

Digital literacy training

NVivo 12 Pro Advanced

Advanced Coding and Data Analysis
2022

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NVivo Advanced Coding and Data Analysis

This course will show you some more advanced NVivo features and how to use the most common NVivo tools needed to analyse your qualitative data coding in an academic context. For further information about NVivo's full capabilities, please refer to the **NVivo 12 help** website:

PC: help-nv.qsrinternational.com/12/win/v12.1.110-d3ea61/Content/welcome.htm

Mac: help-nv.qsrinternational.com/12/mac/v12.1.110-d3ea61/Content/welcome.htm

This session will show you how to:

- analyse and explore your data further using **Queries**: Coding, Compound and Matrix
- summarise your data using **Crosstab**
- analyse your data using **Cluster Analysis**
- create and edit special **NVivo Graphs**
- create **Maps** to visualise your project structure

Opening NVivo and a Sample Project

When you **open NVivo** it will ask you to create a **User ID**: enter your name and initials (must be unique to the Project). This is very important when you're collaborating with others. At the top of the **Start Screen** there is an option to open a new **Blank Project** or a new **Sample Project** and on the left-hand side there will be a list of **Recent Projects** opened. For this session **open the Sample Project** which is designed to help you explore how NVivo can be used to analyse your own data. It is a two-year study (2008-2009) documenting community perceptions of development and land-use change on coastal communities in the Down East area of Carteret County, North Carolina, USA.

Mac vs PC Versions of NVivo

- **If you are collaborating with others on the same Project**, it's best to use the same version of NVivo (e.g., NVivo 12).
- **Mac versions of NVivo do not have the same capabilities as Windows versions** (e.g., you cannot Create Cases at import on Macs). Windows Projects can be converted to Mac and vice-versa. If you need to use these functions, save a copy of your Mac Project in a Windows format, use a PC to do what you need to, then convert it back to Mac format so you can continue working on your Apple computer.
- **These notes apply to the PC version of NVivo**, so if you are working on a Mac and have trouble finding what you need please refer to the online NVivo 11 Help for Mac:

help-nv.qsrinternational.com/12/mac/v12.1.110-d3ea61/Content/welcome.htm

Compatibility with other versions of NVivo

Projects created in older versions of NVivo can be opened in newer versions and vice versa (e.g., NVivo 12 Project in NVivo 12), **with the exception of "NVivo Release 1"**. If you open an NVivo 11 or 12 Project in "Release 1", the Project will be converted to that newer format, and once it is saved you **cannot open it** in an older version again.

Analysing Coding Using Queries

When you have completed your coding, there are 4 main types of Queries to help you explore your data in more depth and also to quantify it:

- **Coding Query:** explore your data more in depth based on how you coded it (e.g., What did people say about *Water Quality* and *Environmental Impacts*? What did they say about *Environmental Impacts* independent of *Water Quality*?).
- **Compound Query:** combine two **Text** and/or **Coding Queries** to explore your data further (e.g., Did people mention words related to “health” in the Node *Water Quality*?).
- **Matrix Coding Query:** creates a cross-tabulation of your Nodes and/or Attributes to look for patterns and quantify your results (e.g., how many people said positive things about *Water Quality* and how many said negative things? Which themes were more prominent for commercial fishers and which for recreational ones?).
- **Crosstab Query:** like a Matrix Query but can only create a cross-tabulation of Nodes by Attributes, and you cannot select specific attribute values.

Note: before running any Query check to make sure that **Aggregation** for the Parent Nodes in your analysis is turned **ON** if you want to include results for their Child Nodes, and **OFF** if you do not. You must **ALSO do this for any grandchild and great-grandchild Nodes** if you want those included as well (see *Introduction to NVivo notes regarding Aggregation*).

Coding Queries

Basic Coding Queries using the Query Wizard

You can run a **Coding Query** to search for content based on how it’s coded at specific Nodes. You can find content coded at:

- **A particular Node** (e.g., *Water Quality*) [same as opening a Node to view its contents]
- **All of these Nodes** you specify (e.g., both *Water Quality* AND *Fishing or Aquaculture*)
- **Any of these Nodes** you specify (e.g., *Habitat* OR *Forest* OR *Landscape*)
- **Any Node where** there are specified **Attribute values** (e.g., all the responses of the *Person* **Classification Attribute** of *Gender* equals value *Female*).

Example: How many and which references are coded at *both* *Water Quality* AND the specific Economic concern of *Fishing or Aquaculture*?

On the **Explore** tab, click **Query Wizard**, then click the **Search for content based on how it is coded**, and click **Next**. Choose **All of these Nodes** and tick *Water Quality* under the *Natural Environment* parent Node, and *Fishing or Aquaculture* under the *Economy* parent Node.

Note: if you tick the **Automatically select descendent Nodes** (meaning **child Nodes**) it will look for co-occurrences of all the child Nodes under *Fishing or Aquaculture* as well, and as most of these are mutually exclusive, the Query will return no results. This parent Node has **Aggregate coding from child Nodes** ticked, so it will include information contained within these child Nodes anyway (see in the Node’s **Node Properties**).

Then click **Next** and choose to **Search in: Items in Selected Folders** to restrict the Query, click the **Select** button and choose the *Interviews* folder and click on **OK**. Click **Next**, then choose whether you want to **Run this Query Once** or **Add this Query to Project** (and run it). To save Query details, select **Add this Query to Project**, give it a name and description, and click **Run**. All the results that satisfy the Query conditions will be displayed in the **Detail View**. If you ever need to run the same Query again later, you will find it in the **Queries** folder in the **Search** Area. Just right-click on the Query and select **Run Query**.

Advanced Coding Queries

If you want to use more advanced **Coding Queries** that have features that are not available via the Wizard (e.g., find coded content NEAR content coded at other Nodes), you can use the **Coding** function on the **Explore** tab.

Example: What do respondents 40 years of age and over say about Community Change?

On the **Explore** tab, click **Coding** and then a new **Detail View** will open with Query options. **Search in the Selected folders** *Interviews* and *Surveys*. From the drop-down menu select **All of the following are true** (for the AND Boolean function), then **Coded At** and **Any case where** from the next drop-down menus (to specify Attributes). Click on the "..." box to select the Attribute conditions for the Query. Expand the list for *Person* and select *Age Group* then click **OK**. Now you have a new drop-down menu on the right from which to select the logical argument: choose (>) **Greater than** and from the next box select the value **30-39**.

