



Getting there

In: The NVIVO Qualitative Project Book

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Getting there

Where is “there” and how will you know when you arrive? The answer depends on where you started. Projects differ in design and purpose, and qualitative methods differ widely in their account of what is an acceptable outcome of research. But the processes of getting to the appropriate “there” have a lot in common, and all can use tools for conceptual development, for surprise and discovery and for pattern seeking and validating. In this Part, we discuss ways of reviewing your goals, then of using those tools for your purposes. We conclude with a section on reporting what you discovered, when you do get there.



Aiming for and achieving research goals

It is not unusual for qualitative projects to start without an explicit research question, or to end by asking a question that was not considered at the beginning. So you may have commenced this book with a project but no picture of the theory or explanation that would complete it. At the extremes, the aims of analysis may be very pragmatic (knowing what is going on here) or very abstract (construction of a new theory of this phenomenon). But these aims, and all the range between, have in common that the researcher is seeking an analytical outcome *from* the data.

Qualitative methods do however share processes of arrival, and there are tools in NVivo for each of these. For many researchers the goal is “saturation” of concepts, the sense that nothing new is coming up. For this purpose they need techniques of continuous massaging of the categories and thinking about them. For almost all, at some stage, the goal is an arrival at surprise and discovery—something new and unexpected. They will do so through revisiting data in new approaches, writing and reviewing memos. Most researchers

seek and attempt to find and validate patterns, discover and account for relationships and test explanations, locate cases that don't fit, interrogate trends. They will do so through increasingly flexible use of the search processes, teasing data out, interrogating associations, focusing on finer contexts.

Just as in Part 6 we could not teach how to “emerge” a theory, so too in this Part we are unable to offer a recipe for the theory that will make sense of any particular data. The nearer you get to the conclusion of your own project, the less likely it is that any general book can tell you what to do to arrive. So what we offer at this stage are things you can try, in your search for ways of arrival.

Categories and theory

All qualitative research needs tools for “emerging” the categories with which analysis can be conducted and theories constructed (Part 6). But the goal of “theory” is the Lorelei of qualitative research students. In recent parts, we have dealt with tools for managing and ordering concepts and drawing together the vocabulary of categories whose relationships to the data are explored and tested (Part 7). The project built momentum as processes were speeded up (as described in Part 8), and for most researchers this gives a sense that they are getting somewhere. But how will you know when you are there, and especially, when you have a theory?

At the start of this book we warned that it cannot teach any particular method. This means of course that we can't tell how to get to the appropriate “there” for your methodological approach. At this stage, we urge you again to return to your methodological literature, and particularly to examples of how projects achieve their goals. You may find, now that you are deep in your own data, that completed projects offer startling parallels, or surprise you with relevant concepts.

Whilst you may well have started without knowing what you were seeking, now you need to know. Return to the Project Journal and add memos on what a satisfactory outcome would be like. What are you aiming for? What would that elusive “theory” be like if you met it? If these questions puzzle, ask instead “What do I want to be able to say, and why would anyone believe me?”

We start with tools for reviewing where you are going.

The project and its purposes

At this stage, it is often beneficial to revisit the research goals and ensure that the analysis process is aiming accurately for them. We have warned earlier of the perils of ritualistic research, coding that is treated as an end in itself, or editing that is cosmetic rather than analytic. At this stage in a project, the effects of data processing without purpose will become evident and now is the time to deal with them! Thoughtfully review the project, in terms of purpose. Since qualitative research almost always seeks an outcome that isn't known when you start, some superfluity is built into the method. All of us find at this stage that we have been coding at categories that don't matter or are duplicated and at least some of the attributes stored aren't relevant for asking the questions that now dominate the project. As you become more assured, you can confidently focus data processing and as it is focused it will become more analytical. (Revisit the discussion of coding in Part 4,

and become very critical of coding that seems boring or ritualistic; coding at this stage should be perpetually relevant and interesting!)

Conduct a review of purpose and processing



In Part 2 we commenced with a Project Journal. If this has been maintained as a research record, you might now revisit it and record your review of your purposes and the progress of your data processing.

- Browse the Project Journal and date and edit a new section on *Research purposes and data processing*. Record your interpretation of your achievements so far and where you think your project is now going. Note critical concepts and ideas derived from the data, and finally, identify those things that still need attention. Use all the abilities of compound documents to draw together each aspect of the project.
- Use DataBites to external files to link into your review any triumphal interim reports or worried memos you've been writing about your progress.
- Review the questions you have been asking throughout the project. Use DocLinks to memos where questions are recorded, noting those worthy of further consideration given where the project is now going. (Mark critical documents and memos with coloured icons.)
- Use NodeLinks to provide rapid access to critical nodes, or to those identified as needing further evaluation.
- Check those documents for which the coding is inadequate or requires review in the light of your evaluation. Use DocLinks or Node Extracts to point to documents or quotes which are pertinent to your growing sense of direction.
- Record memos on any themes or questions that you now recall as pertinent but which your data processing so far seems to have evaded. (Yes there will be some!)

You are likely to find your project is now much more firmly directed. Now you can start asking the questions that will lead to the desired outcome.

Are your concepts good enough?

Good enough for what? Your methods literature will answer that. But only you can evaluate them. You are likely to have decided at this stage that the concepts require sharpening and focusing.

The first critical issue may be whether you have developed and explored the core concepts thoroughly. What may work now is a return to the data available for each of the categories, rethinking, rereading and re-viewing the coded text. This would lead to development and rewriting and now coding of memos. Aim for the maturing of your central concepts, going beyond your initial coding to purposive category development.

The second aspect of concept review is to look at the framework of concepts as a whole, and tighten it. This activity serves as a “clean up” of nodes. It has two purposes: it serves to clarify the concepts that have been identified in the project, and it prepares your coding to support more complex searching of patterns.

Concept clarification

You are likely to find you are now working in a different relationship with some of your concepts. Whatever your method, the processes of making sense of the data involve concept development and selection: in NVivo terms, this means some nodes are becoming more central than others. For these, it becomes particularly important to clarify what they represent and whether there are multiple concepts hiding in one node.

