

Computer-Assisted Qualitative Analysis: A Review of Selected Software

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A Software Review of
QDA Miner, *HyperRESEARCH* and *XSight*

Dealing with volumes of textual data is a daunting task for qualitative researchers. Any help they can get to speed up data entry, reduction and analysis will give them more time to spend for processes that are critical to qualitative research, such as surfacing subtexts and understanding the meanings embedded in the raw transcriptions that they have collected.

This article reviews three programs that offer new and exciting ways to mine texts and make sense of qualitative data. These are *QDA Miner*, *HyperRESEARCH* and *XSight*, which are used for data reduction and analysis.

Qualitative software programs for data analysis help the researcher organize the data according to themes, concepts, processes, and contexts. Some programs even go as far as allowing the researcher to store memos, comments, annotations, and random thoughts.

According to Lewins and Silver (2006), the software for data analysis available in the market nowadays are of three types: 1) code-based theory building software, which “assist the researcher in managing the analysis of qualitative data, to apply thematic coding to chunks of data,... enabling the reduction of data along thematic lines” (2); 2) text retrievers, which use complex and sophisticated ways “to find words with similar meaning, to index all words contained in the text, to provide word frequency tables, to create active word lists, [and] to provide easy key word/phrase in context retrieval” (2); and 3) text-based managers, which offer more ‘sophisticated’ content analysis functions, such as the “creation of keyword co-occurrence matrices across cases, creation of proximity plots for identification of related keywords, charting, and graph building facilities” (2). Much like the data entry programs, however, software for data analysis cannot entirely replace the researcher. In this case, the software can only handle the technical data analytic tasks; the researcher will still have to do the substantive analyses. Still, their contribution in facilitating analysis of textual data cannot be discounted.

QDA Miner 2.0

QDA Miner combines qualitative and quantitative tools in analyzing textual data. For this program to run smoothly in one’s computer, certain system requirements are needed: Microsoft Windows 98 or later, 48-MB RAM, and 9-MB disk space. *QDA Miner*’s trial version is downloadable at this URL: <http://www.provalisresearch.com/Download/download.html>.

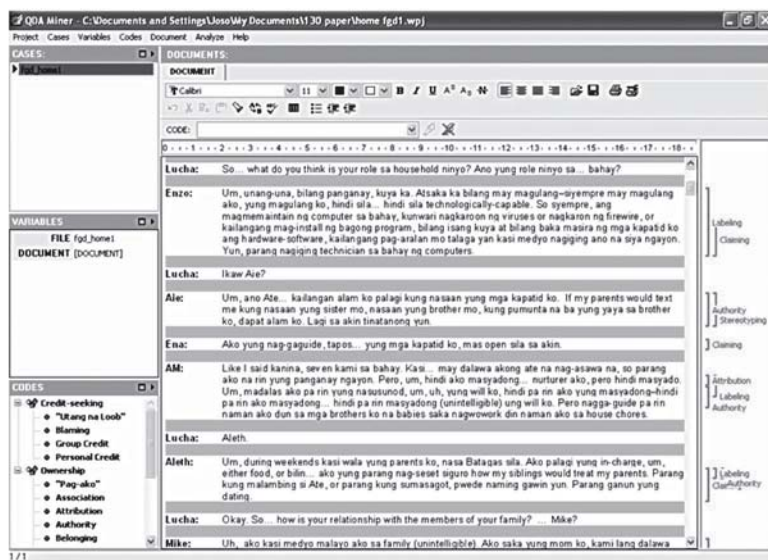


Figure 1. QDA Miner Workplace

One of the best features of the program is that it supports several document file formats, including *Microsoft Word* and *Microsoft Windows Write*, *WordPerfect*, Rich Text Format, ASCII Text, HTML files, *Adobe Acrobat* or PDF files, *Microsoft Access* and *Excel* formats, *dBase*, *Lotus 1-2-3*, *Paradox*, tab or comma-delimited text file formats, SPSS .sav files, and Triple S² format (Provalis Research, 2005).

