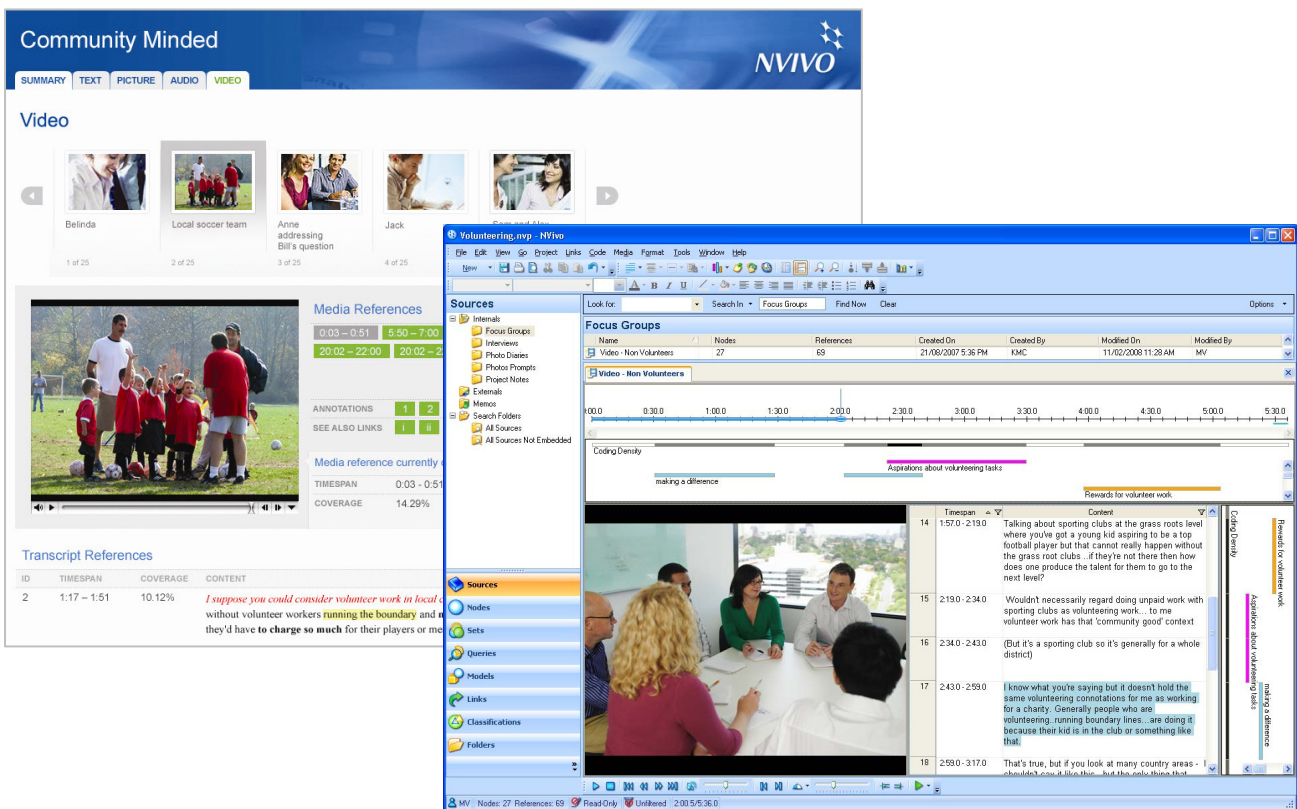


NVivo 8 Teachers' Handbook

This Handbook is a resource for those teaching with NVivo 8 software. It's designed to assist teachers of qualitative research who wish to learn about qualitative data analysis software and build software skills into their courses. It contains tips for preparing courses and helping students to learn the software.



The screenshot displays the NVivo 8 software interface. On the left, a 'Community Minded' window shows a 'Video' section with thumbnails for 'Belinda', 'Local soccer team', 'Anne addressing Bill's question', and 'Jack'. Below this is a 'Media References' section with a video player and a 'Transcript References' table.

ID	TIMESPAN	COVERAGE	CONTENT
2	1:17 - 1:51	10.12%	I suppose you could consider volunteer work in local... without volunteer workers running the boundary and... they'd have to charge so much for their players or me...

The main window shows a 'Focus Groups' table and a video player with a transcript overlay.

Name	Nodes	References	Created On	Created By	Modified On	Modified By
Video - Non Volunteers	27	69	21/08/2007 5:36 PM	KMC	11/02/2008 11:28 AM	MV

The transcript overlay shows the following content:

Time	Content
14 1:57.0 - 2:19.0	Talking about sporting clubs at the grass roots level where you've got a young kid aspiring to be a top football player but that cannot really happen without the grass root clubs... if they're not there then how does one produce the talent for them to go to the next level?
15 2:19.0 - 2:34.0	Wouldn't necessarily regard doing unpaid work with sporting clubs as volunteering work... to me volunteer work has that 'community good' context
16 2:34.0 - 2:43.0	(But it's a sporting club so it's generally for a whole district)
17 2:43.0 - 2:59.0	I know what you're saying but it doesn't hold the same volunteering connotations for me as working for a charity. Generally people who are volunteering, running boundary lines... are doing it because their kid is in the club on something like that.
18 2:59.0 - 3:17.0	That's true, but if you look at many country areas... I should've come at it like this... but the idea is that...

No two methods courses are alike. They vary in length, methodological focus and practical content. This Handbook makes no assumptions about the dimensions or methodological content of your course. The software tools discussed in this Handbook can be explored briefly or through long term projects, and support techniques of all qualitative methods.

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Chapter One: About this Handbook

QSR develops and supports two different software programs - NVivo, a powerful tool that helps you to manage, shape and analyze virtually any information in any language, and XSight, for those wanting to undertake simple analysis in a short time frame. While this Handbook is specifically for teachers using NVivo, some of the principles can be extended to working with XSight.

