 'Prompt for user on launch' (**File > Options >  Prompt for user on launch**). More about the potential need to change this default is in Chapter 12 on teamwork.

- ✓ In order to keep using NVivo beyond the 30-day trial period, you do not need to uninstall the trial and reinstall the software. All you will need is to enter and activate a new licence key to extend your existing version. (Click **File > Help > Extend License** to enter your new licence key.)
- ✓ Unless you just downloaded the software from the QSR website, you might also go to **File > Help > Check for Software Updates** to ensure you have the latest version on your computer.
- ✓ If you have an earlier version of NVivo on your computer, you do not need to remove it before installing the latest version of NVivo. If, however, you have more than one

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<sup>5</sup> Our instructions regarding installation, user passwords, etc. pertain to the standalone version of the software; if you are using NVivo Server you should access the NVivo Help files for alternative installation instructions.

version of NVivo on your system, your computer will default to open the most recent software, even if you launch from a project created in an earlier version. NVivo will then walk you through the steps to convert your older project so it can be used in the new version. As a result, you will have two copies of the same project in two different versions of the software; naming them carefully will help avoid confusion later.

- ! If you convert a project to the new version of NVivo, you cannot reopen or resave that copy of the project in an earlier version of the software.
- ? When you first open the software, view the video tutorials, accessed via **File > Help > NVivo Tutorials**. These provide a demonstration of the various elements in an NVivo project, using data from the *Environmental Change* sample project.
- ▶ Alternatively (or as well), work through the instructions below as an introduction to NVivo using the *Environmental Change* data.

### The *Environmental Change Down East* project

The *Environmental Change Down East* project explores the attitudes of individuals in 13 communities in an area of North Carolina known as 'Down East'. The goal of the data collection and analysis was to foster dialogue among stakeholders (residents, land developers, legislators, business owners, etc.) regarding community planning, land use, and sustainable development.

Throughout the book, you will find illustrative examples drawn from the *Environmental Change Down East* project (referred to here as the *Environmental Change* project) and from Pat's *Researchers* project. These sample projects provide material on which you can explore the software and practise using it. The *Environmental Change* project accompanies every licence as an embedded sample project and is installed (by default) in Public Documents\NVivo Samples. It is available also for download from the QSR International website via a link from the companion website for this book. The *Researchers* project is also available from the companion website. It comprises focus groups, extracts from interviews, and some other sources designed to help answer the questions of what brings people to engage in research, and what it is about their experience that keeps them researching.

### Open a project

When you double-click on the NVivo icon to open the software, NVivo opens to the Welcome window, with options (at the left of the window) to create a new project or to open an existing project. The **My Recent Projects** list contains the five most recently opened projects on your computer. If you want to open a project that is on your computer, but not on the list, you will need to click on **Open Project** and then navigate to locate the project. Opening a project takes you into the project workspace from which you can access all the software tools.

- ▶ Open the *Environmental Change* project by clicking on its title in the Welcome screen, or, if it isn't listed, go to **Open Project** and look for it in the NVivo Samples folder in your Public Documents library.

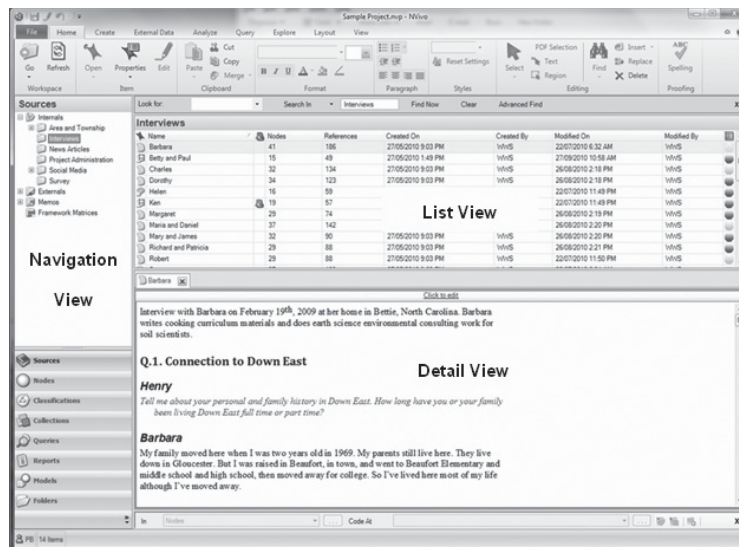
### The project workspace

Figure 1.1 illustrates the workspace and its components for the *Environmental Change* project.

A *ribbon* with nine standard tabs (formerly known as menus) spans the top horizontal position in NVivo (e.g., *Home*, *Create*, *External Data*), with supplementary tabs that open when the researcher is active in media, modelling, or any other special purpose tool. Items available in the ribbon can be available or greyed out, depending on which part of a project is active. Within each tab of the ribbon, groups help to organize the many options. For instance, if you select the *Home* tab, you will find group names in grey text along the bottom of the ribbon, including *Workspace*, *Item*, *Clipboard*. We will direct you to a group within a ribbon to help you quickly identify the correct icon or option.

Within the main screen, there are three areas, or views, where you will begin working, depending on your task.

- From the *Navigation View* you can choose which component (Sources, Nodes, Classifications, etc.) of the project you wish to access. Here, in addition to the subfolders provided in the software, you can further organize items in your project into folders and subfolders.
- The *List View* provides a list of the contents in a selected folder. Most importantly, items such as an interview transcript can be accessed from this view, and new contents such as a focus group transcript or an image can be added in this view.
- The *Detail View* shows the actual content of an opened item, so that you can work with it by examining, coding, linking, memoing, etc.



**Figure 1.1** The NVivo workspace showing the ribbon, and *Navigation*, *List* and *Detail Views*

In each of these views, a context-sensitive menu can be accessed by right-clicking.

- ✓ Whenever you're not sure what to do or where to look for an action when you are working in NVivo, ensure your mouse pointer is pointing directly to the relevant item on your screen, and try right-clicking as a first option to find what you want. Right-click options change, depending on what you are pointing to.

As you explore NVivo using the *Environmental Change* project, you will gain some appreciation of how NVivo can assist with organizing and analysing your data. Sources are neatly filed; cases are identified with demographic and other details; ideas are recorded and appropriately linked to their sources; descriptive material and evidence for emerging understanding and ideas are captured using codes; codes are organized to facilitate querying the data so that research questions might be clarified, developed and answered; and for those who like to work visually, emerging understanding can be explored in models and charts.

### Explore sources in NVivo

The workspace will first open to show **Sources** in the *Navigation View*, and will default to the **Internals** folder. There are several types of Internals stored in the *Environmental Change* project: these are organized into subfolders designed to assist with data management. The following activities show you how to open and look at the materials, but it is simply a gentle tour. Instructions are provided later in the book regarding the steps needed to import, edit, code, and link your sources.

#### View an internal document (the project description)

- ▶ The top-level folder for *Internals* is already selected. In *List View*, double-click on *Overview of Sample Project* to open it in *Detail View*. Read this for additional detail about the sample data.
- ▶ Note the use of heading styles in this (and other) sources. The level of heading is indicated in the **Home** ribbon, *Styles* group. Heading styles can be added or changed at different levels.
- ▶ Click on the first line of the document. You will see this is in Heading 1 style.
- ▶ Click on the line that says *Introduction* and you will see this is in Heading 2 style.
- ✓ Headings break the text into parts. If you are unfamiliar with headings, you can learn more about them in Microsoft Word or NVivo Help files. You can ask NVivo to code across (or within) your sources to collect all the data marked by a particular heading level.

#### View a project interview recorded as video

- ▶ In *Navigation View*, expand the **Internals** folder (click on the +) to see further folders for various document sources (e.g., Area and Township, Interviews, and News Articles).

- ▶ To see the list of project interviews, select **Sources > Internals > Interviews**.
- ▶ In *List View*, select any interview and double-click to open it in *Detail View*.
- ▶ Double-click on *Betty and Paul* to see a video record of an interview.
- ▶ From the **Media** ribbon, you can select **Play** to hear and watch the video. Click **Stop** after you look at a sample of the file.
- ▶ To close *Betty and Paul* (and any other interviews you opened) click on the × next to their names in the tab.

### View an internal dataset

A **dataset** is a table that holds the kind of information you would generate from a structured survey with both open and closed questions.

- ▶ In *Navigation View*, select **Sources > Internals > Survey**.
- ▶ In *List View*, double-click on *Survey Responses*.
- ▶ This dataset was imported from an Excel file. As you scroll across it, you will see it contains some columns with nominal, ordinal or interval data, and several columns with open-ended responses.
- ▶ Use the tab on the right margin of the *Detail View* to see the data in **Form** view rather than **Table** view.

NVivo allows you to automatically code much of the information in a dataset. You can then, additionally, interactively code the detail within people's open-ended responses.

