APPENDIX D

HOW TO USE A QUALITATIVE ANALYSIS PACKAGE

Ann Dupuis

You may have noticed the "HyperRESEARCH"™ option on the computer CD bundled with this book, and wondered what it's about. The short answer is: This is the demo version of the HyperRESEARCH software (for both Macintosh and Windows), including an electronic manual and a full set of tutorials with all necessary support and sample files. For the long answer, please read on.

WHAT IS HYPERRESEARCH

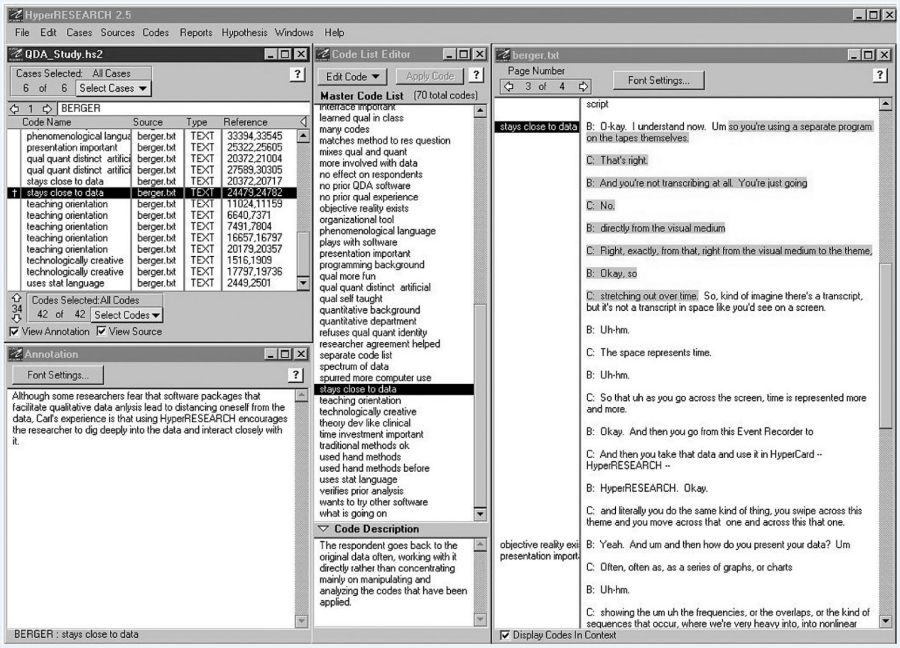
HyperRESEARCH is a software tool for qualitative data analysis, developed by ResearchWare, Inc. (www.researchware.com). It is one of several CAQDAS packages available. (CAQDAS is an acronym for computer-assisted qualitative data analysis software.) Like many CAQDAS programs, HyperRESEARCH's essential capabilities are for qualitative analysis—code-and-retrieve data analysis features, report-generating capabilities, multimedia support (for data including graphics, video, and audio as well as text), and theory-building tools. These features are packaged within an easy-to-use package that helps you, the user, take control.

A demo version of HyperRESEARCH is available on the accompanying CD. (You also can download HyperRESEARCH from www.researchware.com.) This version of the software is fully functional; however, you are limited to using "demo mode," which places limits on the size of your study. (Your Master Code List is limited to 75 code names, you may have only seven cases, and you may apply only 50 code instances to each case.) You can purchase a "license key" from ResearchWare, Inc. or any of its reseller partners to unlock the software (lift the restrictions imposed in demo mode).

If you are a student, you may find that the free demo version of the software is adequate to your needs while you learn how to conduct qualitative research. If you are an instructor, you should note that the demo version of HyperRESEARCH is free for you and your students to use. ResearchWare, Inc. also has a promotional program in which qualifying educators will receive a free license key to unlock the unrestricted version of HyperRESEARCH for their own use. Visit its website at www.researchware.com for more information.

Note: Ann Dupuis is a Technical Support and Documentation Specialist at ResearchWare, Inc. (support@research ware.com). This appendix is copyright ©2002 by ResearchWare, Inc. HyperRESEARCH™ is a trademark of ResearchWare, Inc.

Exhibit D.1 HyperRESEARCH Basic Interface: Study Window, Code List Editor, Source Window, and Annotation Window; Not Shown: Hypothesis Tester, Report Generator, Code Map, and Other Specialized Functions



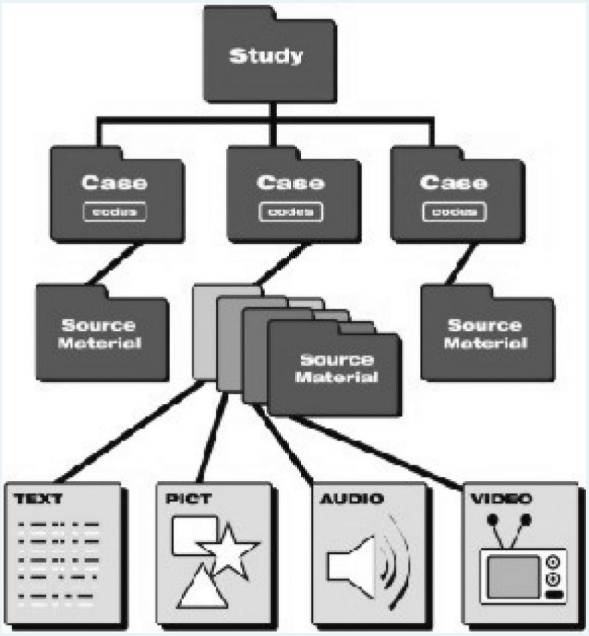
A QUICK TOUR OF HYPERRESEARCH

This introduction to HyperRESEARCH briefly shows the major features of the software. For a more in-depth, step-by-step look at how HyperRESEARCH facilitates qualitative data analysis, it is recommended that you use the tutorials on the CD. You can install HyperRESEARCH on your computer and follow the step-by-step tutorials to learn first hand how to use the software. The CD includes sample research materials and HyperRESEARCH studies you can use in conjunction with the tutorials, or to explore the software's capabilities on your own.