Note: NVivo doesn't recognise age groups in this format as being *numerical* data so it doesn't know what order they should be in, it just assumes you have them in the right order.

Add the next condition to the Query by clicking the **+** button. Choose **Coded at** and **All Selected Codes or Cases** then click the "..." box to choose the Node *Community Change*. **Spread Coding to** the **Broad** context and click **Run Query**.

You can also add conditions such as **NEAR** and **Coded by any** by clicking on the drop-down menu next to the +/- buttons to the right of a row before adding the next coding criteria.

The results show you everything that people 40 years and over said about *Community Change*.

Editing a Query

If you make a mistake in a Query, you can always amend it in the **Detail View**, however if you have already closed this you can click the **Last Query** icon on the **Explore** tab to go back to the Query criteria.

You can edit the search criteria in the **Search for content matching these criteria** box:

- Change the **order of processing**, by selecting an item from the criteria list and click the required up or down arrow next to the +/- buttons.
- **Remove an item** in the criteria list, by selecting the item and then click the "-" button.
- **Edit an item** in the list, by editing the criteria in the Detail View.

Note: If you edit a Query that has been added to the project, this will overwrite the original Query. If you want to duplicate a Query and make changes to it (e.g., the same Query but with different Attribute Values), you can always copy and paste the Query in the Queries folder of the Search Area. This will create a duplicate Query with a numbered extension in brackets that you can rename and change at any time.

Compound Queries

Compound Queries can be used to refine a text search by:

- Combining 2 **Text Search** Queries to find where one term **precedes** another (e.g., with related to *bad before Quality* as opposed to *good before Quality*).
- Combining 2 **Coding Queries** to search for content coded at one Node, **near** content coded at another just in case relevant content doesn't overlap (e.g., where do *climate change* and *sea levels* Nodes co-occur within 20 words).
- Combining a **Text Search** and **Coding Query** to search for text **surrounded** by or **near** a Node (e.g., do people mention words similar to *sceptical* in/near content coded at the Node *climate change*).

Creating a Compound Query

Example: Search for mentions of “weather” near the Node Natural Environment.

On the **Explore** tab, click **Compound**. This opens a new menu window only, not a **Detail View** like the other searches. In the **Compound Query** window select the first **Subquery 1** type: **Text Search**, then click the **Criteria** button and enter the **Search for** criteria (e.g., *weather*). Choose a match level (e.g., the highest: **Similar**) and select to **Search In: Text, Annotations** or **Both** (e.g., Text). Then click **OK**. In the next box, choose the appropriate search terms (e.g., **Near Content**):

- **AND / OR / NOT** (see Advanced Text Search Queries)
- **NEAR content** - coded at Node A near other content coded at Node B within # words (before or after).
- **PRECEDING content** - coded at Node A when it precedes content coded at Node B.
- **SURROUNDING content** - coded at Node A where it is surrounded by content coded at Node B.

If you choose **NEAR** or **PRECEDING Content**, click on the **Options** button to specify the proximity level required:

- **Overlapping** - when coding at both Nodes/context overlaps.
- **In Custom Context** - within a specified number of words, surrounding paragraph/cell/row, minutes or percentage.
- **In Same Scope Item** - within the same item, such as the same document or dataset.
- **In Same Coding Reference** - within the same coding reference (only available when Nodes are included in the Query scope).

For this example, choose **In custom context** then click **Specify** button, and select 20 for the **Number of words**. You can also choose how much content you want to gather in the resulting Node/preview (e.g., tick all 3 boxes) in the **Options**. You can tick:

- **Finds for first search item** - gathers content matching the criteria defined for the first search item only.
- **Finds for second search item** - as above for the second search item only.
- **Content between finds** - displays all content between the first and second search items. **Note:** This option is only available if both of the above check boxes are selected and **Overlapping** is not the chosen **Proximity** option.
- **Compare proximity between text and non-text items** - gathers content from different components of an audio/video or picture File (e.g., Query both the video and the video transcript. If you do not select this check box, the Query will evaluate proximity within the same type of content: either text or media).

In the **SubQuery 2** area, select the second Query type from the drop-down menu (e.g., **Coding**) and click the second **Criteria** button and enter the **Search for content coded at** criteria: **All of these Nodes** (e.g., *Natural Environment*). You have the Option to set the **Scope** of your Query from the **Search In** list (e.g., **Items in selected folders**), select the items you want to include by clicking the **Select** button (e.g., *Interviews* and *Surveys*). Click **OK**. Click the **Query Options** tab to define the spread coding options and preferences for storing the results (e.g. broad). Click **Run**.

Matrix Coding Queries

You can use **Matrix Coding Queries** to cross tabulate the frequencies of Nodes and/or Attributes in order to:

- compare what different demographic groups have said about an issue (e.g., are different *Townships* concerned about different issues?).
- explore the amount of overlap between different themes (e.g., is there a potential relationship between *Community Change* and the *Economy, Infrastructure, Real Estate Development, and Policy*?).
- compare attitudes (e.g., do *Males* have more *Positive* and less *Negative* attitudes than *Females* within the *Environmental Change* Node?).

They are also particularly useful for further descriptive and inferential statistical analysis using chi square for example (when cells are independent). Most often Nodes and/or Attributes are used in the rows and columns of the matrix, but you can also select Data Files. In addition, you can create matrices that only relate to content coded within a specific Node (e.g., a specific survey question).

Creating a Basic Matrix Coding Query

Example: Do Commercial Fishers have more Positive, Negative, Mixed or Neutral attitudes than Recreational within the context of Water Quality?

On the **Explore** tab, click **Matrix Coding**. This will open another menu window with a **Detail View**. In the **Rows** box, add Project Items by clicking the **+** for the box and choosing either **Select Items** (e.g., Nodes or Cases) or **Select Attribute Values** (e.g., *Age Groups*).

To **Select Items**, just tick the boxes of the items you want the rows to represent and click **OK**. Alternatively, you can click and drag Nodes into this box from the Nodes list view (e.g., With the Nodes list view visible, select all the *Attitude* child Nodes: *Mixed, Negative, Neutral* and *Positive* then click and drag them to the **Rows** box and let go). **Add columns** in the same way by clicking on the **+** for the **Columns** tab.