The chapter ahead discusses some of the issues teachers meet when preparing courses, and ways that they can learn the software. Chapter 3 provides ideas for walking students through the use of software in the context of methodological training. Chapter 4 details the resources you and your students can draw on as they learn. In Chapter 5 we provide specific advice on how students can access the software and in Chapter 6 we suggest ways of having students create or access data for learning in practice.

To assist teachers in designing courses to incorporate software, we provide a sample course outline in Chapter 7. Finally, a glossary is appended.

This Handbook is designed to be used alongside the many free resources available on the QSR website, www.qsrinternational.com

The NVivo 8 Teachers' Handbook is a revised version of the original Teachers' Handbooks for previous QSR software programs, NVivo 7, NVivo 2 and N6 (NUD*IST 6). Copies of these earlier Handbooks are available from QSR International upon request. Email: info@qsrinternational.com

Chapter Two: Preparing to Teach

The challenge of teaching with software

Over the past several years, many teachers have made the choice to incorporate qualitative data analysis software (QDAS) training in methods courses. These innovators have beaten paths through the demands of faculties, accreditation bodies, students and colleagues. Meanwhile, we have seen an increasingly common assumption amongst journal editors, graduate students and others, that software can play a role in qualitative analysis.

Especially for teachers whose own research has in the past been accomplished through manual methods, the need to place software tools in context is sometimes problematic. Teaching why and how researchers use qualitative methods, and teaching students to use those methods well, are significant challenges in themselves. These challenges grow even more extensive when courses include the philosophical basis of these methods, and the experiences of creating and constructing understanding and theory from data. This Handbook is designed to assist qualitative research teachers in integrating software into these complex and challenging courses.

What does this software offer?

A minimalist overview

Some readers of this Handbook will be skilled users of software, but many teachers set out to include software in curricula with no previous experience. The following introduction is for those who have never met the software, and are starting on the tasks of learning it as they build curricula that will include it. Throughout the Handbook, we assume that readers are familiar with qualitative methods, and may be teaching within any one of the many different qualitative traditions.

NVivo has a familiar interface and is easy to use. It's based on the understanding that qualitative researchers working in all methodological traditions handle data (in documents, media files and many other unstructured forms) and ideas about that data (emerging from the data, and being crafted into description, explanation, or theory). In NVivo, the basic structures of a project fit with the basic needs of the researcher:

- A project in the software has two fundamental parts, **sources** (the data, such as field notes and audio recordings of interviews) and **nodes** (containers, tags and connecting points for data). Sources are imported or created in NVivo as data are collected, and as memos and other materials are generated. The researcher creates nodes for themes, topics or categories relevant to the project *a priori* or as they emerge in analysis. You can see a list of your sources or nodes, and **view** the data from a source or when it is **coded** at a node.
- Qualitative researchers almost always use **coding** (by manual or computer methods) to gather all the material about a topic or theme. Working manually, they code by marking up text in colors representing categories, or copying and pasting to category folders or files. When coding in NVivo, they create references to passages of text or other data and place these at the topic's node. The software will then allow them to open that node to see all the data coded there. This data can be reviewed, recoded, or coded on to additional, new categories, as finer dimensions of the concept are developed.

- Qualitative data come in many forms. If the data are visual (e.g., videos, digital photographs or drawings), sound (such as audio taped interviews or music files), or text (whether in a Microsoft Word document, a .pdf file, or plain text), NVivo includes tools for viewing and coding these materials. Web pages and electronic and physical materials not suitable for importing, but can be represented in the NVivo project so that these too can be described and coded.
- Qualitative data records are usually very **fluid and flexible**, so NVivo provides tools for the researcher to edit and annotate their data records, and write **memos** as they develop ideas.
- A qualitative researcher typically gathers some basic information about participants (such as age or gender) which may be of special interest in the analysis. An NVivo project can facilitate this type of inquiry through the use of **cases**. Alternatively, the researcher might choose to store such information in memos for documents or nodes.
- Researchers can **link** data records and ideas, and use these links to jump to relevant material.
- **Models and charts** can be created to visually represent ideas about the project, and may also show project development. Models and charts in NVivo are linked to the data, so from the diagram the user can jump to the data described.

Learning from other teachers

Teachers successfully using software in qualitative courses suggest that it be integrated with the curriculum. Their advice is that at each step towards learning methods, the student should acquire the software skills necessary for the course goals, and an understanding of why a researcher would want to do this particular task on a computer.

Learning for teachers

If you have no previous experience of the software, you may wish to learn it ahead of your students. This section discusses what you will need to know in advance, how much learning time you should allow, and how you can get assistance as you learn.

What you need to know about the software

We are often asked, how much does the teacher need to know about the software? Of course, this depends on your teaching style. If you are relaxed about learning alongside your students, there is much less requirement for up-front knowledge, but you might also choose to learn the software yourself first. You will need to know where to take your students in the software, what tools will be relevant for the skills you want them to learn and which can be practically included in the time available, given the skills of your students.

This is not a challenge unique to qualitative software. In any area of computer use, good software will include far more tools than a course can cover, and students will become confused and may lose a sense of purpose and their motivation if too much class time is spent getting lost.

In general, we suggest that the teacher needs sufficient familiarity with the software to achieve the following before the class begins:

- A clear overview of how the software works with data, and how the tools work together, sufficient to allow you to integrate the software with your methods curriculum.
- Experience of having used the software (preferably on data of interest to you) to be able to provide real examples of what the researcher can expect from using these tools.
- Sufficient competence with the basic software functions to select which tools will be used in which class and which will not be taught at all.
- Familiarity with software supported processes so these can be mapped into the course. When you have a map of the paths a project can take, it will be easy to design the class exercises so processes are learned in a useful sequence, and students will gain confidence that the classes are leading to a methodologically useful conclusion.

