

## USAGE OF NVIVO SOFTWARE FOR QUALITATIVE DATA ANALYSIS

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### ABSTRACT

*The size of data collected by qualitative research methods is extremely large as compare to traditional quantitative data collections, and making sense interviews and field notes can be overwhelming. Often organizing and analyzing the data can appear to be problematic. A method still employed by some qualitative researchers for this scary task is by hand. However qualitative theorists have encouraged the use of qualitative data analysis software tools. For qualitative researches there are many software packages available for the researchers. One of the most advanced data analysis packages, computer assisted qualitative data analysis software (CAQDAS) NUD\*IST Vivo or NVivo helps tremendously from conceptualization and coding of data to an entire research project. NVivo assists for manipulating data records, browsing, coding, and interpreting them. It also provides quick and accurate access to data records. Normally, qualitative researchers extract ideas and link them with data in order to express their understanding of certain research question. NVivo assist the researcher for linking—DataBites, DocLinks, and NodeLinks. DataBites are links made at selected text within a document. The researcher selects the text and easily links that text to a photograph, document, etc. DocLinks and NodeLinks can be placed in a document, anywhere within the text, or at a node. A DocLink can take the researcher to an existing project document or documents or to a new document. A NodeLink can take the researcher to text coded at an existing node or nodes or to textual passages. In short NVivo assists in the management and synthesis of ideas. It offers a variety of analyzing tools for developing new understandings and theories about the data and testing of answers to research questions.*

*Keywords: quantitative data, qualitative research, NVivo, software*

### INTRODUCTION

Literature review is a common feature of all kind of researches irrespective of field of study or subject matter. It frames basis of research or learned work. The research questions and hypotheses are supported by the comprehensive literature review. Like data analysis for findings, literature review is document analysis for understandings. In, especially, qualitative researches both—data analysis and literature review are equally important because the processes involved in building an argument from a body of literature are similar to processes involved in analyzing qualitative data.

Researchers have developed various strategies to deal with bulk of material to generate literature review through following general steps.

- Reading documents and noticing their reflecting
- Interacting with the past literature/data and analyzing for researcher's comments
- Identification of significant themes and recording them through codes
- Linking similar ideas from different transcripts/documents

- Comparing similarities and dissimilarities in transcripts/documents
- Identifying contradictions in same type of arguments by different researchers
- In the last, building researcher's own understandings and making analysis with links to supporting evidence in the past researches

In the age of digital, the literature reviewing process story has been totally changed from card indexes—manual work to bibliographical software—electronically works. Software Packages such as EndNote, Reference Manager, ProCite etc. are excellent tools to manage references for literature review. They made possible to search and sort references. They have direct links with word wild web packages, making it easy to insert the correct citation at a point in the text. They have made possible to do the similar tasks to analyzing qualitative data, mentioned above. Now it is possible to interacting with the past literature/data for researcher's comments and reflections on past researches by code them with certain key words etc.

Software packages—WinMax , Atlas.ti, N4 Classic, N5, NVIVO, etc. are being used in a literature review to support the analysis processes involved. These software packages are in use in addition to Software Packages such as EndNote, Reference Manager, ProCite etc., as they do not have the bibliographic tools that those packages have. NVIVO, among all the qualitative analysis software packages, has a particular set of tools that is most significant feature for analyzing literature and flexible as compare to other qualitative analysis software packages.

### **Proxy Documents**

These are the parts of the text that you want to remember from reading different documents/transcripts/articles etc. These summaries may explain the author's central ideas, arguments or key findings etc. there may be some significant arguments in these summaries that you want to quote them when you are writing up your own argument. These summaries may have some arguments that are contradicting each others.

The Proxy Document is the NVIVO help the researcher to carryout the processes of summarization. A Proxy Document represents a specific passage from your literature review. Researcher creates a Proxy Document directly in NVIVO by recording the start page number and the end page number any description that researcher may find useful in a document without writing in a word-processor first. NVIVO will automatically format a Proxy Document with the page numbers listed down the left-hand margin. Then researcher is able to type directly into your Proxy Document. Researcher can use different colourful headings to distinguish summaries of arguments from direct quotations. In this way researcher is able to view an outline of his summaries/quotations and jump to that point in Proxy Document.

It is also possible to import into NVIVO whole articles by scanning in or downloading. But it is not appreciated because Literature Reviews should be done with a purpose in mind. The process of summarizing of arguments through Proxy Document engages researcher in thinking and reinforces his understanding resultantly it can stimulate researcher for his own critique.

### **Organizing the Literature**

After making Proxy Documents in NVIVO literature review project, researcher can organize them by author, date of publication, country of publication, academic discipline and by topic. The way of organization of literature depends on the purpose of literature review. Once Proxy Documents are organized, researcher can pull out all the literature on a particular topic from a particular discipline. Bibliographic software packages can do this however, the purpose of doing this in NVIVO is that once researcher have collected this combination of references, he can save them and can restrict his further analysis to just that set of documents.

