Information Literacy Program

NVivo11
Advanced Coding and Data Analysis
2017
# Table of Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>NVivo Advanced Coding and Data Analysis</strong></td>
<td>1</td>
</tr>
<tr>
<td><strong>Auto coding</strong></td>
<td>1</td>
</tr>
<tr>
<td>Auto Code Using Text Search Queries</td>
<td>1</td>
</tr>
<tr>
<td>Text Query Results Preview</td>
<td>3</td>
</tr>
<tr>
<td>Word Trees</td>
<td>3</td>
</tr>
<tr>
<td>Saving the Preview Results as a Node</td>
<td>4</td>
</tr>
<tr>
<td>Auto Coding Standard Datasets [Optional]</td>
<td>4</td>
</tr>
<tr>
<td>Auto Coding Social Media Datasets [Optional]</td>
<td>4</td>
</tr>
<tr>
<td>Auto Coding Using Paragraph Styles [Optional]</td>
<td>4</td>
</tr>
<tr>
<td><strong>Analysis</strong></td>
<td>5</td>
</tr>
<tr>
<td>Coding Queries</td>
<td>5</td>
</tr>
<tr>
<td>Basic Coding Queries: Wizard</td>
<td>5</td>
</tr>
<tr>
<td>Advanced Coding Queries</td>
<td>5</td>
</tr>
<tr>
<td>Editing a Query</td>
<td>6</td>
</tr>
<tr>
<td>Compound Queries</td>
<td>6</td>
</tr>
<tr>
<td>Creating a Compound Query</td>
<td>6</td>
</tr>
<tr>
<td>Matrix Coding Queries</td>
<td>7</td>
</tr>
<tr>
<td>Creating a Basic Matrix Coding Query</td>
<td>8</td>
</tr>
<tr>
<td>Editing Node Matrices</td>
<td>8</td>
</tr>
<tr>
<td>Exporting Node Matrices</td>
<td>9</td>
</tr>
<tr>
<td>Cluster Analysis</td>
<td>9</td>
</tr>
<tr>
<td>Editing Cluster Analysis Results</td>
<td>10</td>
</tr>
<tr>
<td><strong>Charts</strong></td>
<td>11</td>
</tr>
<tr>
<td>Creating Charts</td>
<td>11</td>
</tr>
<tr>
<td>Copying and Pasting Charts</td>
<td>11</td>
</tr>
<tr>
<td>Editing Charts</td>
<td>12</td>
</tr>
<tr>
<td><strong>Graphs</strong></td>
<td>12</td>
</tr>
<tr>
<td>Explore Diagrams</td>
<td>12</td>
</tr>
<tr>
<td>Comparison Diagrams</td>
<td>13</td>
</tr>
<tr>
<td><strong>Maps [Optional]</strong></td>
<td>13</td>
</tr>
<tr>
<td>Creating Maps</td>
<td>14</td>
</tr>
<tr>
<td>Mind Maps</td>
<td>14</td>
</tr>
<tr>
<td>Concept Maps</td>
<td>14</td>
</tr>
<tr>
<td>Add a note to a model</td>
<td>15</td>
</tr>
<tr>
<td><strong>Sets [Optional]</strong></td>
<td>15</td>
</tr>
<tr>
<td>Creating a New Set</td>
<td>15</td>
</tr>
<tr>
<td><strong>Exporting Results and Project Items</strong></td>
<td>15</td>
</tr>
<tr>
<td>Exporting Classification Sheets</td>
<td>15</td>
</tr>
<tr>
<td>Running Reports and Extracts</td>
<td>15</td>
</tr>
<tr>
<td>Export All Node Content as HTML web pages [Optional]</td>
<td>17</td>
</tr>
<tr>
<td><strong>Collaboration [Optional]</strong></td>
<td>17</td>
</tr>
<tr>
<td>Interrater Reliability</td>
<td>17</td>
</tr>
<tr>
<td><strong>Other resources</strong></td>
<td>18</td>
</tr>
</tbody>
</table>
NVivo Advanced Coding and Data Analysis

This course will show you how to use the most commonly needed NVivo tools to analyse your qualitative data and some more advanced NVivo features. For further information about NVivo’s full capabilities, please refer to the NVivo 11 help website: http://help-nv11.qsrinternational.com/

This session will show you how to:

- **Auto Code** your text data using **Text Search Queries**
- analyse your data using **Queries**: Coding, Compound and Matrix
- analyse your data using **Cluster Analysis**
- **Export** results and project items, and run **Reports** and **Extracts**
- create and edit **Charts** and **Graphs**
- create **Models** to visualise your project structure
- create **Sets** of project items in **Collections**
- **Collaborate** in an NVivo Project

Open the sample project to explore how NVivo can be used to analyse your data. When you open NVivo, at the top of the **Welcome Screen** there is an option to open a new **Sample Project**. Select the sample project which 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.