HyperRESEARCH's Flexible Structure and Point-and-Click Interface

HyperRESEARCH allows you to organize your data in many ways. A study consists of one or more cases (a case is the unit of analysis in a HyperRESEARCH study) (Exhibit D.2). You decide what a case will represent, such as an individual, a time period, or a focus group. HyperRESEARCH allows you to choose your codes and code relationships, the depth of your analysis, and the source of your data (i.e., text, graphic, audio, and video sources). HyperRESEARCH allows you to apply codes for multiple sourcefiles to a single case (or a single source file to multiple cases). You also can assign multiple codes to any chunk of source material.

Exhibit D.2 Graphic Representation of the Structure of a HyperRESEARCH Study

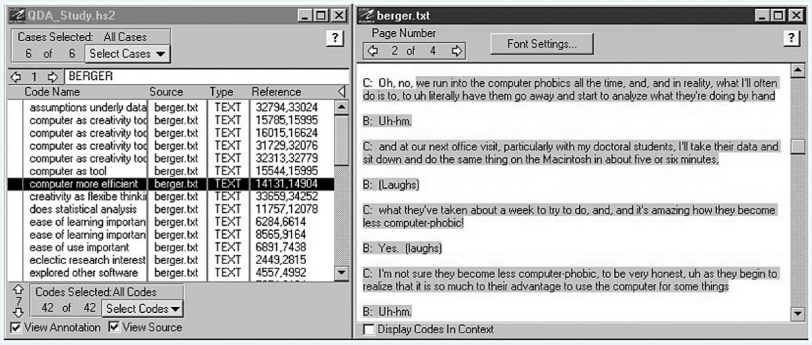


HyperRESEARCH's point-and-click interface features pull-down menus, click-and-drag selection, and keyboard shortcuts for those who prefer keyboard commands to mouse clicks.

The Study Window

The Study window is the main HyperRESEARCH window, where your cases and code references are displayed. The Study window also shows you how many cases are currently in your study, and how many code instances have been applied to the current case (Exhibit D.3).

Exhibit D.3 Study and Source Windows Showing Highlighted Code and Source Material



You can view the code of references of one case at a time. Each code reference consists of a code name (from your Master Code List, entered into the Code List Editor), the source file name, the source type (text, audio, video, graphic), and a code reference (HyperRESEARCH's reference points for recalling the source material).

With the View Source option selected, clicking on any code reference will recall the underlying source material. HyperRESEARCH will open the file in a Source window, with the underlying source material highlighted.

While working in your Study window, you also can manipulate your code instances. The Codes menu offers a variety of commands you can use with your codes, including duplicating code instances (applying additional codes to the same source material referenced by the original code), recoding (changing the code name applied to the referenced source material), and deleting (removing one or more specific code instances from the case) (Exhibit D.4).

You can also sort the code instances in your study by name, by reference, by type, by source file, or by any combination of these criteria.

The Select Cases and Select Codes commands allow you to concentrate on subsets of your cases and codes. These powerful commands facilitate quick review of themes and patterns in your data and coding. Used in conjunction with the report generator and the hypothesis tester, code and case selections allow you to temporarily ignore extraneous data when generating reports or testing hypotheses.

You may select codes by name, by type (text, audio, etc.), by criteria (including Code Proximity functions), or via the Code Map. The codes you select will appear in the Study window. Codes not included in the selection will be hidden from view. You can recall them at any time by altering your code selection parameters (Exhibit D.5).

The Code List Editor

The Code List Editor allows you to create, view, and manipulate your Master Code List. You can add codes, edit codes (with changes being reflected in the individual code references throughout your study), and enter detailed definitions or descriptions for your master codes (Exhibit D.6).

Exhibit D.4 Codes Menu Showing Options Available While Working With Code Instances in the Study Window

Exhibit D.5 Study Window Showing Codes Selected By Name (All Other Codes Are Hidden)