### View an internal picture

- ▶ In *Navigation View*, select **Sources > Internals > Area and Township**.
- ▶ In *List View*, double-click on *Competing water uses*.
- ▶ To the right of the picture, click on the number 1 next to the first row of text to illuminate the part of the image associated with this observation.
- ✓ If you need to enlarge the image in the *Detail View*, try using the zoom tool at the bottom right-hand side of the screen (within the NVivo window).
- ▶ If you need more room, go to **View** ribbon, *Window* group and uncheck **Docked**. Wait, and the *Detail View* will open in a new window. This is especially helpful if you have two monitors (you can view your project on one screen, and whatever is in *Detail View* on the other screen).

### View social media data

- ▶ In *Navigation View*, select **Sources > Internals > Social Media**.
- ▶ In *List View*, double-click on *Cartaret County on Twitter*.

This dataset was collected with NCapture. NCapture is a browser extension for Internet Explorer or Google Chrome that accompanies NVivo. It is designed to

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capture data from Facebook, LinkedIn, YouTube and Twitter and convert these data sources for use in NVivo.

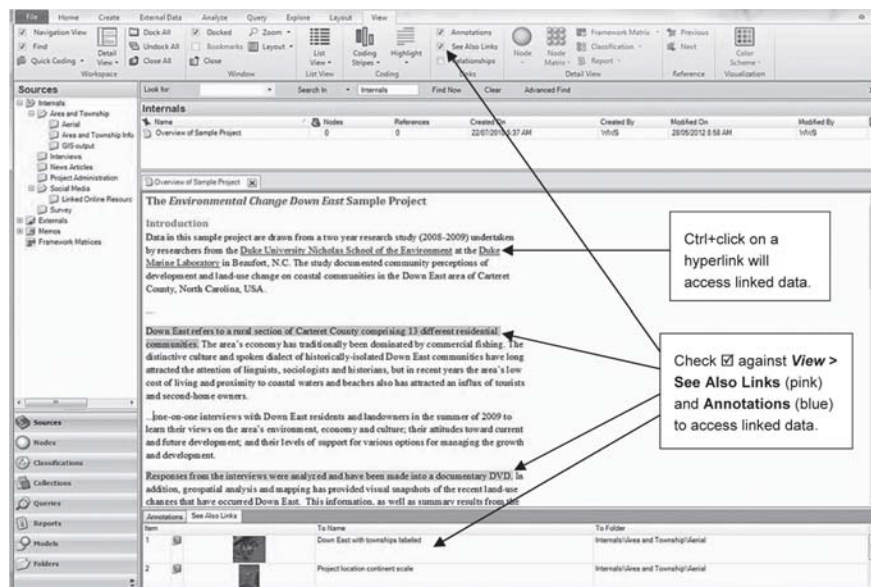
### Closing items in *Detail View*

- To close any item you have opened during the tour so far, click on the × next to the name of the item in the *Detail View* tab.

### Trace the links from internal sources

As you read through the Overview document, notice some of the text is coloured or highlighted (Figure 1.2). These markers indicate links to other items.

- Return to *Navigation View* > **Sources** > **Internals**, then to *List View* and double-click on the *Overview of Sample Project*.



**Figure 1.2** Viewing hyperlinks, 'see also' links, and annotations from an internal source

### Hyperlinks to external items

- In the first paragraph of the *Overview*, blue underlined text indicates the presence of a **hyperlink** to an external item. Ctrl+click on [Duke Marine Laboratory](#) to access the linked webpage.

### See also links to internal items

In the fourth paragraph of the *Overview*, a pink highlight indicates that a **see also link** has been created.<sup>6</sup> See also links take you to other items (text, images, video, models) or to portions of internals that relate to the marked text.

- ▶ Go to the **View** ribbon, *Links* group >  **See Also Links**. The linked items become visible at the bottom of the screen. In this instance, three aerial photographs of the region have been linked to the text.
- ▶ Click on the pink highlight, then double-click on the associated number to open the linked item.

### Annotations on text


In the seventh paragraph, blue highlighting indicates an **annotation**. Annotations are comments, reminders, or reflections on the text.

- ▶ Go to the **View** ribbon, *Links* group >  **Annotations**. The linked annotation is now visible at the bottom of the screen.
- ▶ Click on the blue highlight and the associated comment will be highlighted.
- ▶ Click on the number next to an annotation at the bottom of the screen, and the related passage will turn from a light blue to a darker teal.
- ▶ Close *Overview of Sample Project* and any associated items in *Detail View*.

### Linked memos

Notes and thoughts related to a document (or node) are recorded in its linked **memo**.

- ▶ Return to *Navigation View* > **Sources** > **Internals** > **Interviews**.

The names of the people who were interviewed will show in *List View*. An icon to the right of the document name in *List View* indicates that the document has a linked memo (e.g., for *Ken* in the *Interviews* folder). 

- ▶ Hover (hold the mouse pointer) over the document name, right-click and select **Memo Link** > **Open Linked Memo**, or use **Ctrl+Shift+M** on your keyboard.

There are further memos stored in the **Memos** folder under *Navigation View* > **Sources**.

### Explore nodes and coding

**Nodes** provide the storage areas in NVivo for references to coded text. Each node serves as a container for everything that is known about one particular concept or category. Nodes can be used also as a tool to organize qualitative data in particular ways, to be discussed later.

(Continued)

<sup>6</sup> We recognize, but have learned to live with, the awkward grammatical construction 'see also links' creates. We hope you will be able to as well!

(Continued)

### Nodes for concepts and categories coded from the data

- ▶ In *Navigation View*, click on **Nodes**. The *List View* will open to display nodes stored at the top level in the Nodes folder. This top-level folder contains, in general terms, the kinds of categories, concepts and themes that the researcher deems important within the data.
- ▶ In *List View* click on the + next to one of these top-level nodes to expand it to show the subnodes below.
- ▶ Double-click on a subnode to see the coded data in the *Detail View* below (Figure 1.3). The source of each passage is identified.
- ▶ View the context from which a selected passage came using the right-click menu: **Right-click > Coding Context > Broad**; or **Right-click > Open Referenced Source** (Figure 1.3).
- ▶ Create a new node by selecting some text from a source or an existing node: **Right-click > Code Selection > Code Selection At New Node (Ctrl+F3)**,

The screenshot displays the NVivo interface. At the top, a table lists various nodes with columns for Name, Sources, References, Created On, Created By, Modified On, and Modified By. The 'Local identity' node is selected and expanded, showing its subnodes: 'Local identity' (14 sources, 43 references) and 'Local knowledge' (5 sources, 7 references). Below the table, the 'Local identity' node is selected, and a context menu is open over a text passage. The menu includes options like 'Export Node...', 'Print...', 'Copy', 'Paste As See Also Link', 'Select All', 'Code Selection', 'Code In vivo', 'Uncode Selection', 'Spread Coding', 'Links', 'Coding Context', and 'Node Properties'. The 'Coding Context' sub-menu is open, showing options: 'None', 'Narrow', 'Broad' (selected), 'Custom...', 'Entire Source', and 'Select...'. The text passage being viewed is: 'My family moved here when I was two years old in 1969. My parents still live h down in Gloucester. But I was raised in Beaufort, in town, and went to Beaufort and middle school and high school, then moved away for college. So I've lived: my life although I've moved away.'

| Name                    | Sources | References | Created On          | Created By | Modified On         | Modified By |
|-------------------------|---------|------------|---------------------|------------|---------------------|-------------|
| Altitude                | 17      | 992        | 16/05/2010 6:05 AM  | WWS        | 30/06/2010 7:31 AM  | WWS         |
| Balance                 | 6       | 16         | 18/05/2010 12:57 AM | WWS        | 30/08/2010 4:14 PM  | WWS         |
| Community               | 18      | 101        | 16/05/2010 5:38 AM  | WWS        | 26/08/2010 2:18 PM  | WWS         |
| Community change        | 18      | 62         | 16/05/2010 6:20 AM  | WWS        | 30/08/2010 4:14 PM  | WWS         |
| Connection to Down East | 13      | 35         | 16/05/2010 5:38 AM  | WWS        | 30/08/2010 4:14 PM  | WWS         |
| Local identity          | 14      | 43         | 29/05/2010 6:25 AM  | WWS        | 10/05/2012 2:36 PM  | WWS         |
| Local knowledge         | 5       | 7          | 26/06/2010 11:20 PM | WWS        | 23/07/2010 12:29 AM | WWS         |
| Economy                 | 25      | 303        | 16/05/2010 5:38 AM  | WWS        | 16/03/2011 2:16 PM  | WWS         |
| Memorable quotes        | 5       | 16         | 01/06/2010 9:47 PM  | EDR        | 23/07/2010 12:22 AM | WWS         |
| Natural environment     | 24      | 325        | 16/05/2010 5:39 AM  | WWS        | 10/05/2012 12:20 PM | WWS         |
| Policy, management      | 14      | 38         | 16/06/2010 4:47 AM  | HGP        | 10/05/2012 2:12 PM  | WWS         |

**Figure 1.3** Nodes, with referenced text and context menu, and showing retrieved (Broad) context for Charles's statement about local identity

name the new node and click **OK**. Your new node will show at the top level of the node hierarchy (double-click on your new node to see the passage you coded).