**Important**: Save the Project under a new name so you can alter the data without changing the sample project for other computer users. Go to **File** choose **Copy Project** and save the file as **Sample Project (2)** in your **My Documents** folder. Saved Projects can be opened on any computer with NVivo and can be altered any collaborator (a record of who changes what is kept according to User ID).

Auto coding

**Auto Code Using Text Search Queries**

**Text Search Queries** can be used to help start the coding process for a large amount of textual data by automatically coding project material (**internal text sources ONLY**) based on pre-defined coding schemes. Auto coded Nodes can always be modified later through uncoding if necessary.

**Note**: Consider checking the spelling before running queries. You will find the **Spelling** button on the **Home** tab.

Example: Create an auto coded node for **Water Quality**.

On the **Query** tab, click on **Text Search** and this will open up a new **Detail View** window with the query options at the top. Choose where to **Search in** (e.g., Selected Folders) and in **which folders** (e.g., in **Interviews** and **Surveys**). In the **Search for** area, enter the word(s)/phrase you want to look for. You can create more complex queries using the special features displayed when you click the **Special** button:

- **Wildcards**: Sometimes you want to look for words that may have alternative spellings (colour/color), are commonly misspelled or confused with a similar word (compliment/complement) etc. Wildcards can help to find every possibility. The Wildcard * is used to stand in for **one or more** missing characters (e.g., g*t will find
get, great, gradient etc.). The Wildcard ? is used to stand in for a single missing character (e.g., g?t will find get, gut, got etc.).

**Note:** If you use this function you will be limited to Exact match only.

- **Fuzzy Search:** Useful also for accounting for misspellings and words with similar stems. The symbol ~ will look for similar words (e.g., analyz~e will find analyzes, analyse, etc.).

  **Note:** If you use this function you will be limited to **Exact match only**.

- **Boolean Operators:** When you want to find a specific concept you can use a combination of words and/or excluding a word(s) in your search.
  - **AND** (or &) will search for BOTH terms (water AND quality).
  - **OR** (or |) will search for EITHER of the terms (water OR lake OR sea OR river).
  - **NOT** (- or !) will search for the first term and EXCLUDE any results that also contain the second (water NOT tap, water -tap).
  - **REQUIRED** (+), will search for items containing the required term and the second term is optionally included in results if and only if it occurs together with the first term (+water river).
  - **Double Quotes** “ “ should be used to enclose a group of words to search for a specific phrase. If you search for a phrase, the results will not include words with the same stem. For example, if you search for "alternative energy", you will not be able find "alternative renewable energies".
  - **Round Brackets** ( ) can be used to group clauses to form sub queries.

- **Near:** If you want to find words that co-occur but you want to ensure they are mentioned in the same sentence rather than several sentences away, you can specify the distance either side of the required word (e.g., “water AND quality”~10) will find instances of water and quality within 20 words of each other only.

  **Note:** you need to enclose the search terms in **double quotes** before adding the ~. In addition, the results will not include words with the same stem if the tilde (~) denotes proximity.

For this example, enter “water AND quality”~10. **Spread Coding** to a **Broad Context**, so you can see enough information when you review the success of auto coding. Decide on the **match criteria** (e.g., 3). Click **Add to Project** if you want to rerun it more easily later if you obtain new data. Then click on the drop-down menu for **Run**. Select **Run and Save Results** to store the results as a new node or merge the results into an existing one. Select **Create Results as New Node** and choose where to save the Node (the default is **Results** so change this to **Nodes**) by clicking the **Select** button next to the **Location** box. Give the new node a name (e.g., water quality) and (optional) description. Then click **OK**.
Text Query Results Preview

In the preview of the query results, there will be tabs on the right of the Detail View for:

- **Summary**: A list of all the sources that contain the word/phrase results.
- **Reference**: The results are opened as a node preview and the word or phrase is shown with a narrow, broad or custom context (which you can expand: see previous workshop notes).
- **Text, Picture, Audio, Video, or Dataset**: Displays the results found in each type of source (only relevant tabs are available).

**Exercise**

Run a **Text Search Query** for the words *Pollution* OR *Contamination* in the *Interviews* and *Survey* internal **Source** folders. Set the match level to 3 and **Spread Coding** to **None** (in order to create a Word Tree in the results for the next exercise). Save it as a new node called *Pollution*.