To add **Attribute Values** you must click on the **+** but counterintuitively choose **Select Items**. This allows you to choose individual attribute values by ticking boxes rather than going through multiple steps and defining logical arguments (e.g. *Recreational Fishing = Yes*). Click on the **Case Classifications** folder *name* (do not tick the box), then in the *Person* Classification find and tick both of the *Recreational Fishing* and *Commercial Fishing Yes* value boxes.

Choose where you want to search (e.g., in this example search in **Selected Items** and choose the *Water Quality* Node from the **Nodes** folder under *Natural Environment* Nodes) then click **OK**. Choose if you want to **Add to Project** then click **Run Query**. If you want to save the resulting **Node Matrix** for future reference (not just the parameters of the Query), you will need to click the **Save Results** button at the top of the window. Then choose the **Location** you want to save it to. By default, it's **Query Results** folder but it may be easier to remember where to find it if you save it to **Node Matrices** folder instead.

Note: By default, the cells of the table will represent the conjunction between rows and columns (the AND Boolean operator). You can change this if you need to by clicking on the **Coding at Rows** drop-down menu and choosing *OR, NOT, Near, Preceding* or *Surrounding*.

Note: If you want to display the results as row or column percentages, the results it displays will refer to the number of words coded in that cell as a percentage of total words coded in that row or column.

Within the results of a **Matrix Query** you will see a cross-tabulation known as a **Node Matrix**. You can double-click on a cell to open the summary of all the references relating to that cell (like running a **Coding Query** for that cell). In this sense, **Matrix Coding Queries** can be useful alternatives to **Coding Queries**.

Matrices can be viewed as charts, by clicking on the **Charts** tab in the **Detail View**. You can change the chart type, title, gridlines and rotation (*see more on Creating and Editing Charts on the NVivo help website*). However, NVivo gives you very limited control over the design of the charts (e.g., labels, colour etc.), so I personally recommend exporting the chart to a spreadsheet application such as Excel, and creating graphs there.

Editing Node Matrices

You can click and drag columns wider or narrower to see more content. Columns and rows can be sorted in ascending or descending order, by selecting the column/row of interest, on the **Matrix Tools** tab click on **Sort & Filter** then click **Sort by Column** or **Row**. Each column and row can be filtered this way also or alternatively by clicking on the appropriate filter (funnel) symbol for the relevant row or column. NVivo will show or hide columns/rows based on the filter (e.g., hide rows where number of responses = 0). If you need to transpose columns and rows, click on the Node matrix then in the **Matrix Tools** tab, click **Transpose**.

You can also apply shading to cells to make it easier to see patterns. On the **Matrix Tools** tab select one of the cell shading options displayed (e.g., blue and white). The darker/hotter the shading colour the more coding in that cell. You can also change the information displayed in the cells here (e.g., **Number of Nodes Coded** as *Person*).

Note: By default, the Node Matrix displays the number of **References** in each cell (i.e., the number of text sections coded), and multiple references may be from the same Case OR multiple collaborators coded the same content. To see the number of **Cases** for each cell (often the most useful metric), on the **Matrix Tools** tab click the **Cases Coded** drop-down menu and choose *Person*.

Note: You can also display the row and column percentages, however, please be aware that this will only ever relate to the number of words coded not the number of Cases or references.

Saving Matrices

You can save the matrix retrospectively in the **Node Matrices** folder or the **Query Results** folder within the **Search** area for future reference. On the **Matrix Tools** tab click on the **Store Query Results** icon, and select the location you want to store it in. Give the matrix a **Name** and (optional) **Description**, then click **OK**.

Exporting Node Matrices

You can export a Node Matrix to an **Excel**, **text**, or **SPSS** file so you can quantitatively analyse it further or create graphs in Excel. Right-click on the Matrix you want to export and select **Export Node Matrix**. Select a location to save the file and change the name if necessary, and in the **Save as Type** box choose the appropriate file format. Click **Save**.

Handy Hint: Excel is probably a better program in which to create charts from your quantitative NVivo data, as you will have far more control over their look and content.

Crosstab

There is a new feature in NVivo 12 called **Crosstab** which is designed to be a quick way to check the spread of coding across cases and demographic variables. It essentially does the same thing the Matrix Coding Query with some limitations: you can only compare **Nodes** against **Case or Classification Attributes** or against individual **Cases**; and you are not able to select specific **Attribute values** (e.g., only 2 age groups). However, if you have **Attributes** that are not mutually exclusive, this is a good analysis to use to see more detail about the overlap.

Example: Which Fishing groups have more Positive, Negative, Mixed or Neutral attitudes within the context of Water Quality?

On the **Explore** tab, click **Crosstab**. This will open another menu window with a **Detail View**. In the **Codes** box, add Nodes (**Note:** you cannot add Cases) by clicking the **+** for the box and tick the boxes for the Nodes you want to include in the table (e.g., *Mixed*, *Negative*, *Neutral*, and *Positive*).

To add **Attribute Values** select the appropriate Classification (e.g., *Person*) and then choose an Attribute from the **Attribute 1** drop-down menu (e.g., *Age Group*). You can also select a 2nd Attribute in the **Attribute 2** drop-down menu if you wish. **Note:** you cannot select individual Attribute Values, all will be displayed in the table. You can however choose to include *Unassigned* and *Not Applicable* values by ticking the relevant box in the menu.

Select where you want to search (e.g., in this example search in **Selected Items** and choose the *Water Quality* Node from the **Nodes** folder under *Natural Environment* Nodes) then click **OK**. Choose if you want to **Add to Project** then click **Run Query**.

You can edit a Crosstab Matrix in a similar way to a Matrix Query result (see previous section).

Cluster Analysis

Cluster Analysis is helpful for identifying patterns in your data by grouping Files or Nodes into clusters (maximum of 10 by default). This can help you to visualise the similarities and differences between selected **Files** or **Codes**¹. Similarity metrics can be based on the **words** used, **coding** conducted or **attributes** applied. It uses the *farthest neighbour* (a.k.a. complete linkage) hierarchical clustering method.

You can cluster the following project items:

- **Files, Externals and Memos** (e.g., to identify similarities between journal articles or Cases of each file represents an individual Case).
- **Codes** (e.g., to identify similarities between your Nodes or between Cases).