How does it work? First, the researcher imports the document files to be analyzed. *QDA Miner* labels each document as a "case". One can easily switch from one case to another by going to the *Cases* box and simply clicking on the name of the case one wishes to see. The researcher then keys in words or phrases (i.e., codes) that represent the main themes and sub-themes to be located in the text. *QDA Miner* searches for these codes and generates a coding frequency table. This table shows the number of times each code appears in the text, and helps the researcher identify which main themes and sub-themes are more dominant than the others. This table is exportable to *Excel*

and may also be saved as a bitmap file. Moreover, 2D and 3D maps may be generated from the frequency distribution data.

Another useful feature of the program is coding retrieval, which allows the researcher to list “all text segments associated with some codes or pattern of codes” (Provalis Research, 2005). The text segments are presented in tabular format and can be exported to *Excel* or to *Word*. *QDA Miner* also allows for coding co-occurrences, which “provide graphic tools to assist in the identification of related codes. A co-occurrence is said to happen every time two codes appear in the same document” (Provalis Research, 2005). This particular feature of *QDA Miner* is especially helpful when the researcher wishes to generate concept maps.

There are several other things that a researcher would appreciate about *QDA Miner*. It allows for color coding. Files are transferable to another computer, making file-sharing among researchers possible. Unlike the trial versions of some programs, which do not allow users to save files, *QDA Miner*'s trial version permits the saving of files. *QDA Miner* also has a secure multi-user function: it requires users to have a password and to log in/log out every viewing of a document. This software also computes inter-coder reliability, when there are multiple coders working on a document. The program also “auto-saves” one's work. Finally, *QDA Miner* may be used with other quantitative software for supplemental content analysis.

On the downside, *QDA Miner*'s efficiency rests largely on the researcher's ability to identify the appropriate main themes and sub-themes in a text. Also, the diagramming and concept mapping feature of this program is not as interactive and flexible as one hopes it to be. The diagrams and maps produced from the software are only graphical representations of the quantitative coding results (i.e. showing proximity and relationships of concepts).

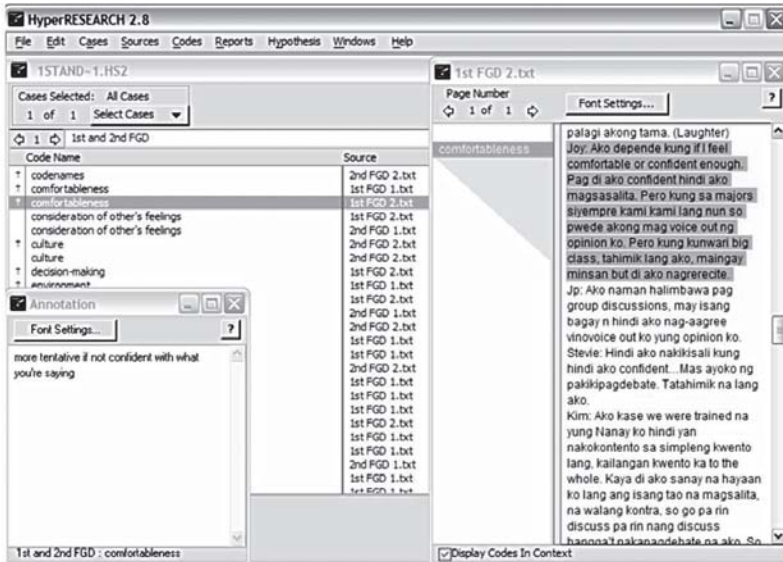


Figure 2. HyperRESEARCH workplace

HyperRESEARCH 2.8

HyperRESEARCH is described as a code-based theory builder software. However, this software does not literally “build theories” but tests hypotheses pre-identified by the researcher. Through the Hypothesis Tester feature, *HyperRESEARCH* searches for codes and themes (also pre-identified by the researcher) that are associated with a particular hypothesis. Researchers can also make a visual representation of the relationships between the codes using the feature Code Maps. In the code maps generated, researchers can include memos and images, further making it easier for them to identify the relationships between codes/themes. Put together, these features make data analysis more efficient.