**Word Trees**

**Word Tree** tabs are produced when you run **Text Search Queries** (only if you choose NOT to spread coding). The branches of the **Word Tree** represent the various contexts in which the word or phrase occurs. It can be useful for finding recurring themes of phrases that surround the word. The size of the font indicates the number of times the word/phrase was found.

Word trees are highly dynamic and can be altered in a variety of ways in order to explore the relationships between words in your data. You can click a branch to highlight all of the other related branches to see the wider context. When on the **Word Tree** tab, a main **Word Tree** tab appears at the top of the window. This allows you to change the **Root Term** (e.g. polluted), the **Branch Order** (e.g., **Number of Matches**) and **Context** level (number of words surrounding the root term).

You can also find the project item where a particular occurrence of the word is used, by right-clicking on a branch to see the short-cut menu, then click **Run Text Search Query**.
Saving the Preview Results as a Node

If you run a query and decide retrospectively that the results would be valuable to save as a node, click on the query results in the Detail View, then on the Query tab click Store Query Results. From the Option list, choose to either:

- Create the results as a new node
- Merge the results into an existing node

Note: by default new nodes are created in the Results folder unless you choose another location (e.g., Nodes).

Auto Coding Standard Datasets [Optional]

You can automatically code datasets, creating nodes for:

- columns – e.g., a node for each question in a survey coding the responses in the column to that node).
- rows – e.g., a node for each respondent and code the responses in that row to that case node.

Example: Auto code The Water Quality Down East is question.

In the List View click on the dataset you want to auto code (e.g., the Survey Dataset) or double-click to open it in the Detail View. On the Analyze tab click Auto Code and the Wizard will begin to take you through the process. Click Code at nodes for selected columns and click Next. Select the appropriate column(s) you wish to autocode by moving it into the Selected Columns box using the right arrow button (e.g., The Water Quality Down East is) then click Next. You can auto code multiple questions at a time by moving more columns into this box. Select a location for the Node (e.g., under New Node in the location Nodes), and give it a name (e.g., Survey Questions). Then click Finish. This will create a new parent node called Survey Questions with one child node called Water Quality Down East is.

Auto Coding Social Media Datasets [Optional]

Example: Auto Code the Hashtags in the Carteret County on Twitter dataset.

In the List View click on the dataset you want to auto code or double-click to open the Detail View. On the Analyze tab click Auto Code and the Wizard will begin to take you through the process. Click Code at nodes for each value in predefined Twitter columns and click Next. Select the appropriate Twitter column(s) you wish to autocode (e.g., Hashtag) then click Next. Select a location for the Node (e.g., under New Node in the location Nodes), and give it a name. Then click Finish.

Auto Coding Using Paragraph Styles [Optional]

You can use NVivo to auto code your Word documents based on Paragraph Styles: a node will be created for each paragraph formatted in the style selected, and the text under the style is auto coded under the node. For example, you may have Open-Ended Survey questions and responses saved as individual Word Documents for each respondent. If you have applied the same paragraph style to the headings of the questions (e.g., Heading 2), you can auto code each question as a node (as long as the wording is identical across documents).

Select the document you wish to auto code in the Source area. On the Analyze tab, click on Auto Code and select Paragraph Style and select the appropriate paragraph styles from the list. Click Next and then select a location for the nodes (e.g., under New Node in Nodes) and give the node a Name. Tick the Aggregate coding from child nodes box, then click Finish.

Note: You can also Auto Code by paragraph number this way: choose to code by Paragraph instead of Paragraph Style.
Analysis

Queries can not only be used for preliminary coding, but also to analyse your data. There are three other types of Queries other than Word Frequency and Text, which are useful for analysis:

- **Coding:** explore how you coded your data.
- **Compound:** combine two text and/or coding queries to explore your data further.
- **Matrix:** create cross-tabulations of your nodes/sources (useful for statistical analysis).

**Coding Queries**

**Basic Coding Queries: 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)
- All of these Nodes that you specify (e.g., water quality and fishing or aquaculture)
- Any of these Nodes you specify (e.g., habitat OR forest OR landscape)
- Any node where there are particular attribute values (e.g., all the responses of the Person classification attribute of Education Level equals value Completed undergraduate college).

Example: How many and which references are coded at both water quality AND the specific Economic concern of fishing or aquaculture?