You can cluster selected Files or Codes based on:

- **Word similarity:** based on the number of words they have in common. **NOTE: Stop Words** are excluded when using this measure.
- **Coding similarity:** Data Files are coded based on the number of Codes they have in common, whereas Codes are coded based on the number Files they have in common. **NOTE:** this measure includes ALL of your internal and external Data Files which contain coding, and you cannot select a subset.
- **Attribute value similarity:** Data Files are coded based on the number of File Classification Attribute values they have in common. Only **Cases** can be coded based on their Case Classification Attribute values. **NOTE:** it is best to select a File or Case Classification to cluster for this measure to ensure they all have the same classification attribute values with which to compare them.

¹ Here **Codes** refers to both Nodes and Cases

Table of kinds of questions different clustering methods can help you answer:

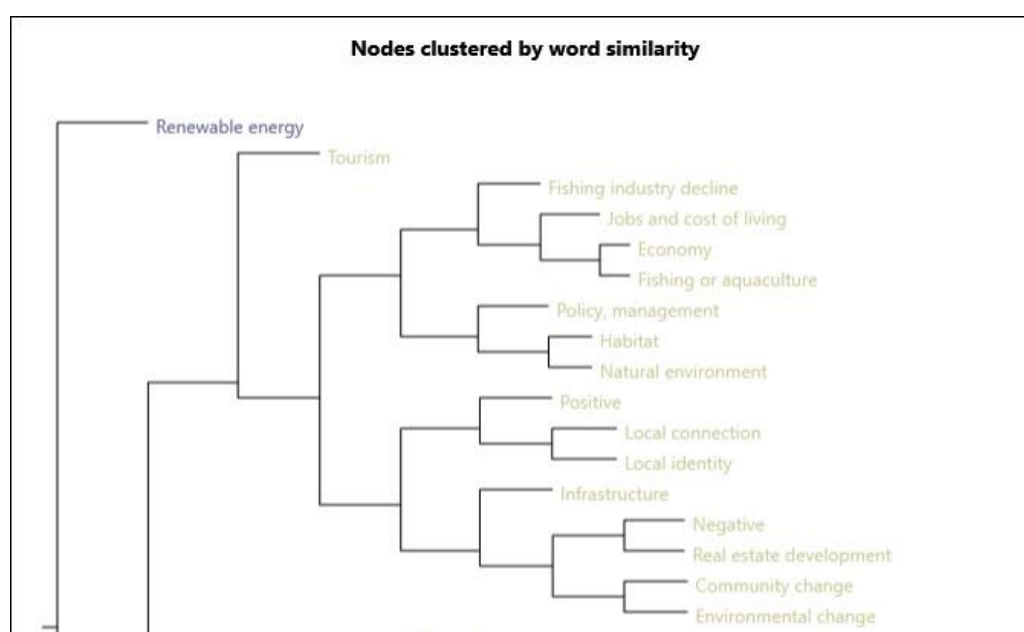
Based On What?	Cluster What?	
	Data Files	Nodes/Case Nodes
Word Similarity	Which articles are similar in content? Which journals tend to publish similar content?	How similar are selected Nodes in terms of the content coded? Are they related? Are they so similar they should be merged? Which people (Cases) hold similar views according to their survey responses?
Coding Similarity	Which articles have similar themes? Are there groups of people who are concerned about similar topics?	What group of themes tend to be mentioned together in a lot of articles/interviews? Which authors (if Cases) tend to publish together?
Attribute Value Similarity	Which articles have similar reference classifications (author, journal, etc.)? Are there distinct groups to analyse separately?	Which Cases are similar in terms of their demographics? Are there distinctive groups of people you might wish to analyse separately?

You can choose from 3 similarity measurements:

- **Pearson's correlation coefficient:** Ranges from -1 = least to +1 = most similar.
- **Jaccard's coefficient:** Ranges from 0 = least similar to 1 = most similar.
- **Sørensen's coefficient:** as above.

Example: Conduct a Cluster Analysis to see which Nodes are similar in terms of the words coded.

To run a Cluster Analysis, on the **Explore** tab, click the **Cluster Analysis** icon to open the **Wizard**. Select to cluster by **Codes** (to cluster by your thematic *Nodes*), then click **Next**. Then in the Nodes box, click the **Select** button and choose the **Nodes** you wish to cluster (e.g., all the parent, child and free Nodes in Nodes folder except for *Memorable Quotes* and the parent *Attitude* Node). Then select how you want to cluster them from the drop-down menu (e.g., by **Word Similarity**), and then choose the **Similarity Metric** (e.g., Jaccard's). Click **Finish**.



The **Diagram** tab shows you a dendrogram (by default) which indicates which Nodes are most similar in terms of the words in their coding. Those that cluster together on a branch are more similar than those further apart. In the dendrogram above, it is interesting to note that words coded in the *Local Connection* and *Local Identity* are also similar to words used in a *Positive* context.

On the **Summary** tab you can see a metric of how similar each pair of Nodes are, from highest to lowest. Items with an index value close to 1 are very similar and as such will appear closer together on the diagram. If you want to see what words Nodes in a cluster have in common, click on the Node names to highlight them, right-click on the selection and choose **Run Word Frequency Query**.

If you want to see the Attribute values of a File or Case in a cluster analysis (e.g., to see if there are demographic similarities between items that cluster together) select the File or Case, right-click on it and select **Item Properties**.

Editing Cluster Analysis Results

You can change the type of cluster graph when you are in the results area, in the **Cluster Analysis** tab that appears in the top menu list. Click on the appropriate icon to change the type.

Search Area

As mentioned in the Intermediate session, it is good practice to save a detailed record of any analyses you conduct in NVivo. This serves as both a reminder as to what you did and how you did it and provides a short-cut to run the analysis again if you need to. The Search Area stores copies of the analyses you have run as well as their results for future reference. The area also contains useful Set and Search “meta-folders” to help organise and find data.

Queries Folder

Whenever you select **Add to Project** when running a Query, NVivo saves the parameters in the Queries folder. **Please note** this only occurs once you run the Query. You can run a saved Query again by right-clicking on it and selecting **Run Query**. You can also alter the Query parameters before running it again, by **right-clicking** on a Query and selecting **Open Query**.