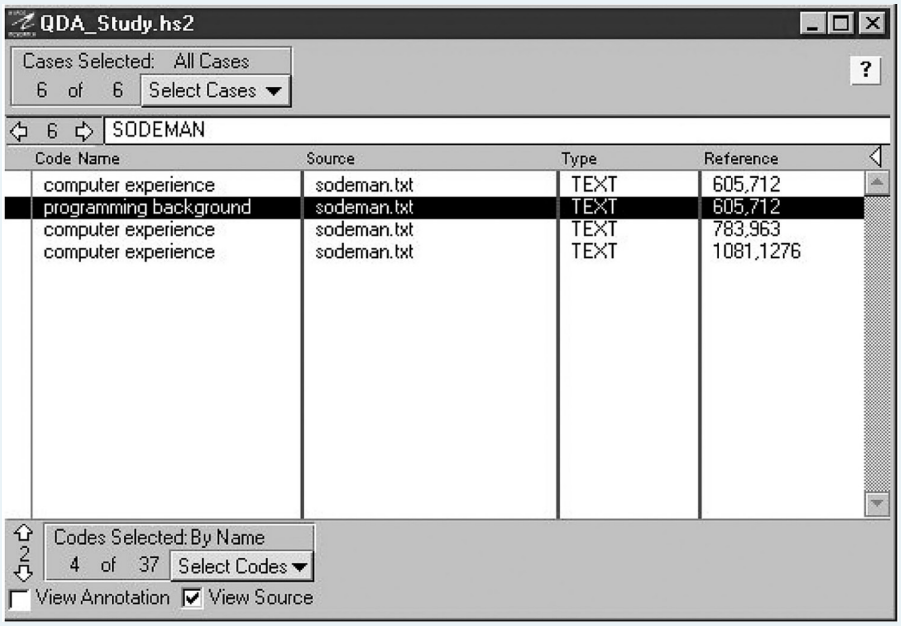
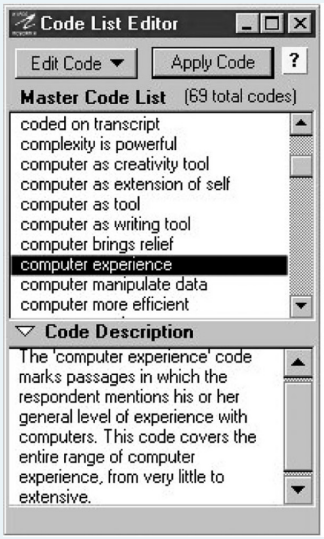


Exhibit D.6 The Code List Editor, Showing a Code Description



You can use the Code List Editor to enter a Code Description for any of your master codes. It's great for quick reference when deciding exactly which code to apply to a source chunk (a block of text), especially when several researchers are working on the same study.

Any changes you make to the Master Code List will be reflected in the individual code instances applied to the cases in your study. Thus, if you wish to rename all instances of a master code throughout your study, you would use the global Rename command available from the Edit Code menu in the Code List Editor.

To affect specific code instances, rather than all codes throughout your study, use the main Codes menu commands in conjunction with individual code instances in the Study window.

The Source Windows

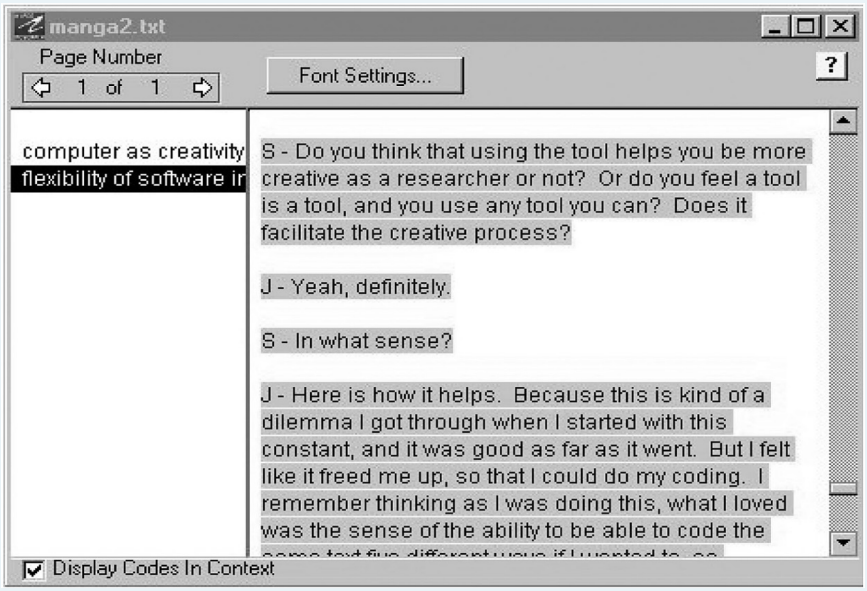
HyperRESEARCH has four Source window types, one for each of the four types of source material (text, graphics, audio, and video). Displayed reports include hyperlinks to underlying source material. HyperRESEARCH's ability to work with multiple data types, such as text, graphic, audio, and video sources, provides the flexibility to integrate all of the data necessary to conduct your research.

The Text Source Window

The text Source window displays text files. You can customize the Font Settings (typeface and size) and also choose whether to Display Codes in Context (code names appear in the left margin). This window is fully resizable and movable.

HyperRESEARCH 2.5 allows you to select any chunk of text (from one character to an entire file) and apply any number of codes to it. Text source files also can be split into multiple pages, if you wish (Exhibit D.7).

Exhibit D.7 Source Window (Text)



View your codes adjacent to the source material by using Display Codes In Context. The material can be sent to a printer with the codes appearing in the left margin. The Codes In Context feature also can be turned off, maximizing the space available for text (with no margin for viewing code names).

To select text for coding, simply click and drag over the desired chunk. Then use the Code List Editor to apply one or more codes to the source selection.

The Graphic Source Window

The graphic Source window allows you to display still images (.gif,. jpg, or similar graphic files) and assign codes to selected portions of the image (Exhibit D.8).

To select a portion of a graphic for coding, click and drag from one corner of a rectangular chunk to the opposite corner. Then use the Code List Editor to apply one or more codes to the graphic selection.