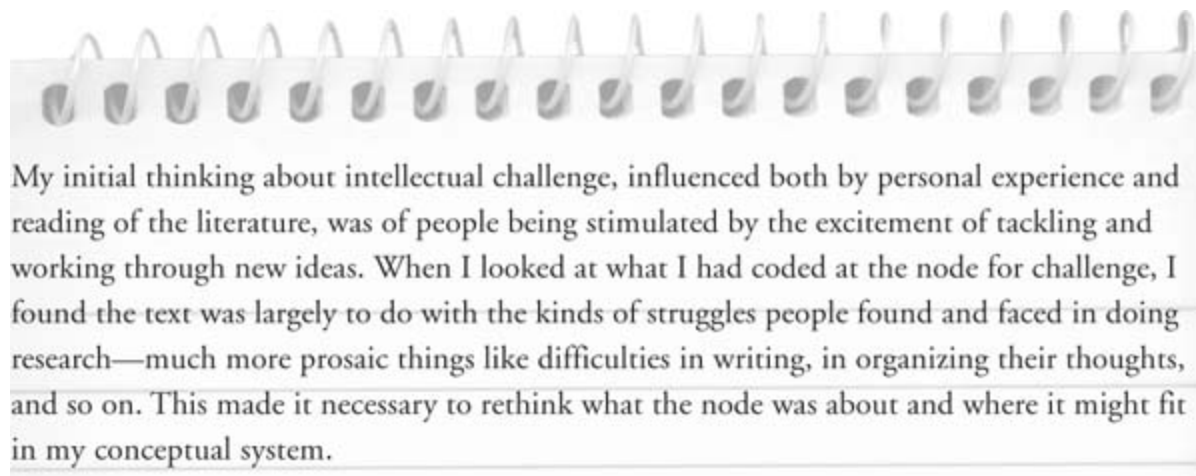
Clarifying in the Node Browser



Use the Node Browser for synthesis, review and writing about the concepts you have developed:

- Select a central node. Browse it, reread and rethink the material coded there, to ensure that it all “belongs”.
- Write a new memo, or add to an existing memo recording the picture you developed of that concept as you read through the text.
- Very critically review the coded material as a whole. View the context of any segment that surprises, or jump to its source document. Why was that text coded here (and why not the surrounding text)? If a segment no longer belongs (or never did!) it can now be recoded and/or deleted from this node.
- Actively seek dimensions of the concept; challenge its simplicity. Are there subtle differences in the coded material? Are there sub-categories to be explored? If the answer is yes, create new nodes, and code-on from the Node Browser to the finer categories or separate concepts.
- Ask about saturation. Is nothing different coming up? Or is the text “active,” still changing and shifting. Keep these ideas in memos.

Memo writing (linked to the nodes being reviewed) is particularly important during this clean up process, as reading through nodes prompts many questions about the data and the issues of the project in the alert researcher's mind. Memos (and descriptions) can also serve as a rapid reminder of what a node is about, should you puzzle over it again later.



Conceptual framework review

In Part 7 we discussed ways of organizing nodes. As your project develops, you may find it worth reviewing the nodes not just as a catalogue of concepts but also as an indication of a conceptual framework.

Re-view the node system as a whole



A list of nodes with descriptions is an advantage. As you review how your conceptual framework relates to your purposes, you may wish to return and report the review in your project document.

- List all the nodes, with descriptions and coding reported.
- Save the list of nodes, which NVivo dates for you, as a rich text file.
- Browse the Project Journal and start a section on node review. Place a DataBite linking the section to the external file that is a current list of nodes, and record your reflections on the nodes that now frame your study. What are the sorts of nodes you are making? Do these relate to the sorts of questions your study is designed to answer? (Do this repetitively and you will have a valuable project history growing in the Project Journal.)
- Review the logical elegance of the tree structure (as in Part 7).

Review the performance of nodes

The review so far has been of how the concepts work as a framework for your project. A second stage of review will move you further towards your analytical goals. Having clarified the coding content of nodes, ask now what you are doing with them.

Some, perhaps many nodes may be providing situational context—about the broad issue being discussed or the setting or social context, for example. These will generally code large passages and serve only as a basis for asking about occurrences of finer topics coded at other nodes. (When this issue of curriculum review is

discussed by teachers in relation to school organization, do they offer a different view from discussion in the context of pupil needs?) You don't expect much from these nodes, except that they are there, and your coding at them reliable, when you want to ask about the context.

Coding at a node should never be the end of analysis, always a beginning. It offers a first gathering of material, for re-viewing and reflecting. We share a concern at queries like, "How can I get a print-out of the text of all my nodes?" To do so wastes a lot of pine trees, since your research purpose is highly unlikely to be merely a summary of everything about a series of topics. Such a summary is merely descriptive, and qualitative research is almost always seeking analysis. From the print-out you can only describe the quoted material, since it is dead data. You can't recontextualize the segments coded at a node, or return from them to rethink the document, or move forward to develop the category theoretically as you code at finer dimensions, or ask *who* had this attitude, and what *conditions* seem to encourage it. If your use of nodes has been merely to print them out and summarize what's there, try the following exercise.

Reflect on particular nodes

- Select a node whose subject is central in your research purpose (as explored in the Project Document). Write a memo for this node containing a sort of "job specification" for it; what do you expect it to do for your project, and what level of responsibility to you expect it to carry?
- Make a new model containing this node. Place in the model the other nodes, documents or other items whose relation to your node you have to understand. Try layering the model to represent different ways these relations might be interpreted.
- Now conduct a sort of "performance review" on the node. How has it been functioning? Evaluate the data coded at this node in terms of its ability to do the job. How must it develop if it is to carry its purpose satisfactorily? You may now wish to return to recode some data, in the light of this review, seeking a broader coverage, or looking for the particular themes that now appear crucially important.
- Focus on nodes which have become unimportant, either because they are getting little coding or because they seem no longer related to the emergent issues of the project. Look at these together (do they indicate a forgotten aspect of the project?).
- Review choices for dealing with these nodes. You might leave them there but place them in a set so they can be revisited. You might move them into a tree of "Past nodes". You might merge them with nodes that are more inclusive, or simply delete them if you are confident of their irrelevance. (Treat this as a last resort. Never waste work if it might be useful!)