HyperRESEARCH has a Code-and-Retrieve function that allows researchers to apply codes to any portion of text by means of names. These codes are useful if one wants to locate specific

codes in the document. For faster coding, the Autocoding feature automatically codes all occurrences of any word/phrases across all text source files. Another advantage that *HyperRESEARCH* has over other software is that it enables the researcher to leave memos or notes in any part of the text through Code Annotations. Aside from this, the Code Descriptions feature is of great help in deciding which of several possible codes to apply, particularly when several people are working on the same study. *HyperRESEARCH* allows sharing of data files through its export and import capability, thus making it possible for researchers to edit each other's work.

The software has some capabilities for quantitative analysis. Specifically, the Frequency Report feature generates information that show how many times each code appears in the text; the maximum, minimum, mean and standard deviation values; and a bar graph showing the code frequencies. *HyperRESEARCH* can work with text, audio, and video files, and even pictures. It is a cross-platform software so it is compatible with different operating systems like Windows and Mac. It also supports a wide variety of formats like JPEG, MPEG, WAV, etc.

On the downside, *HyperRESEARCH* is not that affordable – each license per computer unit costs P15,000. A limited edition of the software can be downloaded for free (<http://www.researchware.com/hr/downloads.html>) but this free version can handle up to seven cases and 75 codes only, with no more than 50 code references per case. Further, the free version only supports text file formats (txt) so *Microsoft Word* documents must first be saved as txt files before the software can be used. Additionally, one should avoid changing the source files after one has begun coding. This is because *HyperRESEARCH* has code references so “if you change the source file (and therefore change the count of characters), *HyperRESEARCH* will no longer be able to locate the referenced quotations in that source file” (Researchware, 2007). Large text

source files also slow down the software so splitting the text into multiple files is advised. Finally, *HyperRESEARCH* is still, by and large, a software that only assists the researcher in data reduction and analysis. As earlier mentioned, it does not really build theories but primarily functions as a tool for managing and organizing data and keeping track of cases and records.

XSight

XSight has three main features: organization, development, and sharing of qualitative data.

For organization of data, *XSight* has features that let the researcher assign and categorize inputted information easily. It can create frameworks; tags; categories of responses, informants, and topics; multiple sub-categories under each major category; and visual concept maps.

For development of the analysis, *XSight* is a helpful tool for the meticulous researcher because it can keep track of the

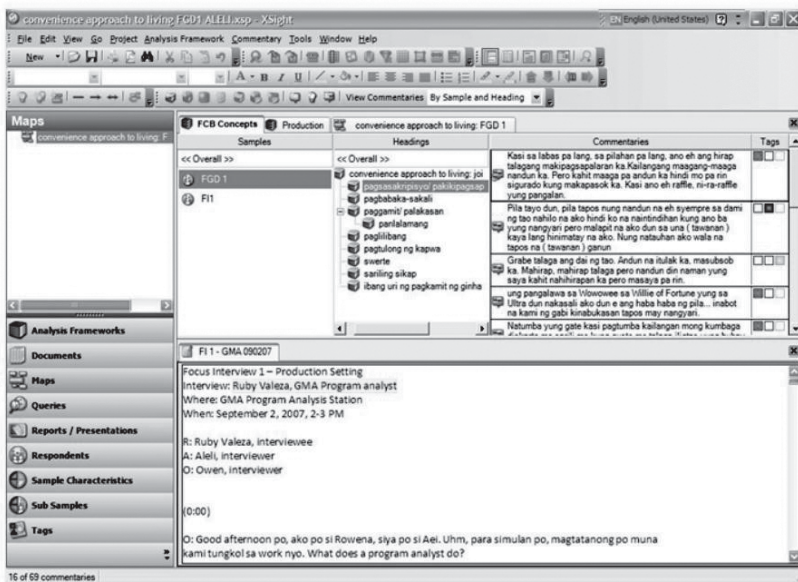


Figure 3. XSight workplace

tasks that have been completed, thus helping the researcher determine if there is a need for further categorizations and analyses. As the researcher becomes more familiarized with the study's structure through repeated viewing, analyzing and connecting concepts will become easier and better.