If you need to **run multiple similar Queries** (e.g., Word Frequency for each interview question with the same grouping level etc.), **copy** your first Query (e.g., *Word Frequency Query Q1*), then **paste** it into the blank space in the **Queries** List View. This will create a new saved **Query** with identical parameters, called *Word Frequency Q1 (2)* and then you will need to rename it to reflect the changes you will make (e.g., *Word Frequency Q2*). Right-click on this copy and select **Open Query**. Then change the parameter(s) you wish (e.g., **Selected Items** to Q2), and click **Run Query** to make the changes “stick” in this newly created and saved Query.

Please Note that if you ever change a parameter in a saved Query, then run it, that parameter is permanently changed.

Sets Folder

The Sets Folder stores meta-folders to help you organise your Project Items in meaningful ways. For example, you could have a Set Folder for all the *Interviews* you have left to code (e.g., *Still to Code*) and remove them once you have coded them, to keep track. Set folders are non-disruptive to the structure of the NVivo Project because only links to Project Items are stored in them, not the files themselves (e.g., the *Interview* files are still contained in the Files folder, but links to them are included in the Set Folder called *Still to Code*). Set Folders are also non-destructive, because deleting a Project Item from a Set only removes the link from the folder, NOT the Project item from the Project (e.g, you can safely delete the link to each *Interview* after it's coded because the actual file will always be in the Files Area).

To create a new **Set Folder**, go to the **Search Area** and right-click on the higher-order **Sets** folder. Select **New Set...** and type in a name (i.e., *Still to Code*) and description (optional). Then click **OK**. Now you have an empty folder to populate with links to any type of Project items (e.g., Files, Cases, Externals, Memos). To add new links, click on the relevant **Set** folder and right-click in the blank-space of the **List View**. Select **Add Set Members** and click on the + next to the **Files** folder, click on the name of the folder you want to add items from (e.g., *Interviews*), then tick the boxes for the files you wish to add to the **Set**. Then click **OK**. To remove items from a set, select the items you want to remove and on the **Home** tab click **Delete** (or right-click on the item and select **Delete**). Now all the second Coder needs to do is look in the folder to see which files they need to code.

Search Folder

The Search Folder also stores meta-folders, but these contain Search Results based on the parameters you set for it. For example, if you want to collate all the Files that are in a specific group (e.g., *Journal Articles* written after 1999), you can create a Search Folder with specific criteria to only contain Project Items that fit those criteria. **Please note** that every time you open a Search Folder it runs the search again and could take a while to load the results.

Example: Create a Search Folder for Interviews conducted by Henry.

To create a new **Search Folder**, go to the **Search Area** and right-click on the higher-order **Search** folder. Select **New Search Folder...** and type in a name (i.e., *Recent Journal Articles*) and description (optional). Then click on the **Search Criteria** tab. Choose a location to search within from the **Look for:** drop-down menu (e.g., *Files, Externals & Memos*) and select your search criteria on the **Intermediate** or **Advanced** tabs. In this example, on the **Advanced** tab select **Attribute** from the **Interaction** drop-down menu in the **Define more criteria** area. Then click the **Select** button and expand the *Interview File Classification* by clicking on the plus sign to the left of it, and select *Interviewer*, then in the **Option** drop-down menu select **equals value**. In the **Value** drop-down menu, select *Henry* and click **Add to List**. Then click **OK**. The results of the search then appear in the folder.

Other Search Area Folders

- **Query Results:** only the saved results from the Queries you have run, you are not able to check the parameters of the Queries or change them in any way. Any "Node" results you accidentally saved here instead of the **Nodes** area, can be cut/copied and pasted.
- **Node Matrices:** tables created during **Matrix Coding Queries** are saved here, but as mentioned previously, by default they are saved in the **Query Results** folder. Again, you are not able to check the parameters or change them in any way.

Maps Area

There are 3 types of Maps in NVivo12:

- **Mind Maps:** strictly hierarchically structured map, useful for planning/describing your Coding Scheme and creating Nodes (see *Introduction to NVivo* notes).
- **Concept Maps:** A more free-form way of visually representing the relationships between Project Items.
- **Project Maps:** To get NVivo to visually represent specific **Project Items** and how they relate to each other within the Project itself.

The latter two maps are **Dynamic Models** which means they can include links to actual Project Items. For example, if you see a **Node** icon on one of these maps, you can double-click on the icon to open that Node.

Concept Maps

Concept Maps are free form rather than strictly hierarchical and allow you to create diagrams with a variety of shapes and connectors, and dynamic elements (e.g., links to Project Items). To create a Concept Map, go to the **Explore** tab and click **Concept Map**. Enter a name for it in the **Name** box, and an (optional) **Description**, then click **OK**. To add shapes to the map, in the **Detail View** click and drag the shapes you want to add from the windowpane on the left. Consider using different shapes to denote different elements of your project (e.g., circular for central and square for peripheral themes). Double-click on the shapes to enter labels. You can also change the colour of individual shapes by clicking on the one you want to change then select the colour and/or border colours you want on the appropriate drop-down menus on from **Concept Map** tab.

To connect shapes to each other, click the **Connector** button on the **Concept Map** tab which changes the cursor to a connector. Click and drag from one shape to another to connect them. If you want to change the directionality of the connector, click on the connector and then the **Change Connector** button on the **Concept Map** tab and select the direction you want. If you want to label the connection, simply double-click on the connector and a text box will appear. To get your normal cursor back, just click **Pointer** on the **Concept Map** tab.

If you wish to add a shape which is a link to a **Project Item**, click the **Add Project Items** button to bring up a menu and tick all the items you want to add, then click **OK**. Once they are added, you can click and drag them in to the position you want. You can also click-and-drag project items from the **List View** to the map (e.g., click and drag the *Balance* Node from the List View of the Nodes folder onto the map).

You can delete a shape by selecting the one you want to delete then on the keyboard press **Delete**.

Add a note to a model

You can add notes to models which allow you to enter more text: on the **Model** tab, click the **Note** shape from the **Shapes** drop-down menu. Double-click the note and in the **Text** box, enter your notes. Click **OK**.