Working with co-teachers and tutors

Team teaching with software can be both fruitful and potentially problematic. Division of tasks works well, but only when all members of the teaching team have sufficient understanding of all those tasks and the ways they fit together. If you are the lead teacher presenting the overview of qualitative methods, and other tutors or graduate students are conducting practical classes, the integration of methods teaching and software skills will be more difficult. To avoid having the students see methods and software as different challenges, your team needs shared knowledge of the software and good communication. It may help to work through the exercises students are doing, for example, in order to most effectively incorporate their learning from practical sessions into your teaching of research goals.

Where to learn?

Like any users of the software, you and your teaching colleagues have many sources of assistance in self-teaching. Some of these come with the software and others are freely available on the QSR website, and they are listed in the next chapter. But many users, and especially teachers, are helped by working with someone who is already skilled with the software. If you want hands-on assistance as you learn the software in preparation for your class, there are workshops and people around the world providing direct teaching of NVivo. QSR both teaches workshops and provides consultancy. Many of the other skilled trainers and consultants worldwide will provide workshops at your site, one-on-one consultancy in your project or email assistance as you progress. They may also visit classes to demonstrate the software. Some offer email consultancy as you teach yourself. All of these resources, including contact information for consultants and trainers, can be accessed from the *Training and Events* page of the QSR website: <http://www.qsrinternational.com/training-and-events.aspx>

If you have difficulty locating the teaching you need, or wish to know more about workshops and conferences, email QSR's training team: training@qsrinternational.com

Chapter 3: Approaching a Student Project

This chapter offers tips for starting the class. How you begin will be determined by the goals and level of your teaching, but these are some hints that have helped other teachers.

Introducing students to the software: beginning with “why?”

Some teachers suggest that the best introduction to qualitative research with software is in terms of what the researcher is trying to do and how the software can assist. It is helpful to teach the features of the software with a sense of *why* one would want to reach for them. So the teacher will usually wish to provide:

- A very clear overview of how the software works. Experience suggests that it is important for teachers to be able to “tell” the software to students, to give an account of what it does and how. This overview will be their reference as they learn each process. (The “minimalist overview” in the previous chapter may be helpful.) It is worth carefully preparing diagrams or notes students can refer to. Early picturing of the software, with an overview that is uncomplicated and interesting builds later confidence.
- Your own experience of using the software may be the best introduction to the processes students are about to learn. If you have such experience, consider preparing the overview as a presentation that tells the story of a project developed in this software, using your own research as an example. Alternatively, you might tell the story using the sample project that is installed with NVivo on the topic of *volunteering* (“Volunteering.nvp”).

Introducing students to a project

If your students are working with their “own” data, rather than the sample data provided with the software, they will be helped by an early session encouraging them to think (as any researcher would need to) about the following topics:

Thinking about research design

Whatever the focus of your course, if you are teaching with software, you are probably teaching how a project can be designed and the processes by which it is conducted. If this stage of designing includes planning for the use of software, students will more confidently move into projects.

A good way to start is to import a research design, a research proposal, or literature review into the new project. Learning as they go, students can handle this document as a source of first ideas. If they code it, creating the nodes for each of the important topics in their proposal, they will see a framework for analysis commencing. Now the project is started, and the student will always be reminded of those early ideas when they later look at all of the material they have coded on a topic.

The next stage is to determine whether the project is investigating specific **Cases** and, if so, what these are. For example, the student may be interviewing individuals, focusing on specific organizations or looking at particular groups. For projects such as these, the individuals, organizations or groups would become **Cases**. Since Cases are a type of node, students are able to store all information relevant to each case to make it easily accessible.

Thinking about the ideas or concepts that framed this project

Many teachers agree that one of the greatest challenges of teaching qualitative research is showing students how to manage and use their ideas about their material. Learning the ways in which ideas, categories, and even theories, can “emerge” from data, and how to manage them when they do, are the primary tasks.

In computer assisted work, as in many manual methods of analysis, the ideas will sometimes precede data exploration - they will come from reading, prior knowledge or hunches. Once data exploration and coding is underway, more ideas, usually the crucial ones, will be created “up” out of the data.

NVivo allows you to rapidly create nodes to hold ideas and coding. So, nodes can be made up front, or at any later stage, whilst thinking about and coding data. They can be organized into hierarchies or “trees”, creating a logical index system.

Along with Cases discussed above, other nodes are created for more conceptual ideas and topics as the project progresses. If some nodes are made early in the project, you will find students more confident about proceeding with the idea - generating work as they read and explore their data. Once the student is confident that coding will not be lost by moving and merging nodes, it is easier to teach the flexibility of qualitative conceptualization.

Students can start by creating the nodes they know they will need. It is helpful, too, to start students thinking about the logical groupings of early categories. Early in a project, they can make trees of the nodes that go together, such as the different issues covered in interview questions (like curriculum, communication and support). By organizing these early nodes logically, students will be prepared to use them later, making it easy to find an existing category, or to recognize when a new code is needed to hold new themes discovered in the data.

Thinking about data

For course programs, most classes will be assisted by having small bodies of accessible data, and the students will be motivated by learning fast ways of processing their records as a project progresses. NVivo handles Microsoft Word (.doc and .docx), Adobe Portable Document Format (.pdf), and rich and plain text documents (.rtf and .txt), audio files (.mp3, .wma, or .wav formats), video and media files (.mpg, .mpeg, .mpe, .wmv, .avi, .mov, .mp4 or .qt formats) and images in .bmp, .gif, .jpg, .jpeg, .tif or .tiff formats. *See Chapter 6 for ideas on possible sources of data.*

Qualitative materials can be long and unwieldy, and the researcher with such materials will have to consider storage and access. Very large audio and video files can be stored outside the NVivo project but handled seamlessly in the coding process, just as if they were contained within the project file. Some large documents, like books or reports, may be stored on a bookshelf, but any such record can be incorporated in the project via an **External** that summarizes the key points. The ‘external’ can be coded, so relevant material can be retrieved from it and a memo can be written about it. You can also hyperlink to a related file (if it is on your computer) or website to enable you to access it easily.