### Tracing links from nodes

- ▶ Note that the node *Community\Connection to Down East\Local identity* has a memo symbol next to it. **Right-click > Memo Link > Open linked memo** (or **Ctrl+Shift+M**) to see the notes made about the way people talked about local identity.
- ▶ Note also that many of the notes are shaded pink, indicating the presence of see also links. If you click on the **View** ribbon, *Links* group > **See Also Links**, you will be able to read the specific passages that prompted the researchers' comments.

### Nodes to organize and manage data

In *Navigation View*, the subfolders under **Nodes** organize and manage data. These include *Places and People* where all data for each individual location and for each separate person in the project are stored, and *Autocoded Responses* for everyone's responses to each question asked.

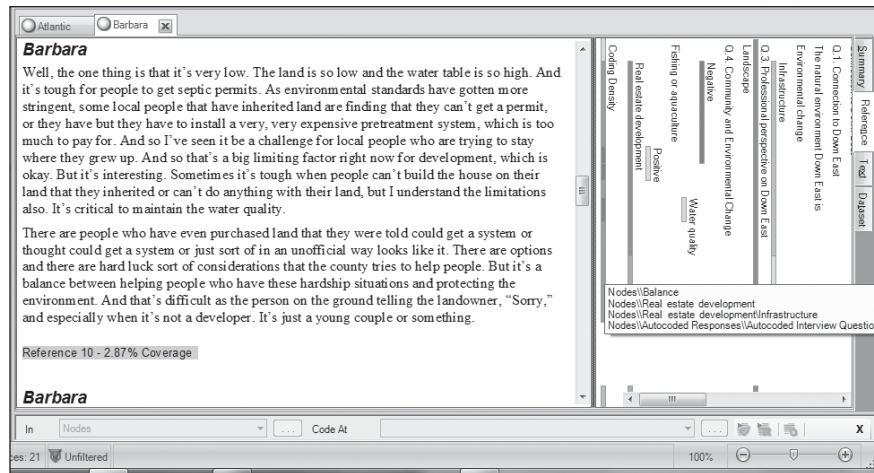
- ▶ From the *Navigation View*, select **Nodes > Places and People**, and from the *List View*, select **Interview Participants** to see the list of people who were interviewed. Double-click on *Barbara* and see all the qualitative data she contributed to the project. If Barbara was interviewed twice, you would first see the content of Barbara's initial interview, and then the contents of her second interview as you scrolled down the page.
- ▶ While in the *Detail View* for this case, go to the **View** ribbon and choose **Coding Stripes > Nodes Most Coding** to see the nodes coded most often for this case.
- ▶ Hover over the coding density bar (the vertical stripe with segments in different shades of grey) to see a list of nodes coding the adjacent text (Figure 1.4).

The heading styles used in the interview transcripts made it possible to auto code everyone's responses to the structured questions asked in these interviews.

- ▶ Select **Nodes > Autocoded Responses**, and in *List View*, **expand + Autocoded Interview Questions**.
- ▶ Double-click on *Q.1. Connection to Down East*. All of the exchanges in response to Question 1, throughout the interview data, have been gathered here, based on auto coding the questions.

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**Figure 1.4** Coding density and coding stripes showing nodes coded on Barbara's text

### Explore classifications and attributes

Participants have **attribute values**, that is, a record of demographic and quantitative data known about them that is relevant to everything they say. This is recorded separately from coding of passages within their text. Attribute values are used primarily to assist in comparing data across subgroups in your research.

- ▶ View the attribute values linked to a participant by going to the *Navigation View* and selecting **Nodes > Places and People**.
- ▶ In *List View*, expand + **Interview Participants > Barbara**. **Right-click > Node Properties** (or **Ctrl+Shift+P**). Click on the **Attribute Values** tab in the Node Properties dialogue to see the assigned values.

**Classifications** help to organize the structure of your attributes and values. You can have different types of cases, and in this sample data we see *people* as well as *places*. Some attributes will pertain to people (e.g., age, gender) and some will pertain to places (e.g., median parcel size, total population). The classifications area organizes these different attributes and values according to the kinds of cases for which they are relevant. Remember that information about the cases (people and places) has been stored in nodes, to allow for multiple sources of information for any particular case.

- ▶ In *Navigation View*, go to **Classifications > Node Classifications**. You will see data organized in two ways: by participant (Person) and by Places (sites where participants lived).
- ▶ Expand + **Person** to see a list of attributes relevant to participants. Double-click on an attribute (e.g., **Township**) and then on the **Values** tab to see how an attribute is set up.

Attribute values for all participants can be viewed (and modified) in the **Classification Sheet**. They can be entered one at a time, or they can be imported from a spreadsheet or created from a dataset.

- ▶ Select **Person, Right-click > Open Classification Sheet**. To change a value in any cell, choose from the drop-down list for that cell.

### View sets (in Collections)

**Sets** in NVivo contain shortcuts to any nodes and/or any documents, as a way of holding those items together without actually combining (merging) their content. They are used primarily as a way of gathering items for use in handling queries, reports or models, or simply as a way of indicating that these items 'hang together' in some way (perhaps conceptually or theoretically).

- ▶ In *Navigation View*, select **Collections** to see a list of **Sets**. Click on *Nodes for coding comparison* to see the items in the set shown in *List View*.<sup>7</sup>

### Review queries

**Queries** store questions you want to ask of your data. Queries might be about the occurrence of a word or words, about patterns of coding, comparison of groups, or some combination of these elements. They can be created and run once, or stored to use again with more data, or with a variation. **Results** hold the data found by the query to help you answer your questions; they can be stored alongside the queries.

- ▶ In *Navigation View*, select **Queries**.
- ▶ In *List View*, **Right-click** on *Word Frequency Query in interviews > Query Properties* to see how a simple word frequency query was set up.
- ▶ Click on **Run**. The results will open in *Detail View*.
- ▶ Click on the tabs at the very right-hand margin of your screen (**Summary, Tag Cloud, Tree Map, Cluster Analysis**) to see different ways of viewing these results.
- ▶ Double-click a word from the **Summary** tab to see all instances of this word found by the query.
- ▶ Now look at a more complex query. In *List View*, **Right-click** on *Attitude about environment by longevity Down East > Query Properties* to see how it was set up, and click on **Run**. The results will appear as a matrix with counts of passages coded (coding references) in each cell. Double-click a cell to see the text. Later you will learn how to obtain other kinds of information from the matrix result.

(Continued)

<sup>7</sup> In this project, sets were used in a very limited way only.

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### Check some predefined reports

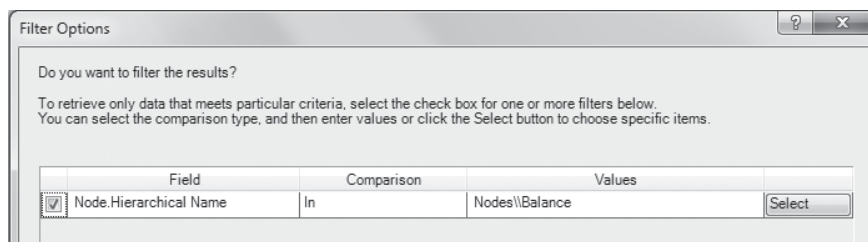
**Reports** provides predefined output types. It is also possible to customize a report. Many of the reports provide a topographical view of the data only, such as a list of nodes. Some provide content.

- ▶ In *Navigation View*, select **Reports**.
- ▶ In *List View*, double-click on **Node Summary Report**.
- ▶ Check next to **Node Hierarchical Name** (Figure 1.5), then **Select > Balance > OK > OK**.

The report will show various statistics about how often the node was used to code text.

- ▶ In *List View* double-click on **Coding Summary by Node Report**.
- ▶ Check the first filter option, **Select > Balance > OK > OK**.

The report will contain all text coded at that node.



**Figure 1.5** Filter options for a report

### Explore models and visualizations

And finally (for now), **models and visualizations** display ideas about the relationships between project items.

#### View a model

- ▶ In *Navigation View*, select **Models**. Double-click on **Geographic units used in this project**.
- ▶ To obtain a fuller view of the model on a separate screen, go to the **View** ribbon and uncheck **Docked**, or use your zoom tool on the bottom right-hand side of the NVivo window.

#### Experiment with visualizations

- ▶ Go back to **Nodes** in *Navigation View*. Click and drag to select all the nodes under *Natural environment*. **Right-click > Visualize > Cluster Analysis of Nodes**.



The visual shows which nodes are most similar based on words used in the coded text. Change the number of clusters to 4, and experiment with other ways of visualizing this information from the options in the **Cluster Analysis** ribbon.

### Save changes

While you were looking at the sample project, you were warned that it was 15 minutes since the project was last saved, and asked if you wanted to save changes made to the project. This is NVivo's way of making sure you are regularly saving changes to your project, in case of power failure or freezing. When you are working on your own project, it is strongly recommended that you save each time you are asked, unless you are simply experimenting, do not want to save your changes, or you are in the middle of an Undo operation.