### **Critiquing particular pieces of literature**

A Memo to a particular Proxy Document is the NVIVO tool support the researcher in writing out his own reflections on the piece of literature and he starts building his own critique of it. In this way

researcher support his critique by linking to quotes that he extracted from the piece in the Proxy Document.

### **Combining the data**

Proxy Document—Coding is a tool to collect information about a theme under consideration. If coding seems to not enough then researcher carries out refinement in coding—spreading coding and, then nodes are created. Nvivo lists all codes and researcher is able to delete irrelevant test/passage from the nodes. Once the coding is completed, researcher can pull out all arguments related to a specific theme or restrict his reviewing literature to a specific year.

### **Building arguments supported by the literature**

By using DocLinks—links within documents, and NodeLinks—links within coded passages in nodes, refer to the Proxy Documents researcher can be build his argument. DocLinks are used as general citation in writing an article while NodeLinks are used as a direct quotation in an article.

These are general strategies for analyzing qualitative data and the software tools that can be used to aid these strategies. It is important to remember that NVivo does not eliminate the need for the researcher to think because Nvivo does not analysis the data but helps the researcher in analyzing the data. By using Nvivo for literature review, researcher is creating a literature archive and it is the researcher who draws conclusions and inferences from data. In this way, researcher starts to write up his literature review.

## **ANALYZE QUALITATIVE DATA BY NVIVO**

Transformation of data into findings and inferences is the main objective of the qualitative data analysis. Data analysis techniques are might be understood aspect for differentiation of qualitative and quantitative research methods.

According to Patton (2002) “reducing the volume of raw information, sifting trivia from significance, identifying significant patterns, and constructing a framework for communicating the essence of what the data reveal”. Simplest way to judge the findings is to identify cause and effect relationships or different patterns in the research data. Ambiguities in data can be handling by starting data analysis immediately after first review of observations till the completion of analysis. Since the size of data in qualitative researchers is extremely large enough to handle manually, qualitative theorists have encouraged the use of qualitative data analysis software packages (e.g., Berg, 2001; Denzin & Lincoln, 1998; Kelle, 1997a, 1997b; Krueger, 1998; Merriam, 2001; Miles & Hueberman, 1994; Morse & Richards, 2002; Patton, 2002; Silverman, 2000, 2001; Taylor & Bogdan, 1998; Tesch, 1990).

Software Packages that are assisting in the analysis of qualitative data are referred to as Computer-Assisted Qualitative Data Analysis Software (CAQDAS) (Patton, 2002). Basically three types of software are in use in qualitative data analysis. Some only retrieve text; others code and retrieve text; still others are referred to as theory-building software (Fielding, 1994). Text retrieving—permits the user to recover data by using keywords that appear in the text, Code-and-retrieve—permits the researcher to separate text into segments, attach codes to those segments of text, and then find and display all text segments with a given code or some combination of them, Theory building—deals with the relationships between the different categories themselves and the researcher can make connections between nodes, develop higher-order categories and classifications, formulate assertions that fit the data, or test those assertions to determine if they apply (Fielding, 1994). The most popular packages used for qualitative research purposes is NVivo by Qualitative Solutions and Research Pty. Ltd. of Melbourne, Australia.

NVivo assist the researcher in manipulating data records, browsing them, coding them, and annotating and gaining access to data records quickly and accurately (Richards, 1999). NVivo has tools for “recording and linking ideas in many ways, and for searching and exploring the patterns of data and ideas. The various actions—proxy documents, nodes, and attributes give values to attributes, linking, coding, and shaping in sets the documents and nodes. This work is starts from the Launch Pad

After creating a project, another window, the Project Pad opens. This Project Pad guide the researcher how to use most common activities associated with the Nvivo.

Documents are created within or imported into the package and these documents can be explored, browsed, changed, linked, and coded. Visual coding—similar topic in same color can be used to mark passages for review. Nodes—containers of categories and coding, represent abstract ideas, concepts, people, places, processes, or any other category established documents for project. Nodes can contain any amount of document coding. Researcher can reorganize, change the index system as ideas form and merge within Nodes. Attributes store information about research study, for example, data sources, an organization, the people, a site, the year a document was created, gender of a respondent, the location at which a photograph was taken, or other aspects of nodes.

Normally, qualitative researchers link finding and ideas across different researches in order to express their understanding about a specific theme. NVivo permits the researcher to create such links by establishing linking—DataBites, DocLinks, and NodeLinks. DataBites are links made at selected text within a document. The researcher selects the text and easily links that text to a photograph, document, etc. DocLinks and NodeLinks can be placed in a document, anywhere within the text, or at a node. A DocLink can take the researcher to an existing project document or documents or to a new document. A NodeLink can take the researcher to text coded at an existing node or nodes or to textual passages. By using these linking techniques, the user can make internal annotations or write memos concerning certain pieces of data (Richards, 2002). Coding is, in NVivo, placing references to text at nodes. A number of sets can be generated by documents or nodes. By using codes researcher can search within a set, etc.

In short NVivo assists in the management and synthesis of ideas. It offers a variety of analyzing tools for developing new understandings and theories about the data and testing of answers to research questions.

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