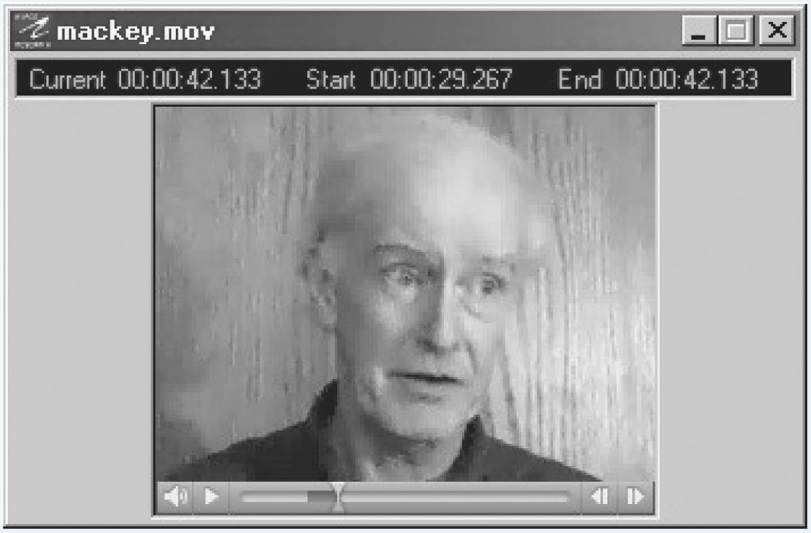
The Movie Source Window

The movie Source window displays movie files (with their audio tracks, if any) using Apple's QuickTime software. You can select and code any number of frames, which can be replayed when recalling the source material from the Study window or in a hyperlinked report (Exhibit D.9).

To select a video segment for coding, simply click and drag along the slide track while holding down the Shift key. Alternatively, position the slide bar at the beginning of the desired segment, then hold the Shift key down and click on the Play button. Release the Shift key when you reach the end of the desired segment.

Exhibit D.8 Source Window (Graphic)

Exhibit D.9 Source Window (Video)



After you have selected a video segment, you can fine-tune your selection. The video window controls offer frame-by-frame precision.

As with text selections, you can apply more than one code to a given chunk.

The Audio Source Window

The audio Source window uses Apple's QuickTime software to allow you to play back an audio file and select portions for coding. Viewing the coded source material of an audio file (either by selecting the code reference on the Study window with the View Source feature active, or clicking on a hyperlinked code reference in a report) recalls and replays the selected portion of the audio track (Exhibit D.10).

The audio Source window controls are identical to the video Source window controls.

The Annotation Window

The Annotation window allows you to add a memo or annotation to any code reference in your study. Unlike a Code Definition, which applies to a master code, an Annotation is specific to an individual code reference and its underlying source material (Exhibit D.11).

Exhibit D.10 Source Window (Audio)

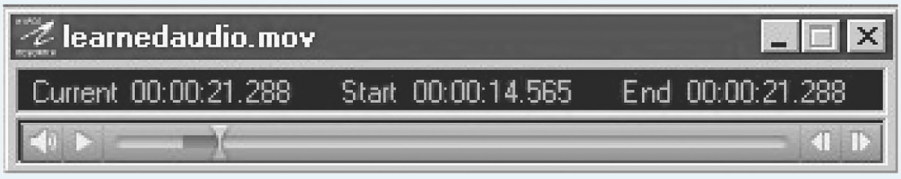
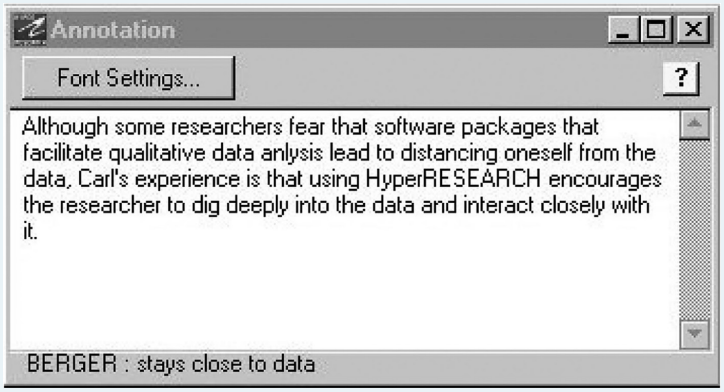


Exhibit D.11 Use of Boolean Connectors in a Literature Search



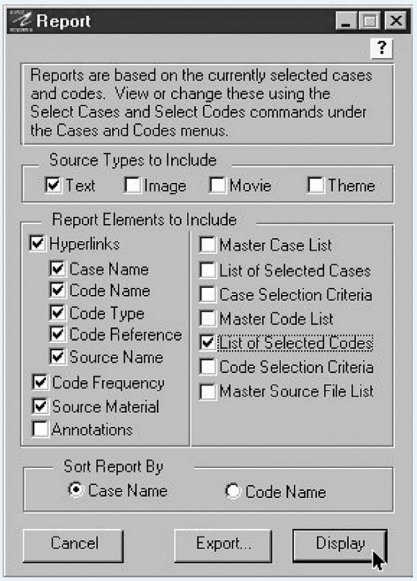
To annotate a code, select a code reference on a case card, choose the Annotate command, and add up to 32,000 characters of information per reference. Annotations can be used as a built-in memo system. All annotations are fully editable and can be included in reports.

The Report Window

The Report window presents the report generation options. Use this window to customize the data you wish retrieved for a given report.

Generate custom reports and display them on your screen or save them as text to output to a word processor, spreadsheet, or statistical package. Hyperlinked reports allow you to click on any code reference to view the source material (Exhibit D.12).