Working with non-English languages

NVivo is currently available in a range of languages including English, Spanish, Chinese (Simplified) and Japanese. This allows students to work with menus and help screens in their native language. However, NVivo handles *data* in virtually any language, not only in documents but also throughout the analysis process - in searches, names of nodes and attributes. Students can therefore work with data in a number of non-English fonts including Asian languages. To enable students to work with a particular language, it needs to be installed on their computer. Information on installing languages on computers can be accessed through Microsoft Windows Online Help.

Thinking about format

Please see notes on preparing data for use in the software, in Chapter 6. As you approach a project with students, they will need to think about how the data will be best formatted for import into their project. In most cases, for short classes, it is best to provide at least part of the data already formatted for input so that learners can quickly start to get familiar with the look and feel of the software. Plan to go into the details of formatting the documents later on when there is a suitable motivation for discussing it.

Students should:

- 1 Check that their documents are in Microsoft Word (.doc, .docx), rich text (.rtf), plain text (.txt) format. Please note that while Portable Document Format (.pdf) files can be imported into NVivo, the types of .pdf files add complexity that may be best avoided in the early stages of learning the software. If you'll be working with materials other than documents, such as audio or video files, check that they are in the formats specified on the previous page of this Handbook.
- 2 Look at the natural segments of the data. NVivo can find and show a paragraph or a chunk of text bounded by headings for example. Paragraphs occur naturally in documents, but headings have to be specified through the use of heading levels (see notes on preparing data in Chapter 6). If headings are used:
 - a. The program can display the heading level context of any retrieved text
 - b. The program can autocode data (automatically group together all of the answers to each interview question for example), using the relevant headings.

Thinking about types of information

Will the student have categorical information, such as demographics, about people or places or sites? If so, will they want to ask questions using this information (e.g., how different were women's and men's accounts of this process?)

NVivo can import data characteristics rapidly from a table (including those generated in Microsoft Excel, Microsoft Access, or statistical programs such as SPSS) which are then automatically assigned to the relevant Case.

Thinking about teams and sharing data

You can use the import function to bring together projects from different class members, stages or sites, for comparison or for asking bigger questions. If you wish students to merge projects later, it is important to discuss in class the strategies to make the merge as smooth and as useful as possible. (Will an initial set of nodes be shared? How will new nodes be identified? Will editing of sources be permitted?)

Should you teach project merging?

For most students, and many researchers, working qualitatively is a very small-scale, individual task, but qualitative research is also often comparative, and in the classroom setting, comparison may be very informing. In a class, you may wish to show students how to use software to bring their different projects together. NVivo allows project merging to provide a bigger picture or a fine comparative analysis. A team of students can merge projects together and continue in the combined project individually, or use the larger project to compare and discuss the work of different individuals or groups, allowing them to ask questions about data and the analysis project across the whole merged project.

Note: While any number of projects can be merged, it can be time consuming to merge more than a few projects because the program merges one project at a time into another. *Always make a copy of each project before merging.*

Advantages and challenges of merging projects in a course

Merging projects in a course has **advantages** for the students:

- They can build a project collaboratively that is more substantial in the volume of data and more varied in analysis.
- They can compare and evaluate their different concepts and interpretations.
- Merging projects can allow students to check similarities and differences in their coding, and provides several ways of displaying and discussing issues of coder reliability.

Merging also comes with **challenges**, primarily in terms of time demands and complexity:

- Whilst the software's merging processes are very rapid, the up-front preparation for merging takes both time and understanding of the process. Students will need to plan and prepare projects with a view to identifying common categories (so the data stored at them will merge) and other categories that are intended to stay separate.
- Interpretation of merged data requires careful communication. Assisting the students in identifying their differences in analysis requires discussion of the different meanings given to concepts, different coding styles, and other issues.

Thinking about project storage and backup

Sometimes, students who are not confident on computers lose work, or don't save their project, despite warning messages from the software. From the very beginning of their project, they should be taught to back up both the original data and the growing project. We suggest:

- 1 Once the students have created a new project in NVivo, they should locate the NVivo project file (.nvp) on their computer.
- 2 Once the students have imported materials into the project, they should store a separate copy of the original materials in another location, not on the same hard disk. This is a safeguard in case they change or delete files (NVivo allows editing) and later want to return to the original.
- 3 From the first day of a new project, students should save backups. NVivo projects are a single file so they just need to be copied (using the File > Copy function within NVivo or outside NVivo in Windows Explorer) to another location. Remind students that a true backup must be in another physical location, not just another folder on the same hard disk. This ensures that it is safe in case of a hard disk corruption. A good practice, and a way to make sure the message really gets across, is to make students try to open their project from the backup in order to make sure their backup strategy is functional.

Undo

NVivo has a feature which allows students to explore their data with confidence - the Undo function. Undo enables users to retrace up to five steps back from where they are and is easily accessed throughout the program. Students should be cautioned, however:

- There is no "redo," so once something is undone, it must be redone manually.
- Regardless of the number of steps since, NVivo can only retrace back to the researcher's last save of the project.

Chapter 4: Resources

Accessing the software: is there a site license?

For many teachers, the institutional availability of one software program makes this decision easy. (So long as they are covered in the site specified, your students can use the software for free. Lab workstations can be loaded for class sessions.) So first, check if yours is one of the more than 500 educational institutions with such a license. For any questions concerning site licenses, please contact info@qsrinternational.com

There are many sources of help as you learn the software and teach it to your students. This chapter briefly introduces you to the online resources, documentation and other texts you can use in your course materials.

Using online help and tutorials

NVivo comes with comprehensive online help. **Using the Software** offers functional help while **Working With Your Data** is conceptual in nature. To explore the online Help available, go to the Help menu and choose NVivo Help. Access to the online help is also available from any dialog box in the software.

NVivo also has animated tutorials to show students through the main features of the software and sample data for practice. Both the raw data and a more 'grown up' project are provided to help students at different stages. Again, these tutorials can be accessed via the Help menu in NVivo.