**Close** the project by selecting **File > Close** or, if you want to quit working in NVivo for the time being, choose to **Exit**.

## Overview: what's in an NVivo project?

An NVivo project typically comprises:

- data records (e.g., transcriptions, field notes, other documents, video, audio, photographs, web pages);
- records of your thinking about the data (memos);
- nodes to store coded references to your data (so you can retrieve all you know about a topic, idea, case or relationship);
- variable-type information (attribute values) relating to sources or cases in your study (e.g., demographic details, responses to categorical or scaled questions, dates);
- records of and results from interrogative queries conducted on your data; and
- models showing relationships between items in your project.

All of these are held in a single database-style file, which, if the file location options have not been changed, will be located in the **Documents** area of your computer.

# 2

## Starting out, with a view ahead

Something in your social or working environment excites interest, and investigation begins. You might start in the library or by observing 'the field', perhaps with some exploratory discussions with relevant people or with reflection on personal experience. Right from the start, you will find tools in NVivo that will support your work as you explore possibilities, refine questions, and think through project design.

The tools you use and the habits you develop early will become integral to your work *throughout* your project. Analysis is as much about reflecting on data and making connections across data as it is about categorizing and manipulating data in codes. You will find, therefore, that journals, memos and links will become essential to the quality of your analysis.

### In this chapter:

- Start to frame your research project.
- Start working in the software: create a project with a model, memo, and source document.
- Create links in the database using annotations, see also links and hyperlinks.
- Discover ways in which these tools might be extended to build a web of data within and across your project items.

### Exploring the research terrain

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A research project begins well before you gather data. Thought and planning at this stage will do much to ensure a smoother process of data collection and a deeper and more meaningful interpretation of those data.

### Develop questions

Qualitative research often begins with a vaguely defined question or goal. It may well begin 'with a bit of interesting "data"' (Seale, Gobo, Gubrium, & Silverman, 2004: 9). Visualization techniques (concept maps) and thought experiments can help to clarify what might be useful questions (Bazeley, 2013; Maxwell, 2013). Your initial explorations serve to refine your question, so more deliberate ('purposive') data gathering can occur. These explorations become part of your data, and can be managed within NVivo.

Record these starting questions as you set out. In NVivo, you create a research journal to record them. They will help you to maintain focus as you work, and then later to evaluate the direction you are taking. Keep notes about any random (or less random) thoughts you have around those questions as you read, discuss, observe, or simply reflect on issues as they arise, and date these. Keeping a record will allow you to keep track of your ideas and to trace the path those ideas have taken from initial, hesitant conceptualization to final, confident realization.

### Identify assumptions

Previous knowledge is a prerequisite to gaining understanding:

Qualitative researchers who investigate a different form of social life always bring with them their own lenses and conceptual networks. They cannot drop them, for in this case they would not be able to perceive, observe and describe meaningful events any longer – confronted with chaotic, meaningless and fragmented phenomena they would have to give up their scientific endeavour. (Kelle, 1997: paragraph 4.2)

But previous knowledge brings with it assumptions about what you might find. Rather than deny their existence, you should recognize them, record them, and become aware of how they might be influencing the way you are thinking about your data – only then can you effectively control (or at least, assess) that impact. Maxwell (2013) recommends creating a 'researcher identity memo' to explore personal goals, recognize assumptions and draw on experiential knowledge. So, add to your research notes, or create a conceptual model that captures what you are *expecting* to see.

### Explore existing data

Data relevant to your project often exist before you make or locate new data. Consider the possibilities of:

- Starting with observations of yourself and of others – field notes or diary records will play a significant early role. Adapt the instructions for creating a project journal (below) to create documents in which to record your observations.
- Starting with data already in the public sphere such as newspapers, novels, radio, internet, or archived data (Silverman, 2010). These can provide valuable learning experiences as you master both software and analysis strategies.
- Starting with literature. The belief that an inductive approach to inquiry requires researchers to come to their data without having been influenced by prior reading of the literature in their field and without bringing any theoretical concepts to the research is generally no longer seen as feasible, nor is it broadly supported. Strauss and Corbin (1998: 47) declared: 'Insights do not happen haphazardly; rather they happen to prepared minds during interplay with the data.' In many fields, qualitative researchers are expected to gain a firm grasp of the relevant literature, and for university-based research, prior understanding of the literature on the topic is an essential element of a funding application or doctoral research proposal.

## Explore the terrain with software

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Your project begins from the time you start asking questions – from the thought that X might be something interesting to investigate. This is also a good time to start using software!

- Early use of software ensures you don't lose precious early thoughts. Indeed, sketching ideas and writing even rough notes will help to clarify thinking as you plan your project.
- Starting early, if you are still learning software, will give you a gentle introduction to it and a chance to gradually develop your skills as your project builds up. This is better than desperately trying to cope with learning technical skills in a rush as you become overwhelmed with data and the deadline for completion is looming.
- Starting with software early acts as a reminder that data collection and data analysis are not separate processes in qualitative approaches to research. So start now!

Several of NVivo's tools are useful to most researchers at this beginning point.

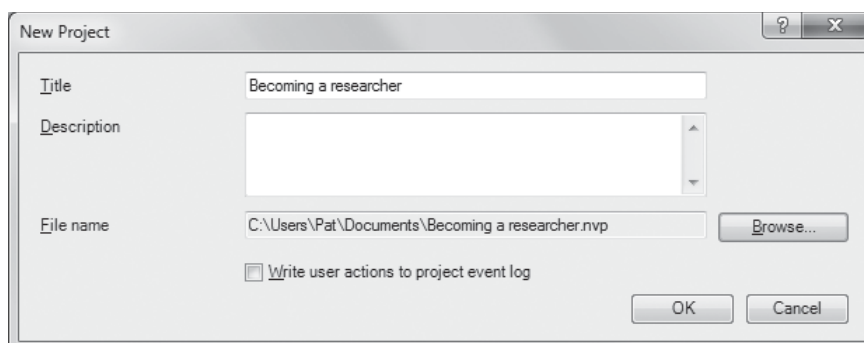
- ▶ Create a model to identify and show what you already know, to point to what you still need to know, and to assist in identifying steps on the pathway to finding out.
- ▶ Create a new blank document as a project journal within NVivo, to become an ongoing record of questions, ideas, and reflections on the project.
- ▶ Import some literature or other existing data and annotate it or reflect on it in a journal or memo.

## Setting up a project

First you need to have a project created in the software!<sup>1</sup>

### Creating a project in NVivo

- ▶ From the base of the Welcome window that appears when you open the program, select the **New Project** button.
- ▶ Type in a **Title** to briefly describe your project. It can be more than one word. Notice NVivo assigns a matching file name to the project (Figure 2.1).
- ▶ Choose whether or not to create a log of your actions in this project. (You can see what a project event log looks like by opening the *Environmental Change* project and selecting **File > Info > Open Project Event Log.**)
- ✓ Unless you change the program's default file locations (**File > Options > File Locations**), NVivo will elect to store your project in your Documents folder.
- ✓ When you make a backup copy of the project, you are likely to change the file-name that is seen in Windows Explorer (e.g., by adding a date to it), but the title of the project will remain the same.



**Figure 2.1** Creating a new project

### One or many projects?

Your research project may have a number of components with data generated from different sources (rural and urban; companies A, B and C), with

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<sup>1</sup> Details of name and location can be changed later if needed.

data from different phases of the project (pilot phase and main data collection; wave 1, 2, and 3 of interviews), or with data of different types (literature, observations, interview transcripts, a dataset, pictures or video, web pages). NVivo provides data management tools that allow you to compare or isolate different components within your project. What this means in practice is that it is best to incorporate *all* those components into a single NVivo project, rather than make separate projects for each component. Having everything together in one NVivo project will allow you to gather together everything you know on any topic, regardless of source, and to make instant comparisons across different sources, phases, types of data, or cases. If you wish, you will still be able to interrogate just one component of the data by placing relevant sources within a specific folder for documents or cases, or by identifying that component as belonging to a defined set. (Chapters 3 and 6 will show you how to create and use folders, sets, and classifications to manage your data.)

### Create a model

Sketching your ideas about your project at this stage is a particular way of journaling what you think it is you are asking or doing – great for those who prefer to think and work visually and beneficial even for those of us who sometimes struggle to work visually. Maxwell (2013) argues strongly for creating an early concept map to help clarify the conceptual framework or theoretical underpinning of a study. In NVivo, concept maps, flow charts, or purely exploratory diagrams can be created using the modelling tool, and are generically referred to as models. Put any concepts or categories contained in or implied by your questions in a model, and note observed associations or explore possible theoretical links.