Exhibit D.12 Report Window Showing Report Element Options



In addition to specifying which elements you wish included in a report, you can use the Select Cases and Select Codes commands to specify precisely which cases and codes you wish included in the report. Generate a report that includes all codes across your entire study, or report on any subset of cases and codes.

If you choose any report elements from the right column (Master Case List through Master Source File List), the report generator will also display a header page with the specified information (Exhibit D.13).

The body of the report will present results based on the current selection of cases and code instances in your Study window. You may choose to include the source material and any annotations for reported codes as well as the code names themselves.

If the Hyperlinks elements are all included, the code reference lines will actually be hyperlinks. Clicking on a code reference (e.g., "MACKEY used hand methods before 1 TEXT 13109,13334 mackey.txt") will open the underlying source material in a Source window. This allows you to view the source material in the context of the rest of the file if you wish (Exhibit D.14).

Exhibit D.13 Report Display Window with Header Information

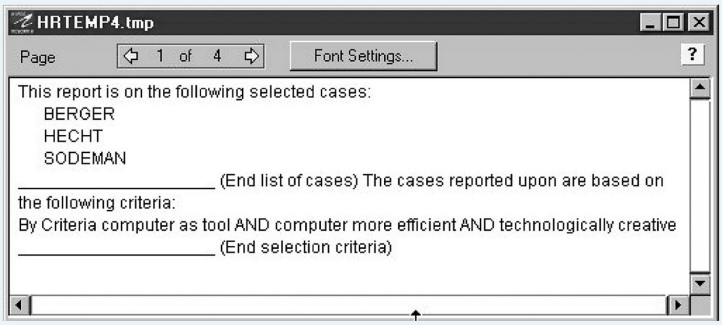
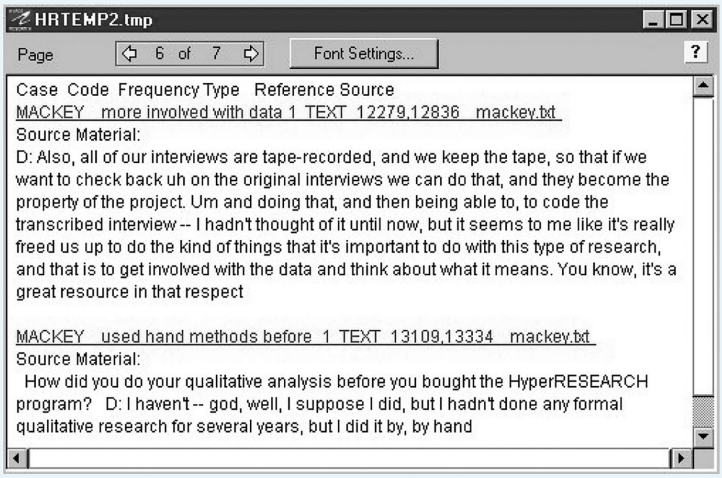


Exhibit D.14 Report Display Window Showing Hyperlinked Code References and Source Material



You can save report settings (including the current selection of cases and codes in your study) to run the same report again. You also can export the generated report to a text file, which you can work further with in a word processor or other program.

LEARNING MORE ABOUT THE BASICS

We've covered the basics of HyperRESEARCH: coding and retrieving, code manipulation, and generating reports. You may want to stop reading now, and start experimenting with the software itself. Tutorials One through Four on the CD offer step-by-step "walkthroughs" for the procedures for starting a study (or opening an existing one), coding source material, manipulating code instances, and generating reports. Tutorial Five covers coding and retrieving graphic, video, and audio source material. After you've mastered these procedures, you'll be ready for the more advanced and specialized capabilities HyperRESEARCH offers.

For an introduction to HyperRESEARCH's advanced features (covered in depth in Tutorials Six and Seven), read on.

ADVANCED FEATURES

In addition to the basic code-and-retrieve features HyperRESEARCH offers, there are several more advanced features available.

Autocoding

With Autocode, you can automatically assign a code to multiple sources and multiple cases, looking for several phrases or words in a single pass. Specify a number of characters, words, or lines before and/or after the found phrases to be included in the chunk selected for autocoding.

First you assign source files to the proper cases. Then you specify the phrase (or phrases) to search for and how much surrounding source material to include (Exhibit D.15).

Finally, you select the codes to apply to the matching source materials (Exhibit D.16).

Exhibit D.15 Autocode (Phrases) Window Set to Select Entire Paragraphs Around Each Occurrence of the Specified Phrases, in Selected Sources