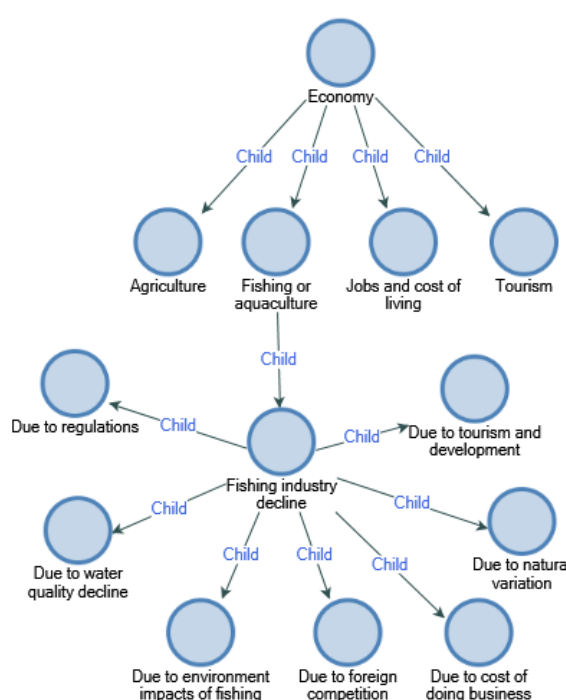


Project Maps

Project Maps can be used to get NVivo to show you a graph of the final coding structure of your Project, or how Project Items are connected to each other (e.g., you can look at all the Nodes associated with one Case or File). You can also click on one of the items and asked to see a list of all associated project items (e.g., Child Nodes, Cases, Files, Links), to decide if you want to include them in the map. Concept Maps are saved in the **Maps** area of NVivo.

On the **Explore** tab click **Project Map**. Enter a name for the model in the **Name** box, and an (optional) **Description**, then click **OK**. On the **Project Map** tab, click on the **Add Project Items** icon to select the items you wish to include in the map (e.g., the *Economy* Node and all its child Nodes). Then click **OK**. On the **Project Map** tab, you can deselect any connectors you wish to hide from the map in the **Connectors** Area of the **Project Map** tab (e.g., Links).

A quick way to see the Project Items that are associated with an Item already in the Map (and to show this association on the map also), click on the Item and on the **Project Map** tab, and then click **Show Associated Items** icon at the top of the window. A new window appears on the left-hand side of the **Detail View** which lists all valid items you can include. You can click and drag the items you want to add from that pane.



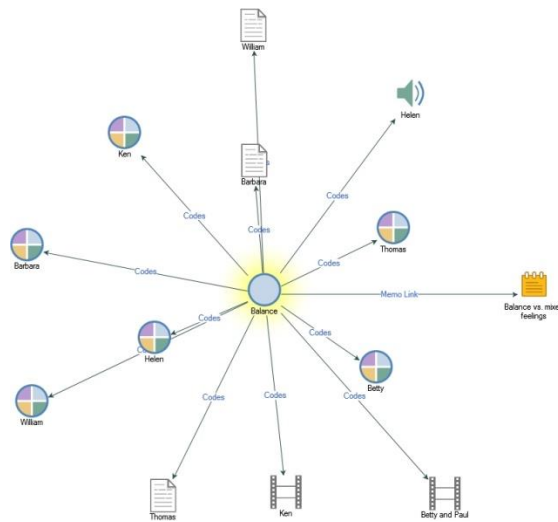
NVivo-Specific Graphs

Explore Diagrams

You can also create special graphs to show how project items are connected to one specific File, Node or Case. This is very similar to a Project Map, only the latter can show you how the other Project Items relate to each other as well. For example, a Project Map will show you how one Node is connected to other Nodes, whereas an Explore Diagram will only show you what project items other than Nodes are related to Nodes (e.g., Cases, Files etc.).

Example: Create an Explore Diagram of the Project Items related to Balance.

Select the File, Node or Case you want to create a graph for in the **List View** of the **Codes**, **Cases** or **Data** area (e.g., select *Balance*). On the **Explore** tab, click on the **Explore Diagram** icon to generate the graph. You will see a new **Graph** appear in the Detail View, which shows you all the project items in a related to it. As this is a dynamic graph, you can click on any one of the icons to open-up that Project Item. You have extra options such as showing or hiding information on the Explore Diagram Tools tab (e.g., hide Files coded or Memo Links). You can also change the focus to another Node within the graph itself by right-clicking on a Project Item object, select **Change Focus** and a graph will be generated with that Node at its centre. If you want to go back to the original, click the **Back** button on the **Explore Diagram** tab.



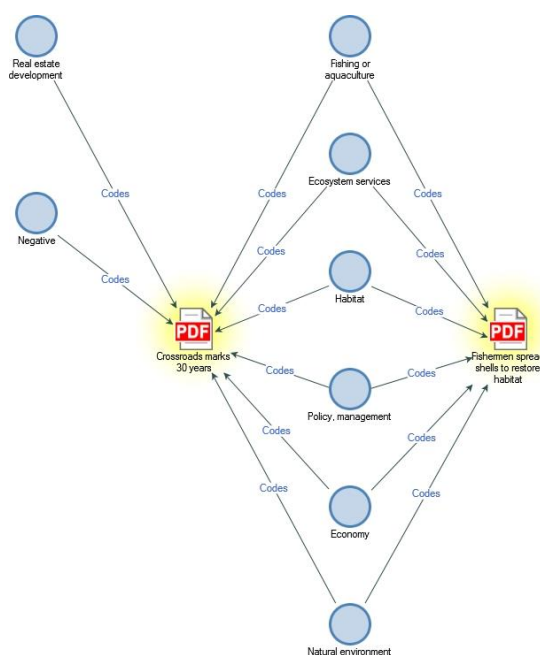
Comparison Diagrams

You can use comparison diagrams to compare two Nodes, Files **or** Cases and see which Project Items they do and do not have in common. The following project items can be displayed on a map:

- Nodes
- Files
- Cases
- Classifications
- Attributes
- Relationships
- Links

Example: Create a Comparison Diagram of the 2 news articles to see what themes they have in common and how they differ.

On the **Explore tab**, click on the **Comparison Diagram** button and choose to **Compare Files**. Then select the Files for both *News Articles* (in the news articles folder) and click **OK**. The graph will open up in the **Detail View**. You can simplify the graph by unticking elements such as **Memo Links**, **Relationships** and **Files Coded**. The graph below shows you which Nodes code both articles, and which do not.