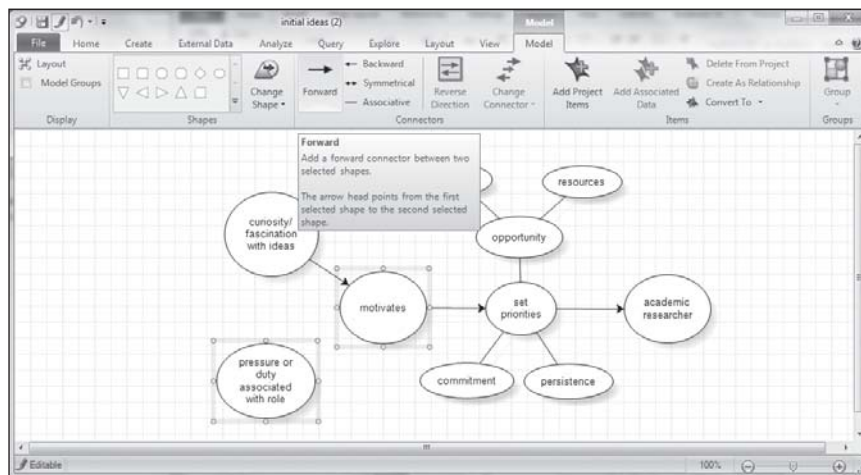
Models serve multiple purposes during a qualitative research project, as outlined in Chapter 10. For now, use the NVivo modeller to map your starting point and the assumptions you are bringing to the project, making a diagram of the concepts, relationships or patterns you *expect* to find. This will assist with clarifying your research questions and planning your data collection.

If you find it a struggle to develop a concept map, then try some of Maxwell's (2013: 62) suggestions:

- Think about the key words you use in talking about the topic, or in things you've already written about your research.
- Take something you've already written and map the implicit theory within it.
- Take one key concept or term, and think of all the things that might be associated with it.
- Ask someone to interview you about the topic, then listen to the tape and note the terms used.

## Creating a simple model

- ▶ In *Navigation View*, select **Models**.
- ▶ **Right-click** in the empty space available within the *List View* > **New Model**. Provide a **Name** for the new model > **OK**. An area for working will be created in *Detail View*.
- ▶ To create more working space, in the **View** ribbon, *Window* group > uncheck **Docked** and the *Detail View* will become a separate window which can be enlarged to fill the screen.
- ▶ If you want more space, close the Model Groups pane: **Model** ribbon, *Display* group > uncheck **Model Groups**.
- ▶ In the **Model** ribbon, click on a *Shape* to add it to the model. Double-click on the shape to name it > **OK**.
- ▶ Move the shapes to where you want them, by dragging them to another location in the grid. Multiple selections can be moved at the same time so their spatial relationships are preserved. Items can be resized, or the shape can be extended in one or other direction by selecting the shape in the model and selecting and dragging the dots on the perimeter.
- ▶ Modify the font, colour and/or line thickness of a selected shape or line in the **Home** ribbon, *Format* group.
- ▶ Add connectors to show links between shapes (Figure 2.2). Select the first item for the linked pair. Use Ctrl+click to select the second item (dots will



**Figure 2.2** Adding a connector to a conceptual map

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(Continued)

be visible around the perimeter of both shapes). In the **Model** ribbon, click on the type of connector that best describes the relationship between the two items. If you create a one-way arrow that is pointing the wrong way, select it and click on **Model** ribbon, *Connectors* group > **Reverse Direction** to fix it.

- ▶ To archive a copy of the model for your records while you preserve a dynamic copy to keep working on, **Right-click > Create As Static Model**. Use the same name, but add a date to the end.

! If you return to your dynamic model to add to or change it, you will need to click on **Click to edit** at the top of the grid to make those changes.

Record in your NVivo journal any insights gained as you were devising the model, such as questions prompted by doing it, or strategies you might need to employ for data-making or analysis. You could find it alerts you to the need to include particular people in your sample, or to explore a broader context. You might also find it useful, as you proceed, to create nodes to reflect the concepts you identified in the process of creating your model (**Right-click** on a named shape > **Convert to > Convert to New Project Item**). Later you can review the model to see how far your thinking has moved in response to gathering and working with data.

### Create a journal

Qualitative researchers typically keep a journal to document how they have moved from initial forays in their project to arrival at their conclusions; hence some refer to the journal as an audit trail for the project. Lyn Richards (2009) compares the journaling process to keeping a ship's log with its careful account of a journey, and provides detailed suggestions about what might be recorded there. Without such a record, it will be difficult to keep track of when and how insights were gained and ideas developed, and it may be difficult to pull together the evidence you need to support your conclusions. Without it, precious, fleeting ideas will become forgotten as the data marches in, the next task is upon you, or the complexity of concepts begins to overwhelm you. Unlike the ship's log, however, the journal can be a private document: you might also record your frustrations and your joys as you work through your project. Perhaps the best advice of all, as you focus on ideas and your responses to them (rather than dry description), is to enjoy the journaling task – write freely without worrying about formality of style or 'correctness' of thoughts. Writing 'often provides sharp, sunlit moments of clarity or insight – little conceptual epiphanies' (Miles & Huberman, 1994: 74).

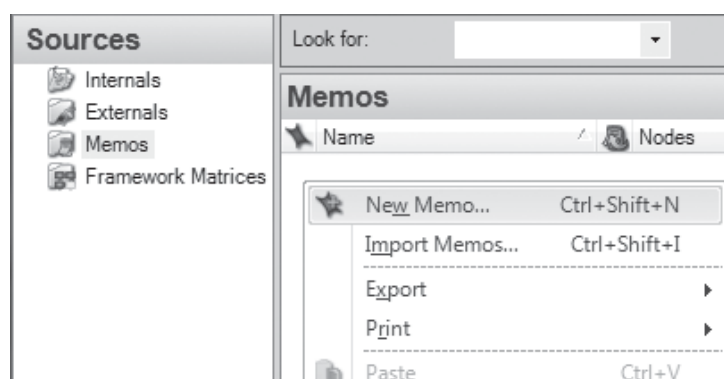
In NVivo a journal is simply a document, and it will always be available for modification as you are working in the project. In addition, you will be able to establish links ('see also' links) from your written ideas to specific data or other evidence which prompted or supports those thoughts. Additionally, you will be able to code the journal as you write it, making it easy to retrieve the ideas you generate on any topic – and this is something you can do with any other memo or document you create within your project. No more coloured tags hanging off the sides of pages to help you find those insightful ideas!

- ✓ Use NVivo's date and time stamp (**Ctrl+Shift+T**) on journal entries to help with the auditing process.

### Creating a journal

The journal is a working document in the program as a kind of 'scratch pad' for ideas and thoughts. Because it stores reflections rather than observed or recorded data, you will create it within the Memos folder.

- ▶ Open *Navigation View* > **Sources** > **Memos**. In *List View* (in the white space), **Right-click** > **New Memo** (Figure 2.3).
- ▶ **Name** the memo, provide a **Description** and **Colour** if you wish (both of which can be changed later), and click **OK**. The name of the memo will now be visible in *List View* and a new blank document will open in *Detail View*.
- ✓ If you place an underscore at the beginning of a document name, for example Journal, then it will always appear at the top of any alphabetically sorted list.



**Figure 2.3** Creating a memo document to use as a journal

(Continued)

(Continued)

This is especially useful for facilitating access to something like a project journal to which you will frequently return.

- ✓ If you have an existing electronic journal, you can import that, rather than creating a new one. In the empty space available in List View, **Right-click > Import Memos > Browse** to select the memo for importing.
- ✓ Use colours to group items visually, for example, to quickly identify the journal(s) you create about the project as a whole versus your memos about specific sources or nodes. Because there are only seven to choose from, you will not be able to add a different colour to every different item.

### Writing in your journal

Working with your journal in the *Detail View*, you can now begin recording the questions, assumptions, or other ideas you are bringing to the project. The following prompts might help:

Why are you doing *this* project?

What do you think it's about?

What are the questions you're asking, and where did they come from?

What do you expect to find and why?

What have you observed so far?

- ▶ Use **Ctrl+Shift+T** to insert the date and time, or locate it on the **Home** ribbon, *Editing* group > **Insert > Insert Date/Time** (time stamps do not automatically become codes).
- ▶ From the **Home** ribbon, *Format* group, select fonts and use colour to add emphasis. (You cannot automatically code on the basis of colour.)

### Saving your journal

Sources are saved along with the project as a whole in NVivo; that is, you do not save a source as a separate entity, even if you are closing it. If, however, you are anxious to ensure that what you have just written is not lost, then choose **File > Save** (more on saving and backing up at the end of this chapter).

! Next time you open your journal, you will need to click on **Click to edit** at the top of the *Detail View* to be able to write additional material.