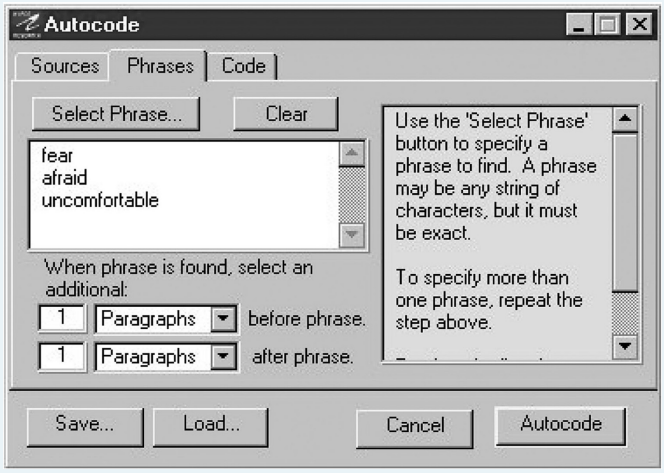
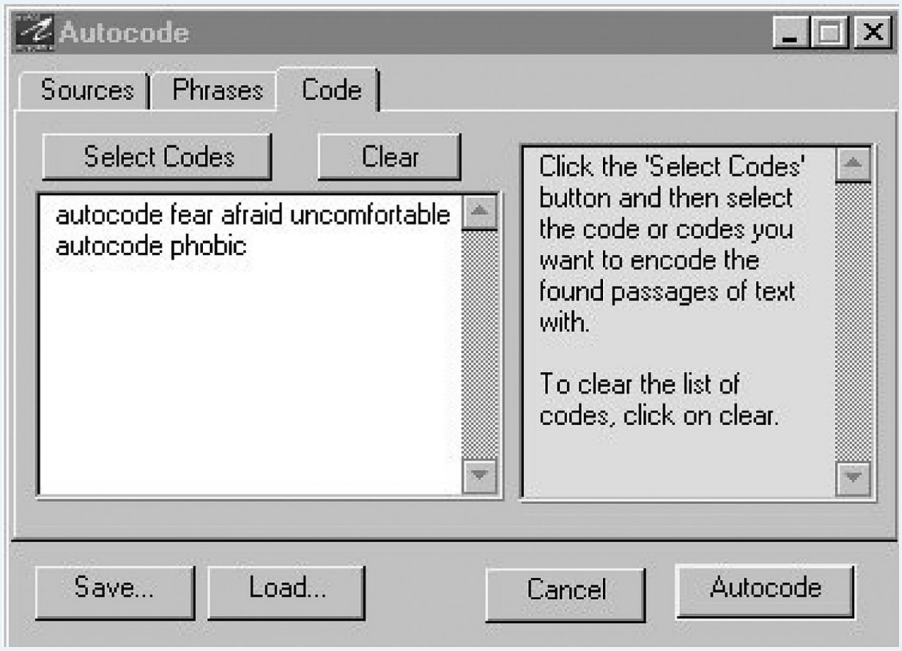


Exhibit D.16 Autocode (Code) Window With Code Names to Assign



The Autocode button becomes active when all necessary parameters are supplied.

HyperRESEARCH will apply the selected code or codes to all instances of the selected phrase it finds, and place in the Study window for the specified cases.

Autocoding is best used as a first-pass tool, to earmark certain sections of your textual data for more precise coding. You may wish to use separate code names for autocoded passages (such as the "autocode phobic" code name in the example pictured in Exhibit D.15). These code names would then be replaced with final code names (such as "evidence of computer phobia") when you examine the actual source material and select a more precise segment of text to code.

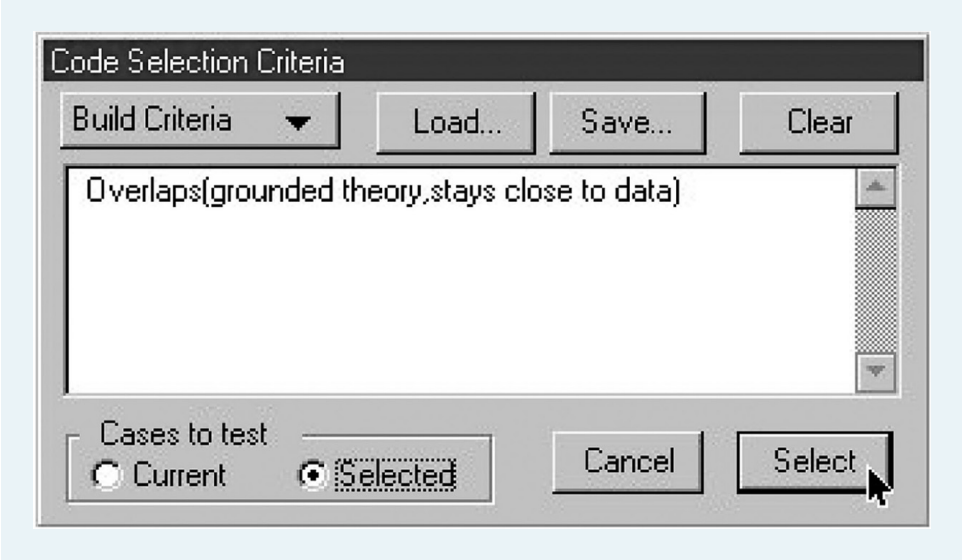
Code Proximity Searches

HyperRESEARCH lets you conveniently reference overlapping code instances with Code Proximity searches. One of several code- and case-selection tools available, the Code Proximity functions will seek out specific relationships between two code names (Exhibit D.17).

Available functions are:

- *Equals*— The source material for "code 1" and "code 2" match exactly. With text files, the starting and ending character placement for the source material selection will be exactly the same for being compared.
- *Excludes*—The source material for "code 1" completely excludes any source material coded with "code 2." There are no overlapping characters, pixels, or video or audio segments.

Exhibit D.17 Selection of Codes Based on Code Proximity Functions



- *Includes*—The source material for "code 1" completely includes the source material for "code 2." For example, a textual selection of two paragraphs coded with "code 1" will include the source material for "code 2" if "code 2" has been applied to one of those paragraphs (and no other source material outside the selection for "code 1").
- *Overlaps*—The source material for "code 1" overlaps one or more characters coded with "code 2." Code references that qualify for the equals or includes functions will also qualify for the overlaps function. However, the matches for overlaps don't need to be as specific as those for includes or equals. Coded text segments that share even one character can qualify as overlapping. With graphics, video, and audio files, the overlapping of even one pixel or time segment is enough to qualify for the overlaps function.