On the Query tab, click Query Wizard, then click the Search for content based on how it is coded, and then click Next. Choose All of these Nodes and tick water quality under the Natural Environment node, and fishing or aquaculture under the Economy 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, 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 look for coded content in Items in Selected Folders to restrict the query, click the Select button and choose Interviews and Surveys folders. Click Next, then choose whether you want to Run this Query Once or Add this Query to Project (and run it). If you choose to add it to your project, you must enter a name and (optional) a description it will be saved in the Queries area. Then click Run.

**Advanced Coding Queries**

If you want to use more advanced Coding Queries 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 Create tab.

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

On the Query 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 the right labelled "..." 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 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 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 **Any Selected Node** then click the **Select** button to choose the Node **Sense of Community Down East** AND all of its child nodes this time (because the parent node does NOT have Aggregation turned on). **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 before adding the next coding criteria.

**Editing a Query**

If you make a mistake in a Query, you can always click the **Last Query** icon on the **Query** tab to go back to the query criteria. You can also alter it if the **Detail View** of the query is still displayed.

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.

**Exercise**

Find out if the interviewees and survey respondents see a connection between real estate development and the water quality. Search for **Content Coded At water quality NEAR Content Coded at real estate development** and look in the **Interviews and Survey folders**

**Compound Queries**

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

- Combining two **Text Search** queries to find where one term **precedes** another (e.g., poor before quality as opposed to good before quality).
- Combining two **Coding Queries** to search for content coded at one node, **near** content coded at another (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 in or near coded content (e.g., do people mention the 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 **Query** tab, click **Compound**. This opens a new menu window only, not a Detail View like the other searches. On the **Compound Query** tab 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., 5) 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 20 words (before or after).
- **PRECEDING content** - content coded at Node A when it precedes content coded at Node B.
- **SURROUNDING content** - 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 options for proximity and retrieval (e.g., **In custom context in surrounding paragraph**):

- **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).

You can choose how much content you want to gather in the resulting node/preview (e.g., the content of Node A **and** not Node B) in the **Options**. You can tick:

- **Finds for first search item** - gathers content matching the criteria defined for the first search item.
- **Finds for second search item** - as above for the second search item.
- **Content between finds** - displays all content between the first and second search items. 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 source (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**.

**Note:** You cannot use the Query Wizard to run a Compound Query.

**Matrix Coding Queries**

You can use **Matrix Coding Queries** to cross tabulate the frequencies of content coding in order to:

- Compare what different demographic groups have said about an issue (e.g., what are the similarities and differences between male and female responses to Question 4 *Community and Environmental Change* (in the **Nodes** folder for **Auto Coded Responses**)).
- Compare terms used in different contexts (e.g., prime concerns regarding *habitat*, *landscape* and *water* quality in the different *Townships*?).
- Compare attitudes (e.g., do *Males* have more positive attitudes than *Females* for all Nodes?).

They are also particularly useful for further descriptive and inferential statistical analysis using chi square for example (when cells are independent). Most often nodes are used in the rows and columns of the matrix, but you can also select sources. You can also select content that meets particular attributes or attribute value conditions (e.g., age>30).
Creating a Basic Matrix Coding Query

Example: Do Commercial Fishers have more positive attitudes than Recreational within the context of water quality?

On the Query tab, click Query Wizard and click Cross-tabulate how content is coded, and then click Next. This will open another menu window instead of a Detail View. Then Add rows by clicking on the Add Selected Items or Add Selected Attributes (e.g., add items under the Attitudes Node: tick Mixed, Negative, Neutral and Positive) then click Next. Then Add columns in the same way (e.g., add the attribute condition from the Case Classifications folder for Person and click Commercial Fishing then click OK. From the drop-down box, select Equals Value and then select Yes from the next drop-down box. Click Add Attribute Condition again and follow these steps to add Recreational Fishing as well). Then click Next.

Choose where you want to search (e.g., search in Selected Items and choose the Water Quality Node in the Nodes folder under Natural Environment nodes) then click OK. Click Next and choose if you want to run the query once or add it to the project (and run it). Click Run.

Note: You can also create a query outside the Wizard to have more advanced options. On the Query tab click Matrix Coding.

You can save the matrix retrospectively in the Node Matrices folder in the Nodes area for future reference. Select the whole table, right-click on it and select Store Query Results and then select Create Results as New Node Matrix. Select the location Node Matrices, give the matrix a Name and (optional) Description, then click OK.

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 references relating to that cell to look at the context. In this sense, Matrix Coding Queries can be useful alternatives to compound queries.

Exercise

See which Townships are more concerned about Habitat, Landscape and Water Quality Nodes. Using Matrix Coding function on the Query tab, select all the Townships attribute values (from the Person classification in the Nodes Classification folder) for the Rows. For the Columns select the nodes: Habitat, Landscape and Water Quality. Search In the Nodes folder only. Then click Run.