### Import and reflect on a data item

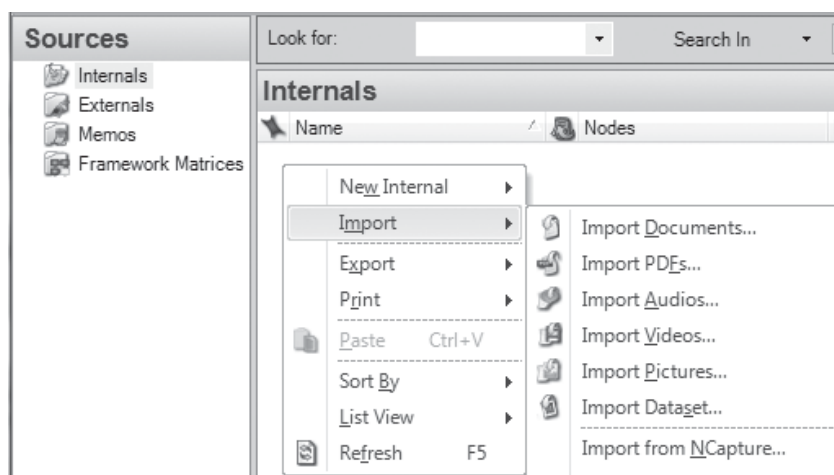
Now you're ready to import and explore a source document! For now, this could be an article or report; notes from your reading; the text of a preliminary interview; field notes from a site visit; the transcript of (or notes from) a conversation about your project with a colleague or your dissertation advisor or supervisor; or text

from a web page.<sup>2</sup> In Chapter 3 we will explain in more detail the range of source types you can import, and things to be aware of when preparing and importing data for use in NVivo. For now, simply importing a text-based source of some sort will suffice. Text file types that can be imported include \*.doc and \*.docx (Word files), \*.txt (text files), \*.rtf (rich text files), and \*.pdf (portable data format files).

When you import a source into NVivo, the program makes a *copy* of that source into its database, leaving the original where it was. Changes you make to the source in NVivo will not be reflected in the original copy, so it remains in the original location as a secure backup.

### Importing and viewing a text-based document

- ▶ From *Navigation View* select **Sources**, and then **Internals**.
- ▶ If this is the first source you are importing, your *List View* will be empty. Right-click in the white space in *List View* to open the **Import Internals** dialogue (Figure 2.4).
- ▶ Select the type of file you wish to import (**Documents** or **PDFs** at this stage), then click on **Browse** to locate it. Select the file(s), click on **Open > OK**.



**Figure 2.4** Importing a file as an internal source

(Continued)

<sup>2</sup> If the source is an interview or similar, we would suggest you substitute pseudonyms for any identifying names or places prior to importing it (use Replace in Word). If you use the pseudonym from the start, it will become as familiar to you as the real name, and it reduces the risk of breaking confidentiality.

(Continued)

- ✓ Use Shift+click or Ctrl+click to select more than one file (of the same type and location) when choosing sources for import.
- ▶ After you import the item, go to *List View*, double-click to select the document you imported.<sup>3</sup> The text will show in *Detail View*.

Your first reading of a document should be rapid but purposeful, directed but not bound by your research questions. The idea is to get a sense of the whole, so as you begin to identify specific points or issues in the data, you will see them in the context of the whole (see Bazeley, 2013: Chapter 4). Reading right through before you start coding is especially important if it is some time since you gathered this particular item of data, or if your recent work on it was piecemeal. Many people prefer to scribble on hard copy at this stage, on scrap paper, or in a notebook, but there is a real advantage in making notes on the computer – they don't get lost, and you have tools to help find particular bits within them.

### Mark text with annotations

As you read (or later, as you code) in NVivo, you might annotate words or phrases in the text. Annotations in NVivo work rather like a comments field or a footnote in Word. Whereas the project journal and other memos are more useful for storing (often extensive) reflective thoughts and ideas from the text, annotations are useful for adding (usually brief) comments or reminders about a particular segment of text.<sup>4</sup> You might use annotations also to clarify an acronym, note the intonation of the voice at a point in the conversation, identify a translation or transcription problem, or comment on some aspect of the discourse. For example, when a coach referred to a celebrity in her study of sexual abuse in elite swimming, Joy Bringer used an annotation to note the significance of that reference to the conversation (Bringer, Johnston, & Brackenridge, 2006: 249). Annotations work best as reminders of things you need to be aware of whenever you read this bit of text.

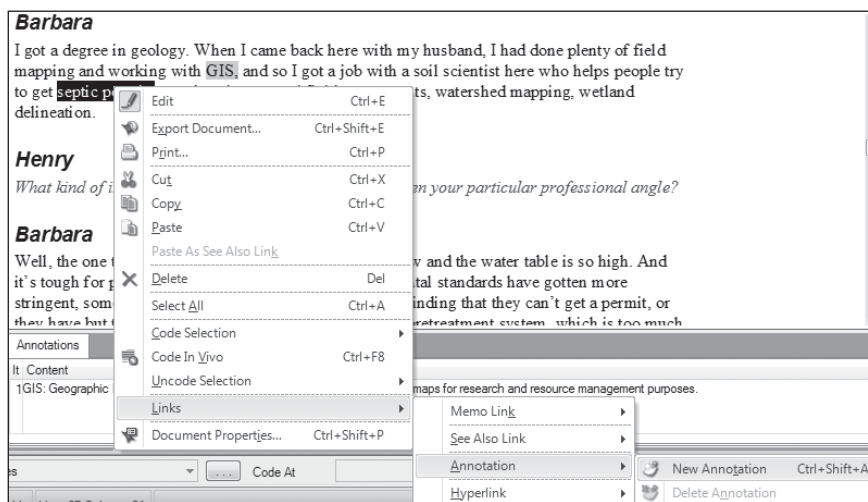
---

<sup>3</sup> We recommend that you acquire the habit of selecting a project item by clicking on its icon rather than its name, to avoid accidentally selecting the name for editing.

<sup>4</sup> Annotations are limited to 1,024 characters in length.

## Annotating text

- ▶ Select the passage to be annotated (usually short).
- ▶ **Right-click** (on the area you just highlighted) > **Annotations > New Annotation**.  
A space for typing will open at the base of the *Detail View* (Figure 2.5).
- ▶ Type your annotation.



**Figure 2.5** Creating an annotation

- ▶ Passages with an annotation will be indicated with a blue highlight. To bring annotations into view or to turn them off, go to the **View** ribbon, *Links* group > check or uncheck  **Annotations**.
- ▶ Click anywhere in the blue highlighted text to see the matching comment at the bottom of the screen, or click on a comment to see the associated highlight in the text turn a darker blue.
- ✓ When the blue highlighted text that anchors an annotation is coded, the annotation will also be visible from the node view.
- ✓ The text of annotations can be searched for keywords (in a word frequency or text query) but not coded. If you want to find particular comments later, either code the blue anchor for the annotation or include a relevant keyword in the comment.

### Edit text and mark with colour

If you find an error in your text, you can switch to edit mode and correct it.<sup>5</sup> If you are reading on screen and an interesting expression or detail draws your attention, change the text to a colour so it stands out in retrievals or on later review. Then write a note in a memo or an annotation about *why* it appears significant.

#### Editing a source

- ▶ Click on **Click to edit** (in blue text) at the top of the *Detail View*. You are now able to edit the text.

#### To colour text

- ▶ Select the text to be coloured.
- ▶ From the **Home** ribbon, *Format* group, select a font colour.
- ! You cannot highlight behind the text with colour, and highlighting applied in a Word document does not import.

### Reflect on text, using a memo

In NVivo, your project journal is recorded as a memo. Depending on the nature of your data, you might also create memos linked to particular sources. Memos often include a kind of 'discussion with yourself' as you explore ideas arising from your data. The memo for each document becomes an invaluable asset as it ties together the different threads of data for the case. Writing about your ideas avoids losing them when they fade from memory or become submerged in the morass of data. Because memos can be coded, searched and queried, later you will be able to locate your thoughts on a topic by asking the software to find just what you have written in memos on that topic.

A document memo might include:

- field notes generated after data collection, such as unrecorded comments, observations and impressions;
- a summary of the main points in the document, or notes about your overall impressions from the document;
- thoughts about the meaning or significance of things said or written in this particular document;
- reflections on a word or phrase;
- issues for further investigation and hunches to check out.

<sup>5</sup> If you plan to merge this source with another copy of the same source as part of combining two projects, then *do not edit it*. Editing will prevent NVivo from recognizing it as the same source, with the consequence that the two copies will not merge.



It doesn't matter if the typing or the grammar is rough, as long as you get the ideas down. If you can discuss some or all of the document with a colleague, the conversation is likely to strengthen your reflective thinking about the text and its interpretation – then add these thoughts to your notes. You can add further notes to your memo at any time.

### Creating a linked source memo

Each internal source in NVivo can optionally be assigned one primary memo, that is, a linked document with additional observations, reflections and other materials relating to that source.

- ▶ Select the source in *List* (or *Detail*) *View*, **Right-click > Memo Link > Link to New Memo (Ctrl+Shift+K)**.
- ▶ Name the new memo and click on **OK**. The memo will open as an editable document in *Detail View*, ready for your text.
- ✓ An icon indicating that a memo exists for that source will be evident in *List View*. The actual memo will be located in the Memos folder.
- ✓ It is helpful in naming memos to make clear their primary relationship to a document. If you lose track of links or you link things unintentionally, then you can check and change them in *Navigation View > Collections > Memo Links*.
- ! You can attach only one *linked* memo to each source (to avoid unintentional creation of many small memo documents). Use *see also links* (discussed next) within the memo to link specific thoughts to specific segments of text in the source, and also to avoid problems associated with pasting quotes from the source into the memo.