Collaboration

If you are collaborating with a team of researchers, there are several options for managing the **issue of version control**. The **simplest but least safe** option is for everyone to work on the same **Master Project** file at different times (either on the same computer or on a Cloud Drive). This option carries the danger of one person making a mistake and changing the project irreversibly. So, if you choose this path, be sure to save backup copies of the Project each day (and include the date created in the file name of that copy for added security). This way you can revert back to an older version if need be. Everyone will need to ensure they are working under their own unique **User Profile** so that NVivo can keep track of who coded what and how [**Note:** You MUST use the same version of NVivo to do this, and the same format: PC/Mac]. See below for how to change User Profiles.

Changing User Profile

When you open the project, you can check the **Current User Profile** to make sure you are using your own. This is displayed on the **Status Bar** at the bottom of the NVivo window (with the person icon). To change User Profile, go to the **File** menu and select **Options**. In the **User Profile** area, change the **Name** and **Initials** for the new User. It's also a good idea now to tick the **Prompt for user on launch** so that you don't forget to change it back to yourself). Then click **Apply** and **OK**.

Creating a Project Copy

Another safer option is to create **copies of the Master Project** for each researcher to work on separately. You can import the work conducted by each person into the Master project selectively once coding is finished (see **Importing Content from Other Projects** below).

To create a copy, go to the **Share** menu tab, click on **Copy Project** and select the appropriate format in the **Copy To** area (e.g., *NVivo 12 (Windows) project*) and click the **Browse** button to choose where to save it. Then click **Save**.

Each Project Team Member will need to open their own copy in NVivo using their unique **User Profile**, so that NVivo can identify who coded what. (**Note:** if the coder uses your computer to code the Project, it will probably open under your User Profile by default. To change User, go to the **File** menu and select **Options**. In the **User Profile** area, change the **Name** and **Initials** for the new User. It's also a good idea now to tick the **Prompt for user on launch** so that you don't forget to change it back to yourself). Then click **Apply** and **OK**.

Importing Content from Other Projects

With the **Master Project** open, click on the **Import** tab, select **Project** and click the **Browse** button to find the Project you wish to import information from. In the **Content Options** area choose **Selected (including content)** and choose what you want to import (e.g., **Nodes** and **Coding**). Decide how you want to deal with duplicate items (merge them or create new items) then click **Import**.

NOTE: Remember that when you have multiple people coding your data, if more than one person codes the **same content to the same Node**, this inflates the number in the **References** metric (e.g., if 3 people code the same section of text to *Environmental change* this counts as 3 references).

HANDY HINT: You can also import Project details from ANY Project this way: e.g., import Nodes from your *Literature Review* to use in your actual *Research Project*.

QSR Collaboration Products

QSR, the makers of NVivo, also offer a **Collaboration Server** and **Collaboration Cloud** to assist (see www.qsrinternational.com/).

Exporting Content for non-NVivo Users

Sometimes you need to show Project Team Members or supervisors how you have coded your data, but they do not have NVivo. You can export the content of a Node in two ways, either:

- Text only as shown in the **Reference View** tab, or
- Entire content, which includes audio, video etc. as a webpage.

When choosing to export the Node's **Entire Content**, the export consists of two parts: an executable *.html file (e.g., *Balance.html*) and a folder containing files that make the webpage work (e.g., a *Balance* folder). When you open the *.html file webpage has a tab for the Node's *Summary*, as well as separate tabs for all the coded *Text*, *Audio*, *Video* files etc..

Note: If you want to move a Node HTML file to another location, make sure you copy the folder containing the web page files to the new location as well, or the links will be broken and the webpage won't work. For Nodes that code audio and video Data Files, the coded sections of media files will be included upon export only if you coded directly on the audio or video timeline.

To export a Node, select the Node you want to export in the **List View**. On the **Share** tab, click **Export** and from the **Export Options** list select the appropriate option (e.g., **Entire Content**). Click the **Browse** button under **Save As** and change the name/location of the exported files if you need. If you choose **Entire Content** or **Reference View** there are further options to choose from the **Include** section of the menu (e.g., include *Description*, *Annotations* etc.). Select the Properties and Related Content that you want to include then click **OK**.

Using Set Folders

Set folders are also useful for collaborating with others in a Project: for instance, if you want to assign the coding of different files to different people you can create a Set folder for each member of the Project Team containing links to the files they need to code. Instructions on setting up Sets is in the **Search Area** section of this handout.

Notes

The **Notes Area** (see below) is also useful for collaboration, particularly if you all wish to work on the same Master Project. You can use the Memos feature to communicate with Project Team members and share information about what you have done, where you are up to, etc.. See Also Links may also be useful for communicating with members about the relationships you have found between the data and other Project Items.

Notes Area

This Area stores links to project items in folders to make them easier to organise and find. It is particularly useful if you are collaborating with other researchers on the same project.

- **Memos:** any memos you have made in your project are stored here.
- **Framework Matrices:** create and store matrices to help you summarise what your Cases have said on particular topics.
- **Annotations:** any annotations you have made in your project are linked here.
- **See Also Links:** any hyperlinks you have made between project items.

To **show/hide** the **Annotations** and **See Also Links** you need to look on the **Document Tools** tab when a document is open, and tick/untick the appropriate boxes in the **View** grouping. A new window will appear at the bottom of the document, with tabs for each.

Creating Annotations

Select the content you wish to annotate and on the **Document Tools** tab click **New Annotation** (or right click on the selection and choose New Annotation). Enter the annotation text at the bottom of the **Detail View**. Annotated content will be highlighted in **blue**, and the text will be displayed in the **Annotations** tab at the bottom of the window. This text can also be included in any text searches and/or queries.

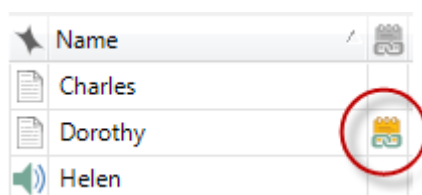
Creating See Also Links

Example: Link text in the *Barbara* Interview to the *Charles* Interview.