Software guides

A **Getting Started Guide** is provided inside the NVivo 8 software box and is also available for download from the QSR website. The comprehensive online Help mentioned above, is also available from the QSR website in a printable PDF format. Refer to the 'Getting Started' section of the QSR website: http://www.qsrinternational.com/support_getting-started.aspx

QSR's support team

QSR's support team will answer questions about technical issues with the software such as installation issues. Visit the website for information on how to contact support: http://www.qsrinternational.com/support_contact-support.aspx

If you're not using the software as part of a site license, you might consider purchasing an annual software maintenance plan. This plan entitles you to receive major software upgrades released within the year of coverage at no additional cost, as well as unlimited email and telephone support for virtually any QSR software issue. Find out more about software maintenance from the QSR website: http://www.qsrinternational.com/products_maintenance.aspx

Using the QSR Forum

QSR's online forum is used by thousands of QSR software users - from beginners to experienced researchers - to learn and swap useful information, suggestions and solutions. Anyone can view the QSR Forum, including you and your students, and it's free to participate. All you need to do is register to create an account.

Access the QSR Forum from QSR's website: http://www.qsrinternational.com/support_forum.aspx

Chapter 5: Student Access to the Software

Working with the trial software

The 30 day trial version of NVivo 8 available for free download from the QSR website may be used for teaching purposes. It has full functionality and allows projects to be saved and is operational for 30 days. If your course needs access to the program for longer than 30 days and your organization does not have a site license, please contact QSR International via email at info@qsrinternational.com

Working with the software under a site license

If you are teaching at an institution that has a site-wide license, the software agreement should allow for the software to be installed on the teaching computers. If you are at a site that has a departmental or 'small' site license and this license doesn't cover the teaching computers, one option is to request a time-limited license for your teaching laboratory. Contact info@qsrinternational.com for information.

Installing the software

NVivo is easy to install and involves following a series of prompts. Before installing, ensure that the computer meets the hardware and software requirements. These are detailed on the QSR website in the NVivo 8 section.

The **Network Administrators Guide** which is freely available for download from the QSR website provides detailed information to assist Network Administrators with the installation, activation and roll out of NVivo.

Keeping the software updated

QSR releases 'service packs' from time to time and these are provided free to all NVivo users. You will be notified via your software when a new service pack becomes available. Check that you're using the most up-to-date version of NVivo by opening the software and choosing **Help>Check for Software Updates** from the menu.

Chapter 6: Data for the Classroom

The first hurdle faced by novice qualitative research students may be coming to understand that unstructured data can be systematically analyzed and that they can create new knowledge from such data. It is therefore important that the topic being “researched” is relevant for the students. Students can create their own data records in interviews or field research, and make their own projects and analyze their own data, either individually or as a class. One of the advantages of teaching qualitative research methods with NVivo is that students are able to create data within a project, altering data records as the project grows. Data documents can be explored, browsed, and edited as the project proceeds, and students can experience how analysis blends with data collection in qualitative research. Design of your course will be easier if you are clear about the types of data best handled by the software you will be using. Visit the **Sources** section in the online Help to check the sorts of records that can be handled, and the (minimal) preparation required.

What data records are available?

For teachers who want students to handle “real” data, the availability of appropriate data is important. Whatever the method of making data, ethical constraints will apply, and clearance for creating and using records will be necessary. Ethics requirements will normally delay or prevent access to data from real social settings for teaching purposes.

Do-it-yourself data records

Some institutions permit teachers to use data created by students’ own writing (although care must be taken that personal material is not provided unwittingly). A substantial body of data can be created in a class if all students contribute a few documents. Successful courses we’ve heard of have built data through the following activities:

- All students recording their reflections on computers and their attitudes to computing
- All students writing of their family life
- Each student downloading an advertisement on an agreed theme and recording their perceptions of this document
- Each interviewing another student in the class on their career aspirations
- A week’s “diary” from each student of their interaction with their social network - a project on the give and take of social support

Public data records

There are many very public sources of interesting qualitative data for research and teaching purposes, and these will normally be available online, so require no transcription, and are not protected by copyright if used without publication. Sources include websites for:

- Public figures (e.g. politicians) - their sites usually are an excellent source of publicly available texts from news conferences, speeches and other public documents

- Newspapers (e.g. study the coverage of the same event by different papers), professional associations or public companies (e.g. a class in Business Studies conducts a study of company mission statements).
- Literature sites may give online texts from published sources, avoiding the need to transcribe.
- Web texts can be copied to the clipboard and dropped into NVivo for analysis. Whilst use of website texts as data can be ethically acceptable, use of texts from email discussion lists or chat rooms is problematic. Most lists, and most ethics committees, properly require permission that can be extremely time-consuming.

Prepared data

In courses where time does not permit data collection, the sample dataset provided with NVivo is available to be used for class exercises.

Using the teacher's projects

It is of course possible, pending ethics clearance, to create your own prepared project, using some of your own research data. For many teachers, this is a highly attractive option, since their familiarity and commitment to the project best conveys the excitement and value of working qualitatively.

Such data might be in the form of:

- Typed up literature summaries or discussion papers on the topic. Literature reviewing is a qualitative task. Be sure, however, that these are rich summaries, not merely publication abstracts.
- Pilot interviews (with all identifying information removed) with a proposed interview schedule or range of topics.
- Data from a past project or a colleague's project in an area pertinent to the students' interests (again, with a careful revisiting of ethics protections prior to creating the project for sharing).

Rapid data gathering

Courses often require that students experience making data as well as handling it with software. For the teacher, this presents challenges of time and focus, and NVivo provides ways of speeding data input.

Beware of requiring that your students transcribe tapes. Many teachers have reported frustration that if students are required to do a serious data collection exercise and then to transcribe the results, the course can be over before the data are ready for analysis. Instead, you may wish to have students import an audio recording and transcribe *portions* of it in NVivo.