Editing Node Matrices

You can click and drag columns wider or narrower to see more content. Columns can be sorted in ascending or descending order, by selecting the column of interest, on the Layout tab click on Sort By and then click Column. If you need to transpose columns and row, click on the node matrix in the Detail View then on the Layout tab, click Transpose. Each column and row can be filtered by clicking on the appropriate filter (funnel) symbol. NVivo will show or hide columns/rows based on the filter (e.g., hide rows where number of responses = 0).

You can also apply shading to cells to make it easier to see patterns. When you are in the Matrix Query results, click on the View tab, then the Detail View tab and click on the drop-down menu for Node Matrices and select a shading option (e.g., Blue-White). The darker the shading 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). You can also display row or column percentages in the cells of the matrix in the drop-down menu for Node Matrices.

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 person. To see the number of people in each cell making relevant references, click on the View tab, click Node Matrices then under Cell Content choose Cases Coded by → Person.

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 Creating and Editing Charts below).
Exporting Node Matrices

You can export a Node Matrix to a text or spreadsheet file in order to analyse it statistically. In the List View select the Matrix you want to export and on the External Data tab click Items. Select a location to save the file, change the name if necessary, and in the Save as Type box choose the appropriate file format. Click Save.

Cluster Analysis

Cluster Analysis is helpful in identifying patterns in data by grouping sources or nodes into clusters (maximum of 10 by default) based on similarities of words, nodes, or attribute values. It uses the farthest neighbour (a.k.a. complete linkage) hierarchical clustering method. You can cluster the following project items:

- **Cluster based on Sources** (e.g., to identify similarities between articles or responses of individual interviewees).
- **Cluster based on Nodes** (e.g., to identify similarities between codes you have used – some may be able to be collapsed).
- **Cluster based on attribute values** (e.g., if you want to see if there are separate demographic groups you could analyse).

And you can cluster at the selected sources or nodes based on:

- **Word similarity**: based on the number of times the word appears in the source/node.
- **Coding similarity**: based on presence or absence of the node.
- **Attribute value similarity**: based on the presence/absence of the attribute value.

Note: stop words are excluded when using this measure.

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.

<table>
<thead>
<tr>
<th>Based On What?</th>
<th>Cluster What?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Word Similarity</td>
<td>Cluster People*/ Sources based on words they use</td>
</tr>
<tr>
<td>Coding Similarity</td>
<td>Cluster People*/ Sources based on the way you coded their responses</td>
</tr>
<tr>
<td>Attribute Value Similarity</td>
<td>Cluster People*/ Sources based on demographics</td>
</tr>
</tbody>
</table>

* will cluster people if People are represented by individual source files. People may be represented by Case Nodes, in which case cluster by Nodes that related to people.
**Example:** Conduct a Cluster Analysis to see which interviewees have similar views and what do they have in common.

To run a Cluster Analysis, on the Explore tab, click the Cluster Analysis icon to open the Wizard. Select to cluster by Sources (to cluster by Interviews), then click Next. Then select the Project Items (e.g., Interviews from the Internals folder) then click OK. Select how you want to cluster them from the drop-down menu (e.g., by Coding Similarity), and then choose the Similarity Metric (e.g., Pearson’s). Click Finish.

The Diagram tab shows you a dendrogram (by default) which indicates which interviewees are most similar in terms of the coding you applied to their interviews. Those that cluster together are more similar than those far apart. On the Summary tab you can see a metric of how similar they are. 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 the interviews in a cluster have in common, click on the interview names to highlight them, right-click on the selection and choose Run Group Query. If you click on the Connections Map tab, you can see the nodes they have in common (all names link to them).

**Note:** this only works when you cluster by Node.

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

Charts can be used to explore your summary data to see if there are potential relationships or trends to be assessed statistically. When you conduct a Query investigation, several tabs appropriate to the analysis will appear on the left hand side of the Detail View. There are 6 types of Charts and which those that are available depend upon the data you choose to view in the chart. Tables are displayed in the Summary Tab of results, and are used to generate the Charts you require. A predefined chart will be displayed on the Chart tab. This can be changed at any time.

Creating Charts

Example: Create a Bar Chart of Age Groups by Gender.