You can use the Code Proximity functions to select subsets of your codes or subsets of your cases, based on the relative placement of the codes segments within your source files.

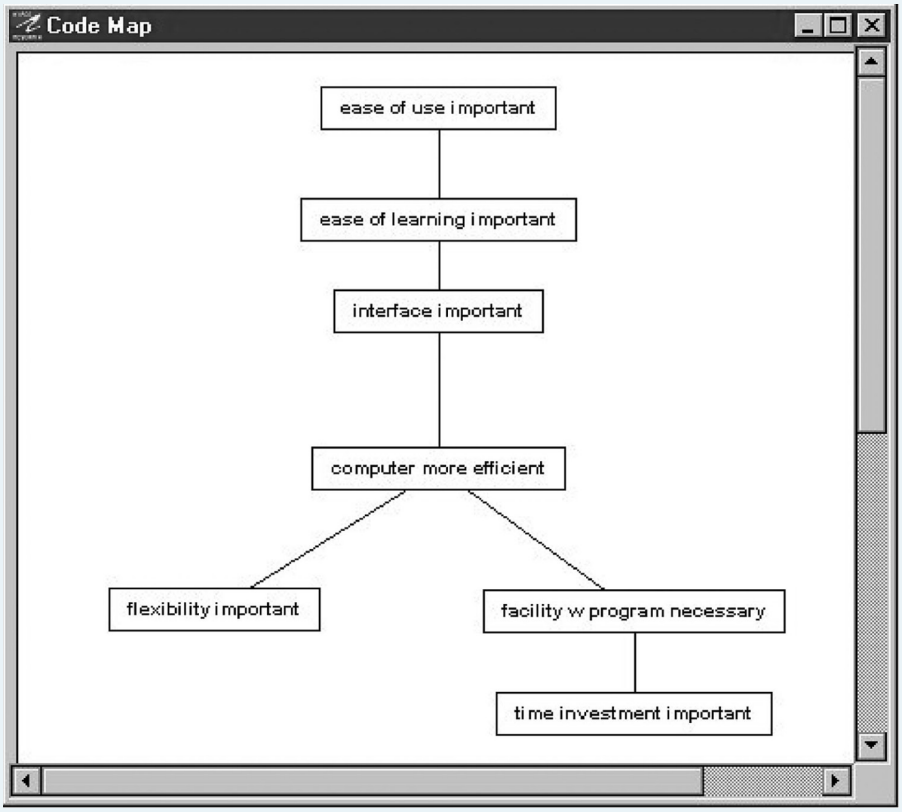
The Code Map Window

The Code Map window allows you to explore graphic representations of the relationships between your master codes. You can group codes in any way you wish, and visually link master code names to one another. Arrange your codes visually to indicate code families, trees, or networks (Exhibit D.18).

You can select codes using your Code Map and apply that selection to the Study window, which will then display only those code references corresponding to the selected master codes. Selections of mapped codes can be made by selecting each code individually, or by selecting one code and then expanding the selection based on code links. In Exhibit D.18, commanding HyperRESEARCH to select all codes within two links of the "computer more efficient" code would select everything but "ease of use important."

Thus, the Code Map can be used as a visually oriented code selection tool as well as a visualization tool.

Exhibit D.18 The Code Map Window



The Hypothesis Window

The Hypothesis Tester is an "expert system" that helps you build theories and test them against the codes you've applied to your data. Like the Report Generator, the Hypothesis Tester consists of two windows: the Hypothesis Test window and a Report Display window.

The Hypothesis Test window includes a section that displays the current Hypothesis Test Rules, and a section that allows you to edit those rules (Exhibit D.19).

When the Hypothesis Rule List is complete, you can Export the hypothesis test report to a text file, or Display it to the Report Display window. You can also save the hypothesis for later use, or open an already-constructed hypothesis (Exhibit D.20).

Although the Hypothesis Tester may seem complicated at first, at its heart it's another way to examine your cases, looking for combinations of the presence and/or absence of code names. It utilizes Boolean expressions (delineating the code combinations to search for with the use of logical AND, OR, and NOT) and can also utilize the Code Proximity functions to look specifically for coded segments that overlap one another.

You can also use the Hypothesis Tester to add Theme codes to your case. Say you'd like to find every case that has been coded with both "gets married and stays married" and "wants kids." You'd like to apply the code "high family commitment" to each relevant case.