NVivo and data from the clipboard

Data created by email or web searches can easily be copied and pasted into NVivo. If you wish your students to handle their own data, this may be a rapid way of building data records, without the need to have tapes or field notes transcribed. Any email message or selection from any other program can be copied and dropped into an existing document in NVivo.

NVivo and field notes data

NVivo is particularly adapted to the needs of field researchers, since it supports creation and editing of rich text documents that can be coded and altered in the program. The ethnographer can type up field notes, coding as they go, and linking to other records. Many teachers have found this a particularly attractive way to get students started in the software. Most teachers can arrange the class creation of a field research project (participant, or non participant observation, taking and analysis of notes) within ethical and practical limits of a class exercise.

How much data?

For almost any qualitative course, students will not need (or want) bulk data. The bulk of data will prevent them clearly seeing what they are doing. They will, however, need data of sufficient interest and quantity to try out the software tools and techniques.

For a brief course, 6-10 moderate length documents, or fewer if they are very long, will often suffice. A few photographs, a brief video, or an audio recording of an interview can provide students with additional experience in working with media files in NVivo. It's usual and helpful to build a project from the start, with the ideas and nodes for them growing from just a few materials, and being developed as more are added.

There are few requirements for preparing materials for NVivo, but knowing them now will save your time and your students' time. The main preparatory steps facilitate the import of documents without complications, and the use of tools for automating coding or information storage.

- Format text documents to show the sections which will represent the structure of a document.
- Save or convert all files into a format compatible with NVivo. Accepted formats for text, image, audio and video files are listed on page 9 of this Handbook and in the online Help in NVivo.
- Store any demographic information or other characteristics of participants or sites in table form ready for import.

If you convey these instructions, students will easily prepare their data adequately.

Preparing data

The student needs to know how to prepare the data records to maximize advantage. This is a matter of formatting text so it will appear as required in the program, and preparing non-text records.

Preparing to save

Text records for NVivo are typed in a word processor and saved as Microsoft Word (.doc, .docx), rich text (.rtf), plain text (.txt) or portable document format (.pdf) - or created in the NVivo project. They can contain both photos and tables if required, but there are advantages to importing photos and other images directly as Image Sources.

The following checklist outlines the main requirements for formatting documents for NVivo:

- Some features of Word documents will not be imported (e.g. labeled line numbers, headers/footers or endnotes)
- As a default, when a file is imported, NVivo gives it the same name in the NVivo project.
- Save your documents in Microsoft Word, using formatting (e.g., font, bold, italic, color) to express meaning, identify a change in speakers or other helpful information.

Using headings

The one formatting question to ask as you prepare data is whether you can divide the document by using headings. Most researchers can. NVivo recognizes any text that has been formatted as a 'Heading' using heading level styles. Headings can be created in Microsoft Word before import or created in NVivo. Up to nine levels of headings are recognized by NVivo.

If the data has any regular structure, such as prepared questions, or alternating speakers in a focus group, the use of headings will enable "autocoding" using both the text search feature and the autocode tool. If you wish to teach this tool, advise the students to check their data for structure that could be usefully mechanically coded.

Using media files

Audio, video and image files are imported with a process identical to that for text sources. The researcher must decide whether to "embed" media sources (incorporate them into the single project (.nvp) file) or store them outside the project file. Functionality within NVivo is identical, regardless of the decision. If files are not embedded, the researcher must take care to distribute the non-embedded media files along with the project file when sharing with classmates, research team members or a dissertation committee.

Using other non-text data

NVivo links to web pages and non-NVivo files (such as SPSS output or data files or Microsoft Excel spreadsheets) if they are on the same computer. Specifically, 'Externals' are used to represent them. These links should be made from the document inside NVivo. Hyperlinks created in Word documents before importing will require editing before they become functional in NVivo.

Using information about respondents, sites etc.

If a project has demographic information about interviewees or facts about research sites or events students would like to use as analytical categories, they can be prepared in table format and imported into NVivo. This information is handled in NVivo as **Attributes of Cases**. Attributes are created and viewed in a manner very familiar to students who have used spreadsheets. For small sample studies, it is simple and attractive to assign the relevant value to each case as it is created.

Using attributes to store information from an early stage will assist students in querying patterns or seeking clues to differences in the data.

Chapter 7: Course Outline

This chapter is sufficiently general to be used in a variety of courses. The course outlines refer only to the process of introducing software tools, not to the methodological context where they will be used.

We are often asked for sample outlines, but we know that for teachers, the challenge is to design the course appropriate for the context and the teacher's own methodological interests. You, your setting and your students will decide how the topics are tackled. So here we offer a generic outline to use as a checklist as you prepare for your class. Please adapt it as appropriate.

Whether the course runs for one day or extends over several months, this outline introduces the essential tools of NVivo in a sequence that makes sense of the qualitative researcher's task, guiding the student into skills in a logical order. Each topic can be expanded as appropriate, introduced and concluded with discussion and tackled with practical exercises responding to the needs and interests of the group.

Planning student projects to assist software introduction

One of the challenges of teaching software, especially in a large class, can be that students rapidly develop very different projects according to their interests, capacities and commitment to the task. If you are planning student exercises on the computer, it is important to ensure that all students will have sufficient usable data for the exercise. Some tricks we have learned are:

- Supply at least one common document for import into all students' projects (e.g. a methodological document or a course outline) so they will all be able to open that document. Ask them to code or find something in it.
- Whatever the method being taught, students are challenged by the concept of creating ideas "up" from the data. This can be clearly demonstrated if students are encouraged to create nodes for new ideas and concepts in a coding session on a document, then view the results of their work in the list of nodes. Most students can then see ideas "emerging" from the data, go to each node to look at what is coded there, write a definition, merge it with a similar concept and so on.
- Early in the project, a valuable exercise is to have students compare the node systems each creates from coding identical documents. In discussion, if these are combined, they will get a sharp picture of the processes of interpreting and working with concepts.
- Querying is very frustrating when nothing is found. To ensure that a query will have results, teach the Text Search tool first. A text search can be used to code all the finds and some surrounding text, thereby gathering all this material at a node. Just a few nodes of this type make it much more likely that the student will have something at a node to support a later Coding Query.