You can create a chart in the Chart Wizard. On the Explore tab click on Chart choose a chart to represent Cases (e.g., Nodes) then click Next. Select Coding by attribute value for two attributes. Click the Select button to define the X-Axis Attribute for the chart (default bar chart) and choose the appropriate attribute (e.g., in the Person classification choose Age Group). Then define the Z-Axis Attribute (e.g., Gender). You can change the options for the X-axis Attribute values (default is all values) and for the Y-axis values (default is number of matching nodes) in the drop-down lists. You are also able to change the attribute value display order if you wish (default is as defined in attribute). Then click Finish to create the graph. The Detail View displays the graph and also includes a Summary tab which displays the data table used to create the chart.

Example: Create a Hierarchy Chart to summarise the nodes in your Project.

Hierarchy charts are essentially Tree Diagrams, and can be helpful for summarising the hierarchical structure of your nodes. On the Explore tab, select Hierarchy Chart and Hierarchy Chart from the drop-down menu. Choose, Amount of Coding for Nodes and then click Next. Compare All Nodes then click finished. The chart is displayed in the Detail View and you can zoom-in on any section by clicking on it once. At the top of the window, there is a path which shows where you are in the graph (e.g., Economy node). To go to the full graph, click on the Home icon.

Copying and Pasting Charts

To copy and paste a chart into a Word document for example, all you have to do is select the chart, click on Copy on the Home tab, then paste the image to your document. Or you can right-click on the chart and select Copy or Export to a picture file.
Editing Charts

Chart Type: When you produce a chart you get a new main tab called Chart. On this tab you can change the chart type from the scroll-through menu. 3D charts have sliders on the right-hand side so that you can rotate the chart appropriately.

Chart Elements: To exclude data from the chart, click the Select Data icon on the Chart tab, and in the drop-down menu for the X-axis Attribute select the appropriate option (e.g., All attribute values except Unassigned and Not Applicable), then click OK. If you want to change the items displayed on a chart, on the Chart tab, click Select Data. Under Chart Elements click Select and add/remove items using the Select Project Items dialogue box. If you want to show, hide or change the position of the chart legend, on the Chart tab click hide/right/left/top/bottom in the Legend box. To hide/display data values on a chart, tick or untick the Data Values box.

Appearance: It’s also possible to display any colours you have assigned to sources, node and attribute values: on the View tab, click Colour Scheme and then click Item Colours. You can show or hide gridlines on charts: on the Chart tab, in the Gridlines group of options, click X, Y, or Z. If you want to change the Chart Title, on the Chart tab enter text in the Title box. In the Chart Elements list, select Title, then on the Home tab, select the options you want for Font, Font Size, Bold, Italic, Underline or Font Colour. You can also change the alignment this way in the Paragraph options area. You can do the same for the chart labels, just select Axes in the Chart Elements list instead.

Graphs

Explore Diagrams

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

You can also create graphs to show how project items are connected to a source or node.

Select the Source or Node you want to create a graph for in the Node 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, where you have extra options such as showing or hiding information (e.g., sources coded). You can also change the focus to another node within the graph itself: right-click on a node 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 see:

- Which sources have been coded at particular nodes.
- When two cases have talked about the same topic.
- What two project items have in common, and what is unique to each item.

**Example:** Create an Comparison Diagram of the nodes related to Environmental Impacts and Environmental Change.

On the Explore tab, click on the **Comparison Diagram** button and choose to **Compare Nodes**. Then select the nodes **Environmental Impacts** and **Environmental Change** child nodes under the **Natural Environment** parent node. Then 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 **Sources Coded**.

Maps [Optional]

There are 3 types of Maps in NVivo11:

- **Mind Maps** – For brainstorming ideas and planning your project.
- **Concept Maps** – Visually representing the relationships between project items to identify patterns etc.
- **Project Maps** – To visually represent the items and links in your Project.

**Dynamic Models** can be changed, and **Static Models** are read-only (all links are removed, but it’s useful for keeping snapshot records of your progress). All newly created models are dynamic.
Creating Maps

Mind Maps
Mind Maps help you to create diagrams with a hierarchical structure. On the Explore tab click Mind Map. Enter a name for the model in the Name box, and an (optional) Description, then click OK. If you want to work on the model in a separate window for more space, on the View tab untick the Docked check box and make the window wider. An initial shape is already prepared for you to enter a label for the main idea of the map (e.g., Research Project). If you want to add a “child” idea (e.g., a shape connected to the main idea) right-click on the shape and select Child idea and give it a label (e.g., Hypothesis 1). You can add a Sibling idea in the same way (at the same level in the hierarchy of the shape you attach it to). If you want to create an unconnected shape, click the Floating idea button on the Explore tab (e.g., for Available Resources). You can change the colour of a shape by clicking on it and changing the colour from the Fill drop-down menu on the Explore tab.