Select the content you want to link from (e.g., a selection of text from the *Barbara* Interview), and on the **Document Tools** tab, click the **See Also Link** drop-down menu and select **New See Also Link**. Click the **Select** button and locate the Project Item you want to link to (e.g., *Charles* in the *Interview* folder), and click **OK**. Linked content will be highlighted in **pink**, and the linked item will be displayed in the **See Also Links** tab at the bottom of the window.

Creating Memos

You can use memos to record any ideas or insights as you progress in your analysis. These can be linked to specific **Data Files** or **Nodes** or **Unlinked**. Memos can include text, tables and annotations. In addition, you can code the content of memos. You can also import existing memos into the Memos folder. Data files that have linked memos display a memo link icon:



Example: Create an Unlinked Memo for *Things to Do*.

To create an unlinked memo, in the **Notes** Area, click the **Memos** folder. On the **Create** tab, click **Memo**, enter a name (e.g., *Things to Do*) and (optional) description, and then click **OK**. It will open in the **Edit Mode** so you can enter content. If you want to link a memo to a Data File/Node, right-click on the File/Node then select **Memo Link** and then **Link to New Memo**. Enter a name and (optional) description, then click **OK**.

Literature Reviews with NVivo

As with Qualitative Data Analysis, there are many different techniques recommended and the following is only what I have found works well for using NVivo to help write Literature Reviews. Instead of the focus being on coding the literature documents themselves, I find it is more efficient to **code your own notes** on those documents. It is also a good safeguard against misinterpreting the content by not having the full context and accidentally quoting authors directly without attribution.

The disadvantage of directly coding the documents as you read them, is that this will result in NVivo compiling a range of references which are essentially direct quotes. Once you have coded dozens of documents, it's almost impossible to remember enough about the "big picture" of the individual documents. It is crucial to consider the global elements of the text in order to properly interpret and critique these snippets of information. For example: what were

the preceding arguments and does this follow? What was the general approach and attitude the author took to the subject matter (e.g., school of thought, biases demonstrated etc.)? How did they arrive at these conclusions based on previous research? Was their methodology sound? If you only rely on coding the text, it will take a lot more effort to go over the literature again to place it in context. This is why I recommend coding your own notes.

The advantage of coding your own notes on a document, is that NVivo will compile your own critique, written in your own words with full awareness of the context of the whole document, for you to then restructure and clean-up accordingly. You can code your notes to specific Themes and also to the section of the Literature Review in which it belongs: evidence for X, gaps in previous literature, etc..

Your notes could be the only documents included within NVivo for your review. You could create these externally and import them or create them within the Project. It can also be beneficial to import links to the research documents themselves as **External Files** for easy reference and to find extra information. In this way you can also attach your notes to the original documents for easy reference. You could also import the entire documents as **Internal Files** if you want to create **See Also Links** to the relevant content referred to in your notes, like quotes and good examples, or to search for content you have lost track of.

Linking Notes as Memos to Internal Files

To Create a Note as a **Memo** for each PDF document you have imported as an **Internal File** right-click on the document in the **Files** area and select **Memo Link --> Link to New Memo**. Give the Memo a name which identifies it as belonging to that document (e.g., "Abbott (2006)"). This will make it easier to see which note belongs to which article when you open a **Node** (it will be written as Memos/Abbot (2006) in the blue hyperlink above the quote). Then just type your notes into this Memo for the article in question. When you've finished your notes, code the information to the relevant Node(s) for your Literature Review. You will find all your Memos in the Sources Area, in the Memos Folder.

Import Literature as External Files and Create Notes

Every time you import a document as an **External File**, NVivo creates a link to the file itself as well as a blank Memo associated with it. To import an **External File** right-click in the list view of the **Externals** folder in the **File Area** and select **New External**. Give the new **Link** a name which identifies it as belonging to that document (e.g., "Abbott (2006)"). Click on the **External** tab, and select the **File Type** (e.g., *File Link*) and **File Path** to the document to create a link to that File on your computer. Optionally you can enter a **Location Description** and define the **Contents**. On the **Attribute Values** tab you can give the document a **File Classification**. Then Click **OK**. This will automatically create a new text document associated with your file, in which to write and code your notes. You can open the **note** by right-clicking on the External File and selecting **Open External**. You can open the linked document itself, by right-clicking and selecting **Open External File**.

Note that it's important to ensure the file path is always valid or the link will be broken. This means you need to keep that file in the same location while you are working on the project.

HANDY HINT: Consider creating a second set of Nodes based on the structure of your Literature Review (e.g., History, Relevance of the Research, Theories, Schools of Thought, Gaps in Literature, etc.). This will help you collate the notes that are relevant for each section of your Review.

Other resources

QSR NVivo 12 Help Websites

PC: help-nv.qsrinternational.com/12/win/v12.1.110-d3ea61/Content/welcome.htm

Mac: help-nv.qsrinternational.com/12/mac/v12.1.110-d3ea61/Content/welcome.htm

Training notes

To access training notes, visit the Research & learn webpage anulib.anu.edu.au/research-learn and select the skill area followed by the relevant course. You can register for a workshop and find other information.

Research & learn how-to guides

Explore and learn with the ANU Library's [how to guides](http://ql.anu.edu.au/howto) (ql.anu.edu.au/howto). Topics covered are:

- Citations & abstracts
- Data Management
- E-books
- EndNote
- Finding books and more
- Finding journal articles and more
- Finding theses
- Increasing your research impact
- NVivo
- ORCID (Open Researcher and Contributor ID)
- Topic analysis
- Using Google scholar from off-campus

Subject guides

Find [subject-specific guides](http://ql.anu.edu.au/subjectguides) (ql.anu.edu.au/subjectguides) and resources on broad range of disciplines. Such as:

- Asia Pacific, Southeast Asia and East Asian studies
- Business, economics, art, music and military studies
- Criminal, human rights and taxation law
- History, indigenous studies, linguistics and philosophy
- Biological, environment, physical & mathematical sciences, engineering & computer science, health & medicine

Navigating the sea of scholarly communication

An open access course designed to build the capabilities researchers need to navigate the scholarly communications and publishing world. Topics covered include finding a best-fit publisher, predatory publishing, data citations, bibliometrics, open access, and online research identity. Five self-paced modules, delivered by international and local experts/librarians (anulib.anu.edu.au/publishing).

Training calendar

A range of workshops are offered to help with your academic research and studies (anulib.anu.edu.au/training-register).