Another feature that helps facilitate analysis is that all the working transcripts in *Microsoft Word* or plain text format may be uploaded on a single *XSight* file. These documents may be highlighted and quoted as necessary, with their specific contents directly "dragged" to corresponding categories. Also, personal comments and ideas can be typed within the *XSight* file, which can be easily distinguished from the transcripts themselves through the use of adjustable color-coded highlights and icons. *XSight* also allows for sharing of data with other researchers if one works in a group. It also computes for inter-coder reliability.

Although *XSight* has its own Presentation feature, it does not allow the styling of the slides and presentation. Therefore, its Presentation mode does only basic presentation slides and is inferior compared to other presentation programs. Another of its downsides is that this program runs only on Windows 2000 or higher versions. Moreover, this software merely imports text, and it does not readily import files previously edited or styled previous work using *Microsoft Excel* or *Word*. Finally, its full license is quite expensive (P18,000 as of December 2007, good for one installation only).

Summary

The matrix summarizes the strengths and weaknesses of the reviewed software. An overall rating for each program is also included using a star system, where a five-star rating is the highest and one-star, the lowest (see Table 1).

Although these qualitative data analysis software have features which facilitate data reduction and analysis, the quality

Table 1. Comparison of Qualitative Analysis Software

	QDA	HyperResearch	XSight2
URL	www.provalisresearch.com/	www.researchware.com	www.qsrinternational.com/products_xsight.aspx
Description	Data analysis software that combines qualitative and quantitative tools in analyzing textual data.	Code-based theory builder software	Data analysis software that helps researchers organize, analyze, and share information
Useful features	<ul style="list-style-type: none"> • Frequency tables and 2D and 3D maps of the distribution of codes • Coding retrieval function • Coding co-occurrences • Color-coded coding • File auto-saving • File sharing and secure multi-user function • Inter-coder reliability computation • Can import a wide variety of text, spreadsheet and database files 	<ul style="list-style-type: none"> • Sophisticated theory-building features • Comprehensive Code-and-Retrieve functions • Auto-coding and Code Annotation features • Full cross-platform capability • Frequency Report function • File sharing and editing capabilities • Advanced multimedia capabilities for audio and video data 	<ul style="list-style-type: none"> • Creates frameworks, tags, categories and sub-categories, and concept maps • Keeps track of completed tasks • Multiple transcripts can be uploaded in a single XSight file • Has its own report presentation features • File sharing and inter-coder reliability computation capabilities
Cons	<ul style="list-style-type: none"> • Program's efficiency rests largely on the researcher's ability to identify the appropriate main themes and sub-themes in a text 	<ul style="list-style-type: none"> • Full license is expensive • Free version has coding restrictions and can only use text files • Large files slow down the program 	<ul style="list-style-type: none"> • Presentation mode is inferior as compared to similar programs • Runs only on Windows 2000 or higher • Full license is expensive
Ease of use	★★	★★★	★★★★★
Ease of free access	★★★★★	★★★★★	★★★
Trial version	Available	Available	Available
Cost	Academic Price: P18,600	Individual price: P14,800 Student price: P8,000	Full license: P17,800 Student price: P7,200

of the analysis still rests on the researcher's competence and sound judgment. Researchers must always remember that the softwares are useful in organizing data, a preliminary step in qualitative analysis. It is important for them to remember that they must critically examine the text to know the subtexts (i.e., the underlying discourses) in the message's manifest content.

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