You can also convert the mind-map to a hierarchical group of nodes by selecting the main idea node and clicking Create as Nodes.

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 elements that are connected to Project items (i.e., you can open the project items directly from the map).

On the Explore tab click Concept Map. Enter a name for the model in the Name box, and an (optional) Description, then click OK. In the Detail View click and drag the shapes you want to add from the window pane on the left. Consider using different shapes to denote different elements of your project (e.g., circular for positive and square for negative). Double-click on the shapes to enter labels.

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 tab and select the direction you want. To get your normal cursor back, just click Pointer.

If you wish to add a shape which is a link to a Project Item, click the Project Item button to bring up a menu and tick all the items you want to add, and click OK. You can also click-and-drag project items from the List View to the map.

You can delete a shape by selecting the one you want to delete then on the keyboard click Delete.
Add a note to a model

You can add notes to models: 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.

Sets [Optional]

You can use the Sets folder in the Collections area of the Navigation View to create virtual folders with shortcut links to project files. Items in a set folder are simply shortcuts to the original files. You can delete an item from a set without removing it from your project. You can create an empty set to add items to later, or create a set based on existing project items.

Creating a New Set

In the Collections area, click on the Sets folder and on the Create tab click Set. Enter a name in the Name box (e.g., Check Coding) and (optional) Description. Click OK. When you click on the new set folder in the Navigation View right-click in the blank space in the List View. Select Add Set Members from the menu, and select the sources or nodes you want to add. Then click OK.

To remove items from a set, select the items you want to remove and on the Home tab click Delete.

Exporting Results and Project Items

The easiest way to export any sources, nodes, models, report output, as well as query results and visualizations is when they are displayed in Detail View. Click on the Detail View you want to export, and on the External Data tab click Items. If you’re exporting Text Search, Coding or Compound Queries, choose what you want to export (Entire Content, Reference View or Summary View). If you are exporting a Matrix Coding Query, a Query Visualisation or list of items in the results of a query, choose the file format for the exported file in the Save As Type list. In the File Name box, change the name if you like. Click Browse to select where you want to save it and click OK.

Exporting Classification Sheets

Example: Exporting the Person classification summary sheet.

If you want to export a spreadsheet containing your demographic or bibliographic information for example, you can export source or node classification sheets as an Excel Workbook (*.xlsx). Click on the classification sheet you want to export (e.g., the Person classification in the Node Classifications folder). On the External Data tab click Classification Sheets in the Export group (not the Import group). Select the appropriate export options: (e.g., export to Excel Workbook). Choose a location to save the file and then click OK.

Running Reports and Extracts

Reports contain easy-to-read information about your project that you can print (e.g., you could run a Coding Summary by Node report to review the content coded at each node organized by source). When you run a report, the results are displayed in Detail View and can be printed from there. Extracts allow you to export a collection of data to a text, Excel or XML file for analysis in another application. When you run an extract, results are saved as a file.

There are predefined reports and extracts that you can run at any time (see below). You can also build your own reports.
### Predefined reports and extracts

<table>
<thead>
<tr>
<th>Description</th>
<th>Predefined reports and extracts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coding Summary by Node</td>
<td>Lists your nodes and the sources that are coded at them. Any textual content coded to the node is included in the report. This is useful for reviewing coding.</td>
</tr>
<tr>
<td>Coding Summary by Source</td>
<td>Lists your sources and the nodes that code them. Any textual content coded to the node is included in the report.</td>
</tr>
<tr>
<td>Node Classification Summary</td>
<td>Lists the classifications and attributes for the nodes in your project. You can extract this data for complementary analysis in statistical applications.</td>
</tr>
<tr>
<td>Node Structure</td>
<td>Lists the nodes in your project with information about the folder location, aggregate status, nickname and colour.</td>
</tr>
<tr>
<td>Node Summary</td>
<td>Lists the nodes in the project including statistical information about each (e.g., the total words coded, the number of sources coded, and the number of users who have coded at a node).</td>
</tr>
<tr>
<td>Project Summary</td>
<td>Displays the properties of your project (e.g., project name and description), the user profiles associated with your project, and lists all the items within your project.</td>
</tr>
<tr>
<td>Source Classification</td>
<td>Lists the classifications and attributes for the sources in your project. You may want to extract this data for use in other applications that support text, Excel or XML file formats. If you want to export bibliographical data to reference management tools like EndNote or Zotero</td>
</tr>
<tr>
<td>Source Summary</td>
<td>Lists the sources in the project. For each source, it shows source properties and statistics (e.g., number of words, paragraphs), including the number of nodes that code the source.</td>
</tr>
</tbody>
</table>

**Note:** Node matrices and framework matrices are not included in the Node Summary or Source Summary reports.

**Example: Run a Node Summary Report.**

To run a predefined report, go to the Reports area in the Navigation View and select the Reports folder. In List View select the report you want to run (e.g., Node Summary). On the Explore tab click Run Report. If your report contains filters, the Filter Options dialogue box is displayed and you can select any filters you wish to apply to the data. Click OK. To run a predefined extract (i.e., save the report as a file), go to the Extracts folder instead and run the extract.