What of the nodes that code more specific issues or processes? How are they performing in the analysis process? Review your use of the central nodes: are they allowing you to penetrate the complexity of your data and make sense of it?

Concept clarification using searches

The conceptual inventory so far has been of individual nodes and of the whole list. NVivo provides many

tools for exploring the relations of nodes, and this may be a useful next strategy. The search operators offer a complete range of ways of playing with data. They allow you to pull apart material coded at a concept and tease out different meanings in it, seeking surprises and locating patterns. You may develop finer and subtler concepts, or alternatively see that there is a common thread running through the data, with contextually dependent variations in its expression.

By now you will be using both sets of nodes and node trees to keep ideas in order. Try playing them off against each other. Increasingly, you will find sets useful as temporary groupings for theory-exploring purposes. Using trees to clarify the logical relations of “catalogues” of ideas, you can play with sets to ask questions not about logic but about purpose and content of nodes. Which nodes really matter? Where is the conceptual system redundant? What can now be reduced, concentrated and developed?

Earlier, in Part 5, you used a Union search to see the degree of overlap between two nodes, and in Part 6 this was extended (using also Co-occurrence and Difference searches) to review the relationship between members of a set of nodes. Now that you have more documents coded, and it is increasingly clear which nodes are becoming important to your understanding of your topic, you might like to repeat or extend this exercise using either the same or different nodes.

“Playing” with searches



In the first instance, as you found before, use of Union, Co-occurrence and Difference searches will tell you whether a particular concept takes on different meanings, depending on whether another is present or absent in the text. Now you might try grouping together similar nodes (again using Union)—to create a “dump” of related ideas, and then “split” that node in new ways, to see if new dimensions are revealed within the text.

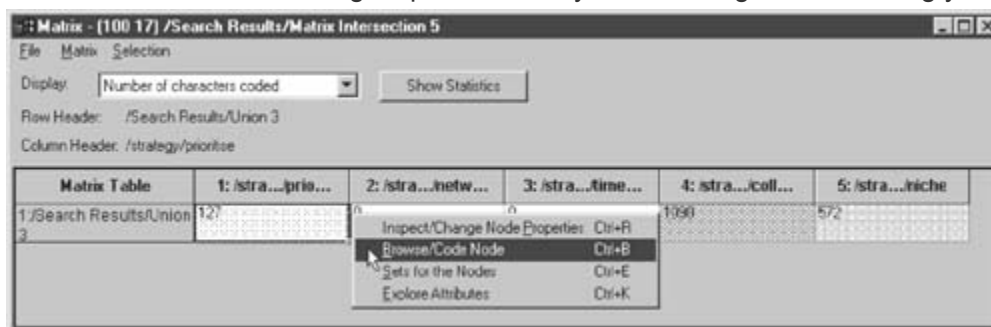
- To split the node, work with the Union node, or a modification of it, and pair that (using a Matrix Intersection) with the values of possibly relevant attributes, or with subcategories in another tree (using either Matrix Intersection, or Matrix Cooccurrence).
- Browse the cells of the matrix, to see if the broad concept in the “dump node” is expressed differently in the different cells. If so, do these differences imply that there are quite different concepts within that node (perhaps some new ones to consider), or do they demonstrate that while there is conceptual coherence, the concept is simply taking on different dimensions in response to the presence of different conditions?

The result of your searching from this and the earlier exercise, then, might be

- combination of several nodes into one single node,
- retention of the original distinctions in the categories combined for the exercise,
- creation of new nodes reflecting newly revealed differences, or

- creation of a core category which has a number of contextually determined dimensions.

Use selected coding stripes to assist you in viewing and assessing your results.



You may find that you need to take some of the resulting nodes from your “splits” and explore their relationships with other (quite different) nodes in your project, as you continue your search for conceptual and theoretical integrity. This is the stage of a project where the concept of “playing” with the data takes on real meaning (but of course, in an entirely functional way!).



In the Project Journal in *Researchers 4* you will find that I started to question the relationship between enjoyment, interest, passion, and intellectual stimulation, and to wonder if these could be best discriminated in terms of their intensity and/or in terms of their intellectual *vs* their emotional focus. Now obsession has been added, something which potentially brings together a set of categories reflecting emotional intensity (enjoyment, passion, addiction) with concepts reflecting behavioural intensity (e.g. commitment, persistence). Using the data in *Researchers 6* try grouping and regrouping these nodes (along with any others you think might be related) in the ways just described, to explore the best way of defining and locating them for this project. Then perhaps you will be able to answer the question raised in *Researchers 4* and also perhaps to determine the potential value of obsession as a core category for (or essential element of) the experience of being a researcher.

Clustering concepts

Finally, a different strategy for exploring the relations of nodes is to examine the way categories “hang together”. You may have been using the trees to gather particular nodes about generic categories like values, feelings or strategies. Perhaps there is some underlying construct which could help to explain or give structure to these nodes (rather like the way that factors do in quantitative research)? Of course, one way to do this is to read and reflect, seeking the more theoretical categories (perhaps “ideological constraints” rather than the generic “values”?) But the search processes may prove helpful in teasing out relationships.

Discovering clusters



You can use matrix searches to pair each of the subcategories with each other subcategory, much like creating a correlation matrix (to borrow again from statistical terminology). The numeric counts indicate whether there is a strong association between pairs of nodes, a clue to whether you might be able to reduce or pattern the subcategories used.

- Run a Boolean Matrix Intersection, with the Set or the Tree of nodes you are interested in entered identically in each of the “boxes” for the search.
- Scope the search to include only non-memo documents.
- Display document counts in the output matrix to provide a guide as to the patterns of relationships among the specific nodes. (The diagonal of the matrix showing the total number of documents in which any code appears.)
- Do you get a different pattern, or simply more finds, by using a Proximity (Matrix Cooccurrence) search? Ask for co-occurrences in the same paragraph or a specific section level (perhaps representing speaker turns, or questions, depending on how your documents were set up), and then, repeat the search asking for co-occurrences in the same document (Section level 0).