Exhibit D.19 The Hypothesis Window Showing Part of a Hypothesis Rule List

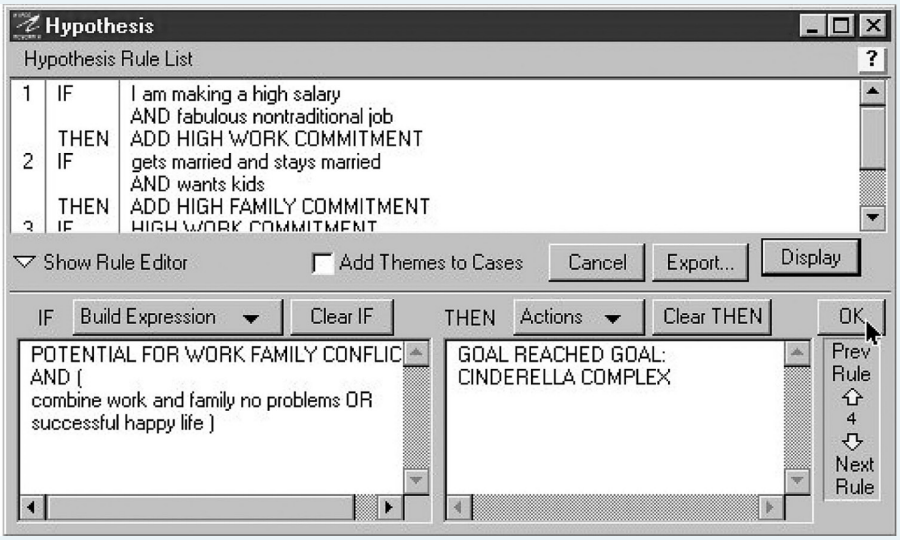
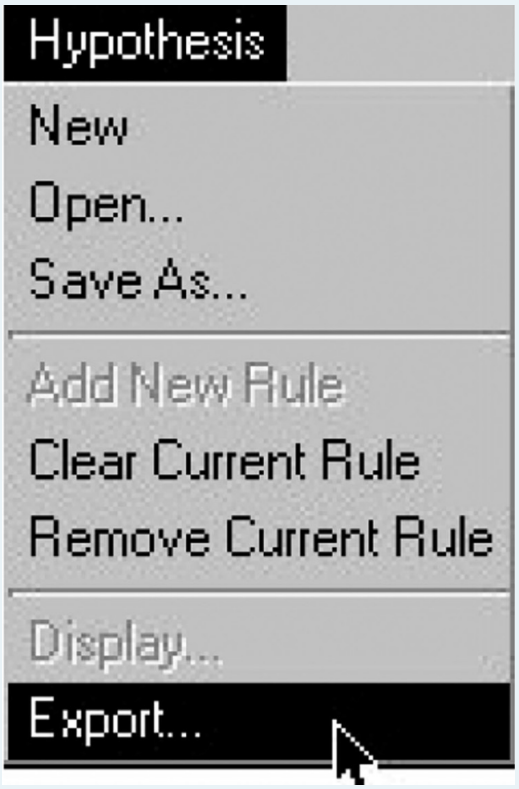
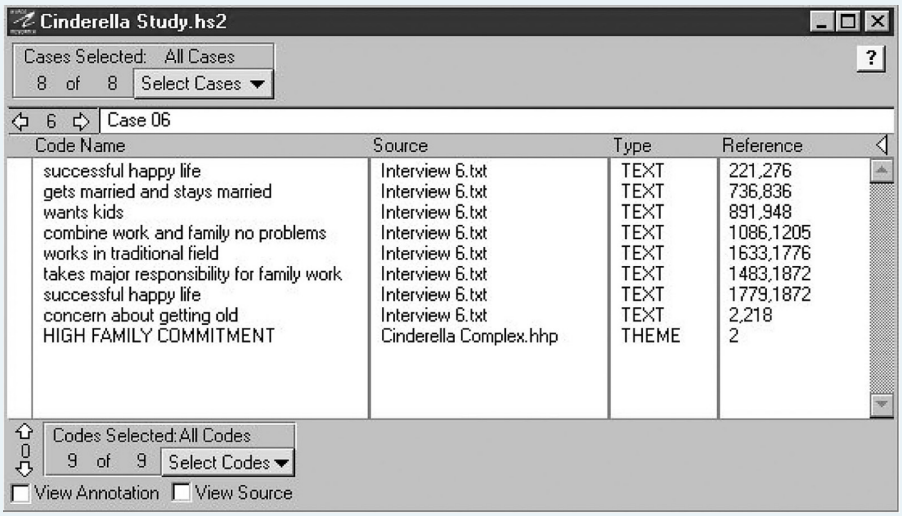


Exhibit D.20 The Hypothesis Menu



You could do this by selecting cases by criteria ("gets married and stays married" AND "wants kids"). You could then go to each selected case and either duplicate one or more "gets married and stays married" and "wants kids" with the "high family commitment" code, or you could open the relevant source file, select a passage (possibly one related to those already coded), and apply the "high family commitment" code directly. Alternatively, you can do this by creating a hypothesis test that does essentially the same thing. Such a test would have one rule: IF ("gets married and stays married" AND "wants kids") THEN ADD CODE "HIGH FAMILY COMMITMENT". (Using all capital letters for the code name helps distinguish it as a Theme code.) With the Add Themes to Cases option checked, running this hypothesis test would tell HyperRESEARCH to find any case that had one or more instances of "gets married and stays married" and also one or more instances of "wants kids" already coded to it. HyperRESEARCH would then add the "HIGH FAMILY COMMITMENT" code name as a Theme code. This code would not point to any specific source file or source material. It would, however, be considered in any Select Cases or Select Codes command, and would show up on your Reports (provided you chose to include Theme types as a Report Element) (Exhibit D.21).

Exhibit D.21 Study Window With Theme Code "HIGH FAMILY COMMITMENT" Applied



LEARNING MORE ABOUT HYPERRESEARCH

The best way to learn more about HyperRESEARCH is to dive right into the materials on the CD. Install the software (both Macintosh and Windows versions are included), print out the tutorials (at least Tutorials One through Four, which cover the basics), and play around with the sample studies (the Cinderella Study and the Qualitative Data Analysis Study).

You also can visit ResearchWare's website at www.researchware.com. You'll find instructions there on how to join the HyperRESEARCH e-mail discussion list. The website also lists events (workshops, conferences, and trade shows), links for online resources for qualitative data analysis, and more.

Welcome to the world of CAQDAS!