When undertaking this exercise, ensure that every student does a text search for a relevant word that is sure to occur, and whose occurrences matter to the project. Check that the finds are spread to a useful context (e.g. paragraph) and that the option to save the results as a node has been chosen. Students should visit the results folder, open the results node, check its contents and rename it, then move it to a sensible place in the node system. Now when a coding query is taught, there is likely to be a useful question to ask about that coding of the text search.

Sample NVivo Course Outline

Introduce each other, the methodological context and NVivo

If the students are to make their own data, the process of research design and interviewing, field notes or other skills will start the course. Teachers recommend starting a project immediately in NVivo, perhaps with a first Proposal or Diary document.

Starting a project - by writing, thinking, noting and modeling

Create a project: The idea of a project. Introduce project areas via Navigation View. Locate and save a copy of the new project file (.nvp).

Create data: Students can start simply by making a new document in NVivo, using the Detail View as editor/coder. As they write, they can think about what words they would like to code, and use color and fonts to show emphasis.

Import other data as Microsoft Word or rich text documents, or audio, video or images.

Reflect on these first data records: reading and thinking and talking.

Create a Model: Some students will find the graphic modeler a powerful tool to explore and express their initial ideas about the data or a research question.

***Discussion:** The data of qualitative research; what is data, and where do data records come from? How they grow as ideas are generated. What are some advantages and disadvantages of verbatim transcripts?*

Ideas emerging

Ideas that come “up” from the data: Create In Vivo codes using the words in the text. Make new Free Nodes naming them in the coding bar.

***Discussion:** Qualitative coding and its functions. “Emerging” understanding - and what to do with what emerges. Using the node as a container for concepts. Coding as a way of creating pointers to data and gathering everything on a topic, to revisit and review.*

Data that grows: Edit while you code. View what is happening by showing Coding Stripes and the Coding Density Bar. Open nodes to see the material coded there. Explore the appearance of text and media within nodes.

What’s going on in this data? Read and annotate: **Add annotations** and open them to enter more text as more ideas occur.

Manage data early: Organizing documents and ideas with folders, sets and nodes

Managing sources and nodes. Exploring the List Views. Using Properties to describe and rename.

Keeping track of emerging categories: Shifting and organizing nodes into **Trees**. Using cut, copy, merge to change nodes and the node system.

Managing documents and nodes in **Folders**, adding items as needed. What groups of data will the student want to access for this project? Grouping together different types of project items into **Sets**. What would be useful to have in one place for easy access or querying?

***Discussion:** Data management vs flexibility: how can we create efficient ways of handling inherently unstructured data?*

Managing information and using it

What do you know about these people or places? Do you need to create **Cases**? Introducing the idea of **attributes and values** to store information, such as demographics and use that information for gathering and discriminating data.

***Discussion:** What do you know and what will you need? Folders, sets and attributes: three ways of managing your materials. Which strategy for which purposes?*

Revisit via the Navigation View – The student now understands sources and nodes, how to create nodes in many ways (none by traditional coding!) and Sets.

Thinking “up” from the data: qualitative coding

The many ways of coding, and what they do. A good way of building discussion is to suggest students revisit the Free Nodes made earlier.

Open a node to see coded data. Use the tools (accessed through right-click) to show **context** and to **jump** back to the source material. Should more data be coded here?

What to do with the coded material? Keep thinking! Use the live Node for reviewing what’s there, reflecting on the material being gathered, then continue coding from within the node, refining codes, exploring dimensions of a category. Viewing the data already coded, reflect on the different dimensions of this category. Perhaps the student now wishes to create finer categories - new nodes can be made using the Coding Bar or the Coding menu.

***Discussion:** Viewing, reviewing, rethinking, recoding - qualitative coding and its many purposes. Coding-on to new categories as a way of theorizing. Over coding and its risks.*

Growing and assessing your ideas

The many ways of making nodes. Creating and organizing them *a priori*, or during coding.

What to do with the nodes? Keep exploring! Moving nodes into Trees to make index catalogs as they build up. Using Trees to show ideas forming.

***Discussion:** Viewing, reviewing, rethinking your node system. Keeping it simple and usable.*

Creating relationships

Explore connections between project items, create relationships to represent these connections and code evidence for them at the node.

What to do with the nodes? Use the Find tool to explore the relationships to particular item(s), use the Modeler to demonstrate them.

***Discussion:** How does being able to create relationships and code evidence for them change what is possible? Why doesn't NVivo populate a Relationship node with the contents of its component nodes?*

Linking and thinking

Links and what they do.

Memo links: Link a memo about a source or node to that item.

See Also link: Link one project item to another.

Annotation: Link a comment about a piece of text to the text.

Hyperlinks: Link to **external files** and web pages.

***Discussion:** Linking and coding - different ways to express the relationship between data and idea. Memos as data; where and how to write and use them.*

Doing the clerical work quickly

Importing attributes: A clear case for automating! Create a casebook. Bring in information from a database, spreadsheet or a statistics package. Export to those other packages.

Automated coding for rapid data access.

Autocode: Use this tool to automatically code the sections the student has marked with headings. (All the answers to each question, or everything said by a speaker in a group.)

Text search for coding - finding strings of characters, using wild cards, choosing context to be coded.

***Discussion:** The types of coding, the distinction between descriptive and analytical coding. When it's appropriate to automate coding, and when it's not. How to choose the best techniques for your data and methods.*

Introducing finding and querying

Meeting the **Find** tool. Looking for specific project item(s).

Discussion: *When to use the different types of find: Simple, Grouped, Intermediate and Advanced. What sort of items be found with each type?*

Meeting the **Query** tool. Looking *within* the contents of project item(s). The types of queries: word frequency, text search, coding query, matrix coding query and compound query and what each does.