The screenshot shows the 'Proximity Search' dialog box and the resulting 'Matrix - [100 12] / Search Results / Matrix Co-occurrence' window.

Proximity Search Dialog:

- Operator: Matrix Co-occurrence
- Find places where text referenced by each of these items...
- Choose Nodes...: discovery (5 2), helps people (5 3), asking-seeking (5 5)
- Choose Attribute Values...
- Choose Text Patterns...
- ...is pairwise near text referenced by each of these items...
- Choose Nodes...: discovery (5 2), helps people (5 3), asking-seeking (5 5)
- Choose Attribute Values...
- Choose Text Patterns...
- ...within this distance:
- Scope Documents: overlapping
- Section level: 0
- ...and retrieve...
- ☒ Finds for the first item
- Return

Matrix - [100 12] / Search Results / Matrix Co-occurrence Window:

File Matrix Selection

Display: Number of documents coded Show Statistics

Row Header: /view of research/helps people

Column Header: /view of research/discovery

Matrix Table	1: /view.../disc...	2: /view.../help...	3: /view.../aski...	4: /view.../an...
1 /view of research/discovery	8	2	0	0
2 /view of research/helps people	2	5	0	0
3 /view of research/asking-seeking	0	0	5	0
4 /view of research/an approach to life	0	0	0	5

Context menu options:

- Inspect/Change Node Properties: Ctrl+R
- Browse/Code Node: Ctrl+B
- Sets for the Nodes: Ctrl+E
- Explore Attributes: Ctrl+K

Now the qualitative task is to review the text in each of the cells (note: for one half of the matrix only, either above or below the diagonal), in order to check whether pairing was occurring because the documents referred to much the same thing (and so it got coded at both nodes), or whether it was because two quite different things were being contrasted (in which case, of course, “collapsing” those nodes would make no sense at all). If the numeric version of the clustering is shown (by the text version) to make sense in terms

of these being pairs that really do go together, and you have a sufficient sample size, then you might want to export the matrix table to a statistics package, where it can be further analysed using either correspondence analysis or cluster analysis.

As a consequence of running such a procedure, you might then want to regroup your nodes, so that you can then look at and ask questions about the newly clustered concepts in relationship to other aspects of your project data.

Exploring and validating patterns

Qualitative researchers seek and explore patterns that are usually not clearcut. “Where does this attitude occur and can I understand why? How do these different ideas fit together in people's experience? Does a core category take different shapes under different conditions?” Pattern-seeking and validating techniques are part of the process of theorizing, of looking for the “missing links” in an emerging theory, of finding where it doesn't fit and testing the predictions that can be made from it.

Your question may be asking simply about the level of association between categories, for example, whether a particular view of research is associated with greater or lesser enthusiasm for research? You might then go on to seek further clarification or detail: does the personality of the researcher make a difference in this—or the availability of friends, family or colleagues who provide encouragement? The results of the first search can be coded-on and/or “fed in” to a further search in order to build an analysis. As you progress with your project and grow in sophistication in using the Search Tool, you will be able to make your searches increasingly targeted, detailed and specific—providing your node system and project structure allows it. Since the results of your searches are always coded at a node, they can be reflected upon, used iteratively in further searches, and/or stored as verification of conclusions.

What is going on here?

Qualitative pattern-seeking is often more like groping around than elegant hypothesis-testing. NVivo provides a number of tools for tentative pattern seeking. Many of the tools have been described already, in detail, including use of Union searches displayed with selected coding stripes (Parts 5 and 6), Co-occurrence of nodes (Part 6), Intersections of nodes with other nodes (Part 7) and Intersections of nodes and attributes (Part 8). Here we introduce new tools—assay and profiles—and searches that go a step (or two) further in order to ask and seek answers to more complex, and more theoretically productive, questions.

Assay the data



You may have noticed (and explored) the facility in NVivo to assay any part of your data for any specified

feature. Assaying (a geological term) asks “What's here?” This may be a way of being surprised. As you explore the set of documents where a particular interpretation is expressed, you often wish to know more about them, for example: Are these interviews only from one age group? Do they all have coding at the node for a related issue? If not, which do?

Assay is accessed through the Scope panel in the Search Tool. You don't need to be doing a search (but if you are, the ability to assay the scope of that search can be very clarifying).

- Customize the scope to the documents and/or nodes do you want to examine. Choose to Assay Scope.
- Select an assay item. Below the list, you are shown the proportion of the scope documents and nodes in which that item occurs. (That may be the answer to your question—oops, there are no young interviewees in this scope!)
- To explore patterning of data, select a number of assay items—perhaps all nodes in a tree, or a set, maybe along with some attribute values—and click Make Assay Profile. A table is displayed, showing occurrences of those items for the scope documents or nodes.
- Now change the scope. Does that impact on the presence or absence of your selected nodes? Does the pattern change? Used in this way, assay will provide pointers to where you might fruitfully search. From the searches, you can review the text to validate and determine the meaning of any emergent patterns.

View coding profiles

A profile of coding, either for a set of documents or for a set of nodes, offers a summary of where nodes are being used across documents. This can be a fertile ground for early theorizing. It provides a tabular overview of how nodes are used and allows you to compare and contrast the patterns of coding. Do the patterns match with your overall impressions? Is there anything you have missed? Are there nodes you have developed since your first document(s) or that you were not emphasizing at that stage? Are there common elements across the documents, suggesting common experiences or processes. Do you need to check whether you have used labels in a consistent way?

- From the Nodes menu at the top of the Project Pad, select Profile Coding for All Nodes. Ask for the Number of Passages.
- A new dialogue will ask for the Set of Documents to profile coding from. If you want to profile coding of all your documents, leave this as it is. (All Documents is a set made for you as the documents are created.) If you want to view the coding patterns for a particular document set (for example, for Interviews only), click on Choose, then double click on Sets, select the set, and click OK.
- From the resulting profile, review which nodes were used for which documents. Note those that warrant further thought or investigation.

This is also a neat way of comparing how team members are coding, or checking your changing use of nodes

over time. Code two copies of the same document, make a set of them, and profile the coding from just those two.