You can also design your own reports using the Report Wizard. You can also use the Report Designer to modify predefined reports. See the NVivo 11 Help website under Using the Report Designer for more information on editing reports.

You can cancel a report or extract, if it is taking too long to run by clicking the red cancel button beside the progress bar that is displayed at the bottom of the window when the report or extract is running.
Export All Node Content as HTML web pages [Optional]

You can export the entire content of a node as a collection of HTML pages to share your project findings (including audio and video clips) with colleagues who don't have NVivo. The node is exported as a series of web pages that are stored in your My Documents folder. The Home page has the same name as the exported node (for example, adapting to climate change.htm). You can open this file to access the 'mini website'.

In the List View, select the node you want to export. On the External Data tab, click Items and from the Export Options list select Entire Content. Click the Browse button the change the name/location of the exported files under Save As. Select the properties and related content that you want to include and tick the select the Open on Export check box to see the html pages. Click OK.

Note: If you want to move the web pages, make sure you copy the folder containing the .HTM files to the new location. For nodes that code audio and video sources, the coded sections of media files will be included upon export only if you coded directly on the audio or video timeline.

Collaboration [Optional]

It's always a good idea to have more than one person coding the data to improve the reliability and validity of the research. You can keep track of who coded what and how, by giving each team member accesses the project using their own 'user profile'. [You need to use the same version of NVivo]. The easiest option is for everyone to work on the same project at different times on a Standalone Project (a single file) logging-in with different user profiles.

When you open the project, 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). If not, you can switch to the correct user profiles without closing the project: click the General tab and then under User enter the name and initials of your User Profile that you want to switch to.

Note: It MUST match your User Profile initials or it will create a new profile for you. Then click OK.

If more than one user wants to work on a project at the same time, you can establish a 'master' project, and then give a copy of the master project to each team member. The team members work in the copied projects while you work in the master project. At regular intervals, you can import your team members' work into the master project—refer to Import selected content into an open project on the NVivo 11 Help Site for more information.

Interrater Reliability

An important measure of the reliability of your coding scheme is to see how well multiple coders (or raters) agree with each other on the coding performed. You can conduct a Coding Comparison Query to get two measurements of inter-rater reliability: the percentage agreement (the number of units of agreement divided by the total units of measure within the data item) and 'Kappa coefficient' (a statistic which compares your level of agreement to that which could be expected to occur by chance alone). For more information on conducting an interrater reliability analysis see Run a Coding Comparison Query ion the NVivo 11 help site.

On the Query tab click the Coding Comparison and select the users you wish to compare from the Compare coding between box. In the At box click Select and choose the nodes you wish to include in the analysis. Choose the specific sources to use in the Scope box and select the measure you want to use: Kappa or Percentage Agreement. Click Run.

You can double-click on a row in the results to compare the coding conducted.
Other resources

Training notes

To access the Information Literacy Program’s 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 (qld.anu.edu.au/howto). Topics covered are:

- Citations & abstracts
- Data Management
- EndNote
- Finding books and more
- Finding journal articles and more
- Finding theses
- Increasing your research impact
- NVivo
- Topic analysis
- Using Google scholar from off-campus

Digital badges

Earn Digital Badges by completing the Library’s online courses (Search skills and strategies, EndNote: collect, curate, create and Increasing research impact). Self-enrol by logging in to Wattle (qld.anu.edu.au/badge).

Online learning

Online learning is available through ANU Pulse (qld.anu.edu.au/pulse), which can be accessed from both on and off campus by all ANU staff and students.

- Microsoft Office (Access, Excel, OneNote, Outlook, PowerPoint, Project, Visio, Word)
- Microsoft Office (Mac)
- Adobe suite (Illustrator, Photoshop)
- Other IT (Concepts of IT, FrontPage, Internet Explorer, Type IT, Windows)

Training calendar

Select Events » near the bottom of the Library homepage to access our events calendar with upcoming training opportunities displayed day by day (qld.anu.edu.au/cal).

Feedback!

Please provide feedback about today’s workshop via an online feedback form (qld.anu.edu.au/survey)