Results: Choosing between previewing results and saving them in different ways. Viewing text and media results.

Discussion: *What sort of question would each type of query help you answer? How might an advanced coding query be used to accomplish fine coding of a node? What are the benefits/drawbacks of each results option?*

Modeling it

The **Graphic Modeler** and what it can do. Using it to discover and display what you're seeing in the data. How to place items and arrows and what can be done with them. Moving from the model to the data, using the live links to data items. Using **Groups** for qualitative modeling (e.g. a different group for male and females, or a group for each stage of interpretation of the data.)

Using **Properties** to make appearance meaningful - change color and emphasis visually.

Discussion: *Qualitative modeling and the use of diagrams in different interpretive methodologies.*

Reports

Ways of presenting research to the class or in written reports

Summary reports for different project items.

Exporting project items to show their text, audio, video and image contents.

Model for live presentation of findings and the evidence behind the conclusions.

Use the **Chart Wizard** to visually present your coding or display your matrix query results.

Glossary of Terms

Advanced Find	Facility used to find project items based on specific criteria. You access Advanced Find by clicking Options on the Find Bar (at the top of List View).
Annotation	Text that can be linked to selected content in a source, just like notes scribbled in the margin.
Attribute	A variable representing a characteristic of a case, such as gender, age or location.
Attribute Value	A characteristic of a case. For example, 'male' or 'female'.
Autocode	A quick way of coding that uses heading styles or paragraphs to create nodes.
Case	A participant, site or other entity within the project. Cases are special nodes which can take on attributes such as gender or age. Like tree nodes, case nodes can also be organized in hierarchies.
Casebook	A matrix displaying cases, attributes and attribute values. You can create cases, attributes and values in NVivo or you can import them from a tab-separated text file. To open the casebook, on the Tools menu click Casebook > Open Casebook.
Coded At	When you select text and categorize it as belonging to a specific node (theme or idea), the text is said to be 'coded at' the node.
Coding	Selecting source content and defining it as belonging to a particular topic or theme. By creating nodes and coding at them, you can catalog your ideas and gather material by topic.
Coding Context	The words, paragraphs and heading levels that surround coded text. When exploring a node, you can choose to spread coding to the selected context.
Coding Density	Areas in which most coding occurs. The Coding Density bar is visible when you display Coding Stripes. The color graduations indicate the coding density from light to gray (minimal coding) to dark gray (maximum coding).
Coding Reference	An occurrence of coding. When you open a node, you can see all the references to source material that are gathered there.
Custom Group	A model group that you create. You can include shapes and connectors in the group and show or hide them as required.

Detail View	The bottom-right pane in NVivo. You explore documents and nodes in this view. You can choose to 'undock' detail view if you want to work with sources or nodes in a separate window.
Document	In NVivo, a document is a type of 'source'. It might contain field notes, interview responses, literature reviews or whatever material that is relevant to your project. You can 'code' a document (or any part of it) to categorize the information that it contains. You can import documents or create them in NVivo.
Embedded	An embedded source is contained within the project (.nvp) file and will automatically be moved and copied with the project. A source which has not been embedded will remain an independent image, audio or video file and must be moved and copied along with the project file.
External	A type of source used to represent and link to material that cannot be imported into NVivo. This might include items such as newspaper articles, books or websites. You can record notes or summaries in the body of the external and code them as required. Externals were known as 'proxy' documents in previous versions of NVivo.
Folder	In NVivo, you store data in folders in the same way you store files in Windows Explorer. You can create your own folders for organizing sources, queries and models.
Free Node	A 'stand-alone' node that has no clear logical connection with other nodes and does not easily fit into a hierarchical structure. You can convert a free node into a tree node by moving it into a tree node folder.
Hyperlinks	A link (in a source or node) to a file outside of your NVivo project.
Links	In NVivo, links refer to memo links, annotations, 'see also' links and hyperlinks.
List View	The top-right pane in the NVivo window. You view the contents of your NVivo folders in List View.
Media	Any image, video or audio source. The Media Toolbar and Media Menu become available when these sources are opened in NVivo.
Memo	A type of source that you use to record thoughts and observations. If a memo is related to a particular source or node you can create a 'memo link' and link the two together.
Memo Link	The link between a source or node and a memo. A memo can only be linked to one item at a time.

Model	A visual representation of your research data.
Navigation View	The panel on the left side of the NVivo window. It contains buttons that enable you to access sources, nodes, sets, queries, models, links and classifications.
Node	A collection of references about a specific theme, place, person or other area of interest. You gather the references by reading through sources, such as interview transcripts, and categorizing information into the nodes.
Paragraph	Text or images between two carriage returns. You can apply a style to a paragraph.
Project Group	A group within a model that is based on existing case attributes or relationship types. These groups enable you to hide cases based on their attribute values and relationships based on their type. You cannot add to or delete project groups. To use these groups, your model must contain cases or relationships.
Query	A way of asking questions about your data. You can save a query and run it as your project progresses.
Relationship	A node that defines the connection between two project items. For example, the relationship between two cases (Anne loves Bill) or between two nodes (poverty impacts Health).
Relationship Type	Word or words (usually verbs) defining the relationship between two project items. For example, 'impacts', 'causes', 'employs', 'loves' and so on. Relationship types also have a direction.
Results	A node or list of project items resulting from a query. Store a results node in the Queries Results folder or move it to the main node system for coding.
See Also Link	A link from selected content in a source or node to selected content (or entire content) in another source or node.
Set	A collection of shortcuts to project items.
Source	Research data stored in the Documents, Externals, or Memos folder.
Text Style	A set of formatting characteristics that you can apply to text to quickly change its appearance.
Tree Node	Nodes that are organized in a hierarchical structure moving from a general category at the top (the parent node) to more specific categories (child nodes). You can use them to organize nodes for easy access, like a library catalog.