Seeking associations

Associations between one feature and another in the data can be explored through searches. How do you find which is the best choice of search operator to use?

At this advanced stage, a review of the way searches work will help you in designing search strategies. The logical Boolean search operators are appropriate only for some questions. Are you seeking the association of the values of an document's attribute (age, for example) with coding at nodes? This is a clear case for Boolean searches, and they will always find patterns if there are any to find. Since the attribute applies to the whole document, any text coded at the node will intersect with that attribute. But Boolean searches may be less useful when asking for associations between the ideas represented by nodes, since these are unlikely to occur in the text in neat intersections. (How do people's attitudes to research seem to fit with approaches to professional career advancement?) The Proximity searches will be more useful here, as they retrieve all the relevant material in the particular document or section—even where an intersection does not occur.

The screenshot displays the 'Node Browser' window for a document titled 'stages of development/first research'. The main pane shows the document text, which is divided into sections: 'Document 'Andrew', 2 passages, 1695 characters.', 'Section 1.7, Paragraph 15, 378 characters.', and 'Section 0, Paragraphs 23-27, 1317 characters.'. The text includes a paragraph about research and a section titled 'Denise' with a question 'What did you enjoy most about doing honours?'. Below this is a section titled 'Andrew' with a paragraph about a project. The right pane shows a hierarchical tree of nodes, including 'education, becoming', 'choices, opportunity, recognition', 'autonomy', 'recognition', 'product, Martin Co-occurrence (0.05)', 'first research, becoming', and 'autonomy'. The bottom status bar indicates 'Section: Paragraph' and 'Coding:'. The bottom right corner of the window says 'All Nodes Displayed'.



Is viewing research in discovery terms associated with enthusiasm for research? In terms of my nodes the latter might have been expressed simply as identification as a researcher (as distinct from a teacher or business person), as enjoyment of research, or at another level again, as obsession with research. It is unlikely that the node for discovery and a node related to enthusiasm would occur on exactly the same text, or even nearby within a document, so Intersect or Overlap may get nothing. But there may be a looser association—if people talk this way, what do they say about that? Such a question will be best answered using a Proximity Co-occurrence search in which the node for view of research as discovery and for enthusiasm will be found if they exist in the same document (Section level 0), with the search scoped to include only those documents which represent a single viewpoint (excluding focus group documents, for example).

But then, does this association exist only for those who are more (or less) experienced researchers? Or for those who have a particular educational background? Change the scope for the search (e.g. from interviews in general to interviews with beginner and early career researchers and then interviews with more experienced researchers) to see if the character of the association changes. Or undertake a further proximity search in which the results of the first search (association between discovery and enthusiasm) are further associated with educational background (again, using Co-occurrence in same document). View coding stripes in the Node Browser whilst reading the resulting text, to get ideas about what else is going on here.

So discovery is associated with enthusiasm for certain groups only in certain documents. But perhaps those who view research in terms of application or as a craft are just as enthusiastic (or even more so) about doing research? Change the node specification to view the changes (or run as a matrix).

Under what conditions...?

Much qualitative research seeks not direct associations between categories or features but the fit between a phenomenon and a context. Grounded theorists, for example, may work to build a conditional matrix displaying under what conditions certain events (or issues or values) are associated with certain consequences (or outcomes). If the context (i.e. the circumstances surrounding the event) changes, does that mean the outcome changes? Does the category take on different expressions under different circumstances, while still retaining its conceptual integrity?

At this stage of theory-work, the Node Browser is often the crucial tool, since it shows you all the different material at this category, but only a click away from the original documents. After working with the coded material to develop the category being explored, you may find the search techniques outlined above (looking

at single associations, then scoping to different groups or nodes, adding in a further variable).

If all three elements in the question—events (or issues or values), circumstances and outcomes—have been coded throughout the documents, searches can be used to locate and differentiate the text. Your task, again, is to read and interpret the text, to find answers to the question of association.

The understanding of conditions is a good example of how qualitative questions may evade search processes. The researcher often does not see context as important—taking it for granted, just as does the participant, and so coding has not recorded it. Only as the analysis proceeds is the relevance of this context discovered. (In Part 7 we noted the value of the tree structure in ensuring comprehensive coding of elements like contextual circumstances.)

Exploring patterns with searches



For exploring and checking an emerging idea, use matrix searches to give you a different sort of access to the text. These searches are unlikely to be the end of your theoretical road, but may point to where more detailed investigation needs to take place.

- Select a category whose conditions you are trying to understand. Browse the node and read, writing a memo on patterns you think you are finding.
- For an initial review of the patterns of relationships, build a matrix, for example, of events by circumstances. Which kind of events are most likely to occur under which circumstances? View the matrix first in crude coding density terms—the number of times different events occurred in different circumstances. What does this tell you? If there is inadequate data in each cell; seek an explanation. (There isn't any story to tell? You didn't code these elements thoroughly? You need to seek more evidence?)
- Now examine whether circumstance changes an issue, and how a particular issue (or event) is spoken of under different circumstances. Browse the nodes for the critical cells, writing in the relevant memos about what you find.
- What do these associations then mean in terms of outcomes (or consequences)? You might take case studies from the extremes of the outcomes, and return to all the material about each case to account fully for the ways that context is related to the phenomenon studied. Seek more detailed understanding of issues or aspects that matter particularly in the case, then look more broadly at these, across cases.
- Armed by this growing understanding, return to searching, with a matrix co-occurrence of the event/s by the outcome/s. Examine what happens (to both numbers and text) if the scope is changed to include only documents where particular circumstances are indicated (filter the document set by coding or attributes).



As you flick the scope and rerun the search, remember to record in memos what you are seeing, and to code the memos as you write! The facility to shift scope and look again allows rapid-snapshot viewing of data, but also requires careful recording!

Investigating exceptions

It is not enough to know that a pattern exists, one also needs to know when it doesn't exist. Does its non-existence in some cases mean that the pattern or “theory” in fact doesn't hold, or is there an explanation—an additional refinement to be made to the theory?