### Accessing and adding to a memo

- ▶ Select the source in *List* (or *Detail*) *View*, **Right-click > Memo Link > Open Linked Memo (Ctrl+Shift+M)**. The memo will open in *Detail View*.
- ▶ Click on **Click to Edit**, located at the top of the *Detail View*, or on the pencil icon in the Quick Access toolbar or **Home** ribbon, so you can type into the memo.
- ✓ If your thought has more general significance, it may be more appropriate to record it in the project journal, keeping the document's linked memo as a place for ideas arising specifically from this document.

Whether you decide to create a memo for particular sources in your project or simply use a general journal (in which you are careful to reference the sources that prompted your ideas) will be a matter of methodological choice and/or pragmatic decision-making and will vary from project to project. Individual document memos are not necessarily useful for all projects. For example, for data where responses are brief, it may be more useful to record a summary of

key issues for each source (or case) in a single combined 'issues' journal, and to use a separate journal for reflecting on what you are learning from various cases and for noting common themes to explore. For any project dealing intensively with rich data for a small sample, however, the memo for each source becomes a valuable resource holding a reminder of key points learned, interpretive thoughts, and ideas to follow up in later analyses.

- ✓ Keep the memo open as you work through a document, so you can easily tab back and forth between it and the source.
- ✓ Memos can be combined or split at any time without losing associated information (as can any text-based source).
- ✓ To avoid anxiety about losing track of where you have recorded your ideas, we recommend you code the content of these memos, preferably as you are making them (once you have a coding system). This will ensure the ideas always turn up whenever you consider those topics in your project.

### Link ideas with evidence, using a see also link

More often than not, the ideas you record in your journals or memos will relate to a particular segment of text, rather than a whole source. When you want to record something longer and more detailed and thoughtful than an annotation, and you want to retain the connection with the text that prompted the thought, a see also link will do it for you. A see also link will connect from a point (an anchor) in the text of the memo to selected text within a source document, so you can easily check the basis for the thoughts you are recording. Then, when you review your memo, you can also see the linked segment highlighted within its source context.

*The see also link is one of the most useful tools in the program (and it's Kristi's favourite)! It provides a far better solution than copying and pasting text directly from a source document into a memo. Pasting text rather than the link is problematic, because (a) the segment has become disconnected from its identifying source and context, and (b) any coding on that text will be pasted with the text, generating double retrievals when you review the coding. A see also link identifies the source, provides context, and can be viewed or printed along with the text of your memo, to help you put together the argument you are developing for your article, report or thesis.*

#### Create and view a see also link

##### Create the link

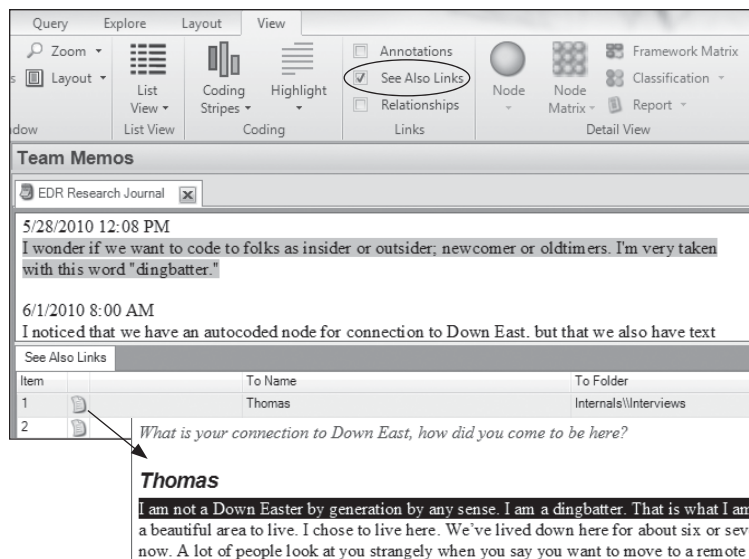
- ▶ In your source document, highlight and copy a passage that has prompted ideas you want to record.
- ▶ In the memo, write the thoughts related to the passage you have copied.

- ▶ Select some of the text you wrote to create an 'anchor' (a brief text passage) in the memo. **Right-click > Paste As See Also Link.**

When you click elsewhere in the memo, the anchoring text will show highlighted in pink to indicate the presence of a see also link. A tab at the base of the *Detail View* will indicate the location of the linked text.

### View the linked text

- ▶ To bring see also links into view or to turn them off, go to the **View** ribbon, *Links* group > check or uncheck  **See Also Links.**
- ▶ Click on the pink highlighted text, then double-click on the matching link at the base of the *Detail View*. The linked text will open, highlighted *in its original context* (Figure 2.6).
- ✓ Alternatively (or as well), you can make a link from the source to your reflective text in a memo.



**Figure 2.6** Viewing a see also link

### Reporting from your source

The most useful type of report you can make from an internal data source or a memo is to export or print it with your annotations and links showing as endnotes.

### Exporting or printing a source

- ▶ In *List View*, select the document or memo you want to print or export. **Right-click > Export (or Print) Document (or Memo)**.
- ▶ Select the options you want from the Export (Print) dialogue > **OK**.
- ✓ Click Browse > Save as if you want it in a file type other than \*.docx.

The text of the source will be printed or saved, with the content of see also links and annotations optionally provided as endnotes to the text.

## Looking ahead: connecting a web of data

We point to the future here, more than the present, by showing how NVivo's tools for journaling, memoing, and linking can be extended, so you end up with a comprehensive understanding of your data and an audit trail for your project. The web of links you create in a project (and your reflections on those links) become an important antidote to the segmentation that can occur with coding (Maxwell & Miller, 2008). Some of these suggestions will become more meaningful as you learn more of the tools in NVivo, and you progress further in your project. They are relevant to all forms of data – text, pictures, video and audio.

### Connecting across your project file – more on see also links

See also links do more than link evidence in source text to comments in memos. They are called *see also* links because, when you read or see *this* in a source, you should really check out (see also) *that* somewhere else in the project. There are two types of see also links, and each does something slightly different:

- 1 The first and most commonly used way of creating a see also link is to select a passage of text or part of a media file, copy it, then paste it elsewhere as a see also link – as described above. Use this method when you are linking a specific portion of one source to a specific portion of another source.
- 2 The second way of creating a see also link is to link a whole project item to an anchor within a source or a memo.

Examples of how you might apply the first type listed above (links to a portion of another source) include:

- Link interpretation of text to the passage that gave rise to the interpretation, as described earlier. In the *Environmental Change* project, this is evident when interpretations of what it means to be local (in the *Local identity and knowledge* memo) are linked to what was said in interviews.

- Identify questions or issues that you want to return to later. In the *Environmental Change* project this is evident in the *EDR Research Journal* (a memo written by Effie). If you open this memo, you will find a see also link connected to a portion of the interview with Thomas, where community newcomers are referred to as ‘dingbatters’. Effie wants to return to this later to examine whether the designation should become a node or not.
- Use the capacity to create a see also link from one passage to another in the *same* document to point up contradictions in a narrative, or where one passage provides an explanation for or expansion of the other.
- Where the text illustrates something you read in the literature, create a see also link from that text to the relevant material in a reference document, such as a passage in a pdf article you imported.
- Communicate with and respond to other team members. In the *Environmental Change* project you will find an entry in the *WWS Research Journal* on 6/4/2010 where Wanda is responding to an observation Henry made in his *HGP Research Journal*.
- Eliminate the need to repeatedly articulate processes or protocols by adding see also links to point to where they have been described and/or used. In the *Environmental Change* project, the *Project protocol memo* contains such a link dated 5/15/2010 to the location where Wanda explains the process she used for assigning pseudonyms.
- Link across documents to build a sequentially ordered picture of an event or a life history through the eyes of one or more tellers, or to trace an evolving idea or saga. When a see also link is accessed, the linked item is opened with the selected passage highlighted. That passage might contain another link, allowing a further link in the web to be created.

Applications of the second type of see also link (links to the whole of another source) are less common:

- Create links in your memos to whole sources, nodes, models or other project items that illustrate or provide evidence for what you are reflecting on in the memo. For example, when you have explored an association within your data using a query, write about what you discovered in a memo with a link to the node that contains the stored results of the query.
- If you create a model, discuss it in a memo or journal, then link it to that discussion.

### Creating a see also link to a whole project item

- ▶ In your journal or memo or other document, select text to act as an anchor for the see also link.
- ▶ On the selected text, **Right-click > Links > See Also Link > New See Also Link**.
- ▶ In the New See Also Link dialogue, **Select** the **Existing Item** to be linked and click on **OK**.
- ▶ The anchoring text will be highlighted in pink to indicate the presence of a linked item, and a tab in the *Detail View*, below the text of your source, will indicate the name and location of the linked item.
- ✓ View see also links as described earlier. If your exported or printed copy of the source or node includes a link to a whole item, the endnote for that link will include the name and location for that item, but not the content.