Perhaps you need to include additional variables in the analysis, perhaps all that is needed is to carefully read through a deviant case to understand why it doesn't fit, and whether that invalidates the earlier conclusion or not, or perhaps new data will need to be sought, to fill out and test that explanation for the deviance.

Deviant cases are precious in providing important clues that will help to refine a theory. Always check to see if there is someone or something that doesn't fit the pattern, then investigate that case to figure why that is so. Use coding stripes to surprise you. Which text coded at this node *isn't* coded at this other? Use the Search Tool to locate not only the data that fits, but also the exceptions. In which documents does this association not hold? Which cases don't contain coding from any of this set of nodes? (The relevant search is probably the Boolean Difference, or it may be a Node Lookup, scoped to documents *not coded* at a particular node.)

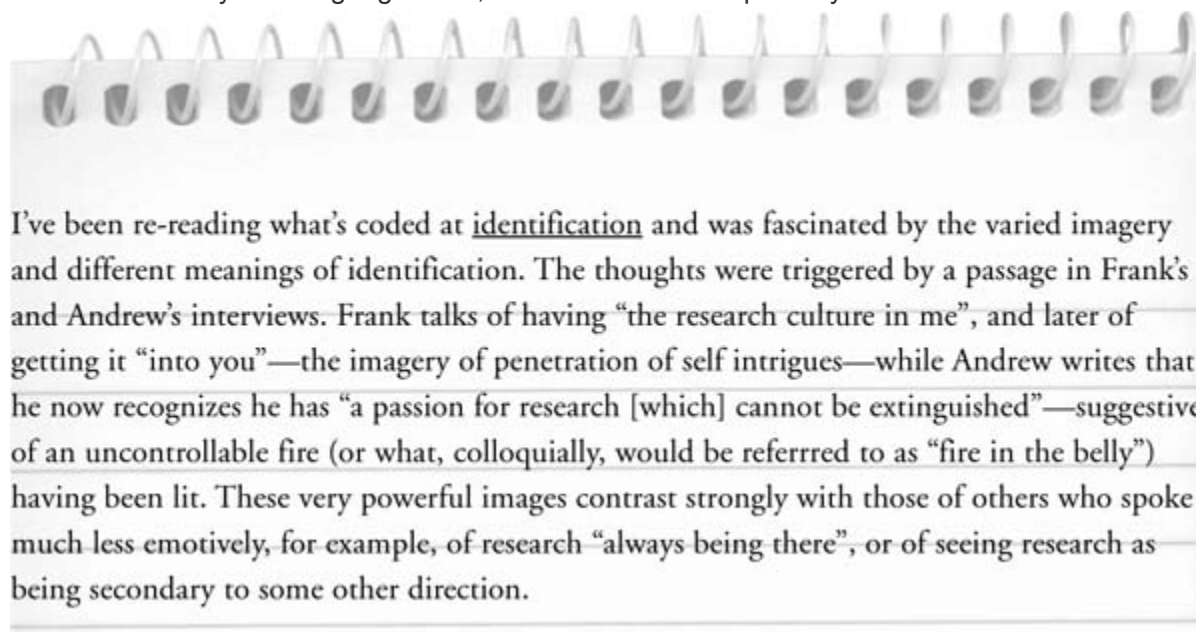
Fine reading, detailed understanding

The tools described so far rely either on coding of documents or on the content of text retrieved. Your project may have developed less by coding of content than by use of the other tools for fine examination and interpretation of text, exploration of discourse, or analysis of the processes and structure of narrative. Where the investigation is of the *form* of the data, the analytical goals will be different and the processes of getting there require other steps.

The researcher studying the form of expression will have exploited rich text editing, annotation, text search, and the ability to hyperlink, via DataBites, to external files. If the text has been finely annotated and linked to soundbites and photographs, how is this now much more complex data to be brought together as an overview is sought?

If you have relied so far on content coding, moving to fine detailed examination of text may assist you to achieve a different level of analysis. If your methods do not direct you in this way, you may find reading in discourse analysis or grounded theory informs. Both will direct you (for different purposes) to greater reliance on memos and annotations. Trace changes in discourse or emotion as events are retold, or during the course of an interview. To do this, annotate the text (in DataBites) or record peaks and troughs and changes in document memos (and code these so that all this information can be “pulled together” for further analysis).

Use color to draw your attention to powerful expressions or metaphors in the text. You may also find it useful to code for the style of language used, in addition to and separately from the content.



New uses for text search



Does the language being used tell us about experience or expectation? What metaphors are there, and what do they signify? In earlier Parts, text search was introduced as a mechanical way of finding occurrences of a word or phrase and coding them. Rethink it now, as a way of accessing the range of meanings of a word, and understanding them in context.

- Run a text search, scoped to the relevant documents, e.g. interviews, for a term that intrigues or puzzles you. (Customize results and spread to include paragraphs.) Browse the results node and note the range of meanings, examine how that word is being used in different contexts and write about its uses.
- Run a text search for instances of a word or string of words (remember the option for alternation) and scope the search to the node or nodes identifying an issue or topic within which these words seem significant. For example, when the worker is talking about the union, does he use “we-us” or “they-them” to refer to what the union does?

Using reports as data

If you make use of DataBites and DataLinks, you can exploit the ability to report on documents or nodes with these links showing as endnotes.

- In the Document Explorer, select a document in which your fine analysis of the text has resulted in embedded annotations or links to external files or NVivo documents or nodes. From the Node menu,

select Make Coding Report, and check Show DataLink details as endnotes. Click OK. View coding stripes to see which other nodes are associated with the annotated passages.

- The resulting report is a rich text file with numbers where your links were placed. At the end are numbered endnotes giving all text of your annotations and the details of other links to external files or NVivo documents or nodes.
- Save the document as RTF and it can be opened in rich text in your word processor— ready as a potential case study for the chapter or paper you are writing on this fine-detailed analysis.
- Now in the Node Explorer, select a node at which you have coded, annotated or linked data. Those links are live in the node. From the Node menu, select Make Coding Report, and check Show DataLink details as endnotes. Click OK.

These reports allow you to see and seek commonalities in the annotations. Your detailed commentary is now available for synthesis and development.

Insight, surprise and arrival

Being surprised is central to the qualitative task. We argued early in this book that all qualitative research is seeking new understanding from the data. To that end, data are kept rich, and access retained to context, as the researcher strives to find a new account of what is going on, a new synthesis of viewpoints, a new explanation of a problem or understanding of a process. Until the end of a project, the researcher is always seeking the unexpected, finding rewards in the unpredicted. Such moments are of great value in challenging assumptions, reviewing data, revising explanations and often in stimulating the bringing-together of a theory or an account of the situation studied.

Creating surprises

To *create* surprise is something of a contradiction. At this stage as a project consolidates, it also becomes more important. As your data processing becomes more confident, your node system more elegant, your coding more competent, there is a serious risk of routinisation. We have earlier warned against coding that becomes ritualistic. Here we raise an issue that concerns all qualitative methods: how to keep seeing your data anew?

Through this book we have described many ways to use NVivo to generate discovery, through editing and annotating text, “playing” with categories and developing concepts, seeking and validating patterns, asking questions of your data and working with the answers.

Using models for surprise



By now the models you sketched earlier may begin to look simplistic. Worse, they may seem to spatter ideas, rather than bring them together. If this is happening, revisit the model's interplaying tools for

grouping and layering. Groups are constructed in a similar way to layers, but are independent of them. These then give two different, crosscutting, ways of expressing how ideas go together. Try flicking between layers, selecting different groups. You may find that you see, for example, the ways that a group of cases repeatedly occur in different stages of a process.

- Select the items you wish to include in a group (probably while in the All layer): you can multiple select by using Ctrl-click.
- With your mouse cursor (arrow) located over one of the selected items, click on your right mouse button to access the context menu.
- Choose Group then New from the context menu. Provide a name for the new group. Repeat for a second group.

To add new items to an existing group:

- Select (highlight) the item.
- From the context menu, choose Group.
- Select the Group you want to add the item to.

To view groups:

- From the View menu, select Groups Palette (or click the  icon in the toolbar).
- In the Show Groups dialogue, check against the groups you wish to have displayed. Members of these will become highlighted in the model being viewed.

Use models both to assist in clarifying what you are seeing, and eventually to synthesise it so others can see it too. Attempting to present your conclusions in the form of a model at once reveals where links are missing, and “forces” you toward possible solutions, or pathways. Aim to simplify your model: often you will develop a very complex picture of the story you want to tell from your data, taking into account every detail you have explored. But then, a good theory has a degree of simplicity: can you identify the core of your ideas and present those in a coherent way that remains true to your data?

Different data

Built into many qualitative methods is the assumption that during a project the researcher will re-sample, using techniques of data-driven “theoretical sampling”. This means seeking new data when the growing theory directs that a new area be investigated.

Given the tools for data management in NVivo, the seeking of new data, from a different source or of a different type, need not be alarming. Attributes and sets can clearly identify the different data documents, and you have the ability to play one source or sort of data off against the other. This process may be another source of new insight. In the Researchers Project, for example, the focus group with students offered quite new meanings of research and interpretations of research motivation from those in the interviews with

established researchers.

Searching for surprises



In our detailed discussions of searches for pattern seeking and validating, we omitted to mention that often their most valuable role may be to surprise. Using the Assay and Scope tools alongside the search procedures, you will regularly be presented with results that are unexpected. The association *disappears* when the scope excludes those early interviews? Why would that be? The friction of such results too often merely annoys—unless you have methods for using and retaining surprises.

Using (rather than losing) surprises

A common experience in this sort of research is that the little occurrences of surprises are overtaken by the momentum of data processing. Odd ideas are forgotten, the results of unintended inquiries deleted, startling idiosyncratic discoveries overlooked in favor of consistent patterns. When a recurrence occurs (“Where have I heard that expression before?”) it may be too late to develop the link with the earlier surprise that was let go. But the advice to hold onto all surprises for ever would be clearly impractical, and the majority of surprises certainly do not promise a straight line to the research goal. Some odd ideas just are odd! So how can you manage surprise generation and retention in the next stage of getting there?

Storing surprises

Anselm Strauss remarked to one of us, “If it matters, it will come up again.” This is a controversial statement, since it implies that unique occurrences don’t matter. But here we are concerned with its other implication, that you need to know when something comes up *again*. There are many ways to use the tools of NVivo to store surprises.

- Make a node for Surprising! In its properties box give it a way-out number and it will turn up at the end of any List of all nodes. Code at it oddities and memos about them, and whenever you are stuck in your interpretation of a category or document you can ask to see everything in it that is also coded at the Surprising node.
- As you order categories into trees, make a set for all the nodes that indicate “odd” or surprising categories. As odd ideas or search results occur, include these nodes in the Surprises set. It will soon hold an amazing array of items, many of which should never see public display! But by storing them there you keep them safe, just in case that comes up again. If the idea recurs, it is likely to find a place in the main node system.

Memos as surprise holders

In many ways the strategies you adopt for qualitative analysis will be similar to those used for any analysis, with the most critical element always being the ability to ask questions of the data: “I wonder if...?” By now your memos are likely to be full of questions (clearly visible where color has been used to identify them), so reviewing the questions asked throughout your memos is a good starting place.

- NVivo makes a set of all memos. In the Document Set Editor assess the body of memos, and to ask questions of your memos. It may be a surprise just to find you wrote a memo on a topic that has reasserted itself as critical!
- NVivo memos are full status documents: are you coding them, so that you can query their contents? (For this core category: how often is there coding from memos at the node?) Filter the memos in the Document Set Editor, to find which have coding at important nodes. Profile the coding of all memos.

When is an “Aha” a final chapter?

All qualitative research methods involve arrival at an explanation or account that “makes sense” of what has been studied. Once more, we advise return to the methods literature for techniques and examples. Much of the literature suggests that “making sense,” or arrival, is a mystical process, beyond technical discussion, and so mystique may prevent your finding a pathway for your own analysis.