## Connecting beyond your project file – hyperlinks

Perhaps your interviewee referred to a report that is on-line, or to an ongoing blog; the group discussion was based around a book or video; the emotion in the distraught mother's voice is best understood through a 'sound bite' from the original tape; or there is a cross-reference from an article you have imported to one that is on file but which you are not importing into your project. For such situations, hyperlinks allow you to make direct connections from a specific location within a source to items that are not in the project (on-line data or any digitally stored material on your computer), such as books or reports, pictures, web pages, video or audio files.<sup>6</sup> Use hyperlinks also to link from your journal to records of meetings with advisors, emails from colleagues, and other sources of influence on your developing thinking as well, as part of an audit trail for the project.

### Create and view a hyperlink

- ▶ Click on **Click to edit** at the top of the *Detail View*, so the source you are working in can be edited. Select text to act as an anchor for the hyperlink.
- ▶ Hover over the selected text: **Right-click > Links > Hyperlink > New Hyperlink**.
- ▶ **Browse** the web to locate the URL or your filing system for the object to be linked. Click on **OK**.
- ▶ To view the link, **Ctrl+click** on the underlined blue text that marks the anchor for the link.

## Looking ahead: keeping track of emerging ideas

### Keeping track with journaling

Develop a routine of journaling as a way of keeping an audit trail of actions, reflections, spontaneous thoughts, and developing ideas relating to the topic of the research as a whole. A comprehensive audit trail, with its reflective content and links to evidentiary data, is a critical element in any qualitative project where the validity of conclusions has to be argued without the support of *p*-values and the like. The evidence it provides of the journey you have taken to reach your conclusions will therefore help you to argue and to write those conclusions.

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<sup>6</sup> Many of these items can potentially be imported as data for the project where they can be linked using see also links. Use hyperlinks when you *don't* want to import the linked item.

Some researchers recommend setting up separate journals for different purposes in a project; others find it difficult to separate their random thoughts and so they put everything in one journal. In the *Environmental Change* project, the team members' individual journals (**Sources > Memos > Team Memos**) illustrate a broad mix of content, including records of changes made and reasons for such changes, reflections on concepts and experimentation with ideas, and reminders of things to do or conversations to have with colleagues (see especially Wanda's research journal, *WWS Research Journal*). Separate general memos have been created to document who has done what as each member of the team contributed to the project. In some projects you might find it useful to create an additional journal to record reflections on methods, to debate theoretical issues, to note points for a final report or, where there are a lot of brief project items, simply to record a short summary of the main issue(s) raised by each item.

### Adding to your journal

- ▶ Locate your journal in **Sources > Memos > [your journal]**. Double-click on its name in *List View* to open the journal.
- ▶ Click on **Click to edit** at the top of the *Detail View* for your journal, so you can write into it.
- ▶ Add further text, paste in pictures, and create links to other data, as desired or needed.
- ✓ Reference or link the source of any ideas you are adding, to assist later review.
- ✓ Code your journal so you can easily find and track your thoughts on particular topics.

### Tracking concepts with node memos

When an idea about a category or concept attracts your attention, it can be more appropriate to record those thoughts in a memo that will be linked with the coding for that category or concept, rather than with a source or general journal. Then, as your ideas develop, and later as you assess what you have learned and check how this category relates to others, you can add to the memo, building it in such a way – again, with links to evidence – that it can make a major contribution to your writing (part of a chapter, perhaps) for your project.

Creating a memo linked to a node that holds the coding you are writing about is a parallel process to creating a memo linked to a source, that is, by using the right-click menu in either *List View* or *Detail View* (see Chapter 4). And again, the memo that is created will be stored in the Memos folder. Like other sources, it can be searched or coded, to track cross-cutting ideas and concepts.



**Table 2.1** Memos, annotations and links – summary table\*

|  | <b>Journals (whole project memos)</b>   | <b>Memos linked to a source</b>   | <b>Memos linked to a node</b>   | <b>See also links to specific content</b>  | <b>See also links to entire items</b>   | <b>Annotations</b>   | <b>Hyperlinks</b>   |
|--|---|---|---|--|---|--|---|
| Primary use  | Reflective memoing regarding the project as a whole; an audit trail that traces the development of the project, with links to examples and evidence | Notes regarding key issues in a source; field observations; a case summary; reflective thoughts about the source or parts of it | Reflective thoughts about the concept or case represented by the node; ideas for further analysis; summary of what has been learned about the concept | Link from a specific point in a source or node to specific content in another (or the same) source or node; e.g. use to track evidence, contradictions, link to connecting events or people in other sources | Link from a specific point in a source or node to the entirety of other relevant project items, including other sources, nodes, memos, sets, models, or query results | Notes that illuminate or briefly reflect on a specific part of a source (text, image, audio, etc.); like 'comments' in MS Word | Links from points within sources (internals, externals, memos) to non-project on-line items or websites |
| Visual cue on the screen                                     | Listed in <i>List View</i> > Sources > Memos  | Icon next to source in <i>List View</i>   | Icon next to node in <i>List View</i>   | Pink highlight on text   | Pink highlight on text  | Blue highlight on text   | Underlined blue text  |
| Can the content be coded?                                    | Yes   | Yes   | Yes   | NA<br>The linked item may be coded already.  | NA<br>The linked item may be coded already.   | No<br>If you code the location where the annotation is anchored, you will see the annotation.                                  | No<br>If you code the anchor for the hyperlink, you will have access to the hyperlinked item.           |
| Can the content of the linked material be searched for text? | Yes   | Yes   | Yes   | No – only as part of the item from which it has come   | No – only as part of the item from which it has come  | Yes  | No  |
| How many can you have?                                       | Unlimited   | One linked memo per source  | One linked memo per node  | Unlimited  | Unlimited   | Unlimited  | Unlimited   |
| To create  | Create ribbon > Memo  | Select source or node: Right-click > Memo Link > Link to New Memo; OR Ctrl+Shift+K  | Right-click source > Memo Link > Open Linked Memo; OR Ctrl+Shift+M  | Copy portion to be linked, then select the anchor point and Paste as See Also Link.  | Highlight text in a source or node, select from the <i>Analyze ribbon, Links or Annotations</i> groups  |  |   |
| To view  | <i>List View</i> > select the memo and double-click   | Right-click source > Memo Link > Open Linked Memo; OR Ctrl+Shift+M  | Right-click source > Memo Link > Open Linked Memo; OR Ctrl+Shift+M  | View ribbon > <input checked="" type="checkbox"/> See Also Links   | View ribbon > <input checked="" type="checkbox"/> See Also Links  | View ribbon > <input checked="" type="checkbox"/> Annotations  | Ctrl+click on blue underlined text  |

\* Help item: About Links

## **Memos, annotations or links: which should it be?**

So you can put things in perspective, Table 2.1 outlines the key features of memos, annotations, see also links, and hyperlinks, to help you gain a sense of when each might be most useful, and of the possibilities and limitations for each.

## **Saving and backing up your project**

As you have been working, NVivo regularly asked if you wanted to save your work. There is no background autosaving in NVivo so, as we noted in Chapter 1, we would strongly recommend that you save each time you are asked, unless you are simply experimenting, do not want to save your changes, or you are in the middle of an Undo operation. Of course, you should always save as you exit the project as well.

For safety, you need backup copies, regularly updated, as a precaution against loss or drastic error. No matter how good your equipment, power failures or human intervention can make the program crash; no matter how confident you are, errors can occur; and no matter how thorough the programmers and testers have been, occasionally projects will become corrupted. Our recommendation is to make a backup on your working computer at the end of each day's work, and to copy that to another medium (a disk, memory stick, server, or cloud that is independent of that computer) on a regular basis. If you're cleaning out old files, a good housekeeping principle with backups is to keep the last known good copy – that means keep at least the last two backups, just in case the last one was corrupted as you saved it. You might also want to retain copies from important transition points, for example, before and after a major node restructuring, before and after combining the work of team members, or when you've developed key models or understandings of the project. These copies will help you write up the methods section of your final product. They can also help you prepare your final arguments to support your conclusions, as you can trace how your ideas developed and thus how you might convince a reader.

! Do not rely on automatic daily institutional backups unless you are sure these create a new copy each time – otherwise a good backup might be overwritten by a damaged file.

### **Backing up your project**

While you are working in NVivo:

- ▶ Go to **File > Manage > Copy Project**. Locate and name the backup file. Be aware that in the process of copying your project, NVivo will close and then

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reopen the project you are working on, in contrast to Save As in Word and many other programs (where you end up in the copy rather than the original). In the process, you will be required to save the current project before it closes, and it will reopen in the usual initial Sources view.

Alternatively, after you close your project:

- ▶ Go into Windows Explorer. Locate and copy the project, and paste it into a backup folder.
- ✓ So you can keep track of your backup files, always date them (this also overcomes the problem of duplicate names). We use an international date format (yymmdd) added to the name, so they sort in date order (from oldest to newest) in a file list or navigation dialogue.