Making sense, or arriving at a conclusion, can mean many things to different researchers. Sometimes they are referring to discovery of a new way of viewing variation across the data that is quite different from those that were brought to the data or previously seen. The “aha” then comes from surprise, the significant missing link suddenly seen. But getting there is much more than getting a new idea. The process of arrival at an analytical end involves completeness and adequacy of explanation, not just surprise. From now on, your use of the tools in NVivo will be informed by the goal that things are to come together, relationships are to be uncovered or links explained, before the project's purposes are satisfied.

How will you know when an account is good enough? In the preceding sections we have outlined tools for testing and profiling, interrogating and interpreting patterns and themes in the data. We conclude with the tools for displaying, reviewing and reporting.

Showing and Telling

A crucial part of the arrival process is reporting—not merely at the end, to fulfil the requirements of the degree or grants body, but much more importantly to bring things together in your own mind. Finding an answer will always be assisted by writing as you go, by recording what you learn from each analysis, even if that was “nothing”. The act of trying to write it down and make sense of it all will prompt further questions and searching of data, until the focus is clear and you can see that you have a coherent story to tell. NVivo offers tools for attractive and sophisticated ways of telling the story, by visual display or printed report. Draft, redraft and then rewrite any account of the data, either in NVivo's editor or in a word processor. The process of writing is always clarifying (even if it gloomily shows that you still know too little to write it up!)

Memos are also data

Memos in NVivo and papers out of it may be the most useful pathway to a satisfying account. The following techniques and tactics may enrich your writing and enhance its contribution to analysis.

- Always treat memos as full status documents, and code and search them, so your ideas are data, appearing and/or contrasted with the data from other sources.
- Date memo edits to keep a project history in the memos of the central nodes.
- Use the ability to copy and paste text from a document or node into any other document (e.g. a memo) or to link Extract Nodes to build up full accounts of the data to support your interpretation. Note that the coding is preserved too, so that when you are discussing a passage from a document, you can view its coding as you write your interpretation.

Ways to display

Display and discussion to members of a team, a peer audience or supervisors may be the most immediate way of assisting the coming-together of your project. For this purpose, the modeler provides an unusual medium, a change from standard presentation formats. The display of your presentation can directly call the data you are discussing.

Construct a model that shows how you are interpreting your data currently. Now to make it a presentation tool:

- Use layers to show how your understanding has grown
- Add documents, including memos, and nodes to indicate the crucial data at different parts of the model.
- Within the documents in the model, use Extract Nodes to bring up the pertinent quotations and DataBites to run a sound or video clip.
- Add models of particular issues, situations etc. These nested models are live, like the documents and nodes, and can be opened at a mouseclick (or link to the previous model via a DataBite in the document that is live in the present model).

Now run it! The model contains the live links to all the aspects of the project you may wish to discuss. Click on them to display and illustrate as you give your account of the data.

Viewing a project

As your project develops, you may wish to have a colleague, client or supervisor view and explore it—without risking your work! Give them the NVivo Viewer, a free version of the software which (like the version in the back of this book) will allow any NVivo process except saving. Any of the tools explored in this Part can be

used by the person viewing a project as they review your categories and coding, read your memos, try new searches and evaluate your work. Prepare a document summarizing the issues to be explored and containing hyperlinks to the relevant data, nodes or memos: the person viewing can jump from these links to explore the desired aspects of the project. Alternatively, give access to the viewer via a model such as described.

Making reports

Text, numeric and diagrammatic reports can all be generated from NVivo to use in putting together your final report. As you prepare reports, ensure that you are using the advantages of rich text and the many modes of tabular display available.

Draw on your memos and Project Journal when recording your conclusions. Text can be copied directly from these into a final report using the usual Cut and Paste operations. As a first step in bringing it all together, try writing the story of your research or presenting your theory by building your argument for your conclusions from the data, but without relying on direct quotations from the data to say it for you. Having detailed the basis of each of your claims to analysis, you can then incorporate illustrative text from documents or nodes. This can be copied and pasted directly from the Browsers or alternatively, from a rich text report of a document or a coding report of a node.



If you are saving a text report so that it can be opened in your word processor, be sure to save it in .rtf format rather than .txt, so that you preserve any formatting in that text.

You can incorporate tabular data generated from profiles or assaying into your report. You might begin by using assaying or an attribute table to describe your sample, so that your audience can properly assess the significance and generality of your conclusions. Further assay tables in the body of the report may most succinctly show the patterning you want to demonstrate. Avoid generalities (“most,” “some”) when you can be specific (15 of the 17 reported...; 35% of these instances...). You might export your assay or profile first to a spreadsheet, so that it can be turned into a graph to illustrate a point you want to make, for example, about the changes in frequency of reference to something, use of a term, or differences across groups. Options for printing or exporting tables are found under the File menu within the Assay or Profile or Attribute Explorer windows.



If you are exporting tables to a word processor, change the tab settings, or the font style (to a monospace font) or use a Text to Table option to ensure that the tables “line up” neatly.

A model can be exported for inclusion in a report by first saving it to the clipboard (in NVivo), then pasting it directly, as a picture, into a word processor document.

Most importantly, when writing a report, paper, chapter or thesis, draw on the notes you have made

throughout the project to show how you have arrived at your conclusions. Qualitative researchers differ markedly in their thinking about what makes for rigor in qualitative research, but primarily it will boil down to how convincing you can be in showing how you arrived at the conclusions you reached.

What next to learn about NVivo?

Of course, there are many tools and many strategies not explored in this book. You will constantly discover more functions and techniques in NVivo from your reading of the books accompanying the software, from listening to other researchers discuss their strategies, from helping others with their data puzzles, from clicking around and experimenting, from reading the Help files (remember to press F1 in any window to get context-sensitive Help).

Please don't wait till you have learned everything in the software before you get on with your research. Your project is underway, and the tools you have now used will support a wide range of research strategies. If you have followed the steps through this book, your knowledge of the software is considerable.

The project isn't finished or the final report written. This may not happen for some time, but one way of telling the software tools are being used skilfully and even that the end is in sight is that at this stage, the questions are different, and the ways of asking them are increasingly accessible.

This book concludes with an Appendix of advice for preparing data—and our best wishes for your research.

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