HyperRESEARCH™ Version 4.5 : Distinguishing features

This document is intended to be read in conjunction with the 'Choosing a CAQDAS Package Working Paper' which provides a more general commentary of common CAQDAS functionality. This document does not provide an exhaustive account of all the features and functions provided by HyperRESEARCH but is designed to highlight some of its distinguishing elements. The Comment section at the end, details our opinions on certain aspects of functionality and usability. Thanks to Ann Dupuis for checking the accuracy of this document.

Background and philosophy

HyperRESEARCH was originally created by Sharlene Hesse-Biber and her partners at Boston College, Massachusetts and is now developed by a small team at Researchware, Inc. Underlying its development is the belief that less time should be spent on the mechanics of research, and more time spent on the research itself. HyperRESEARCH is a dual platform package (one of the original programs designed for the Apple Mac platform) and is intended to work flexibly to facilitate a wide range of qualitative materials and analytic approaches. It comprises a varied set of qualitative data analysis tools for an extensive number of file types and multimedia. The interface comprises a case-based, case-card structure designed for comparative analysis and is unique to HyperRESEARCH. The team at Researchware also develop HyperTRANSCRIBE an associated transcription application adding depth to their traditionally wide support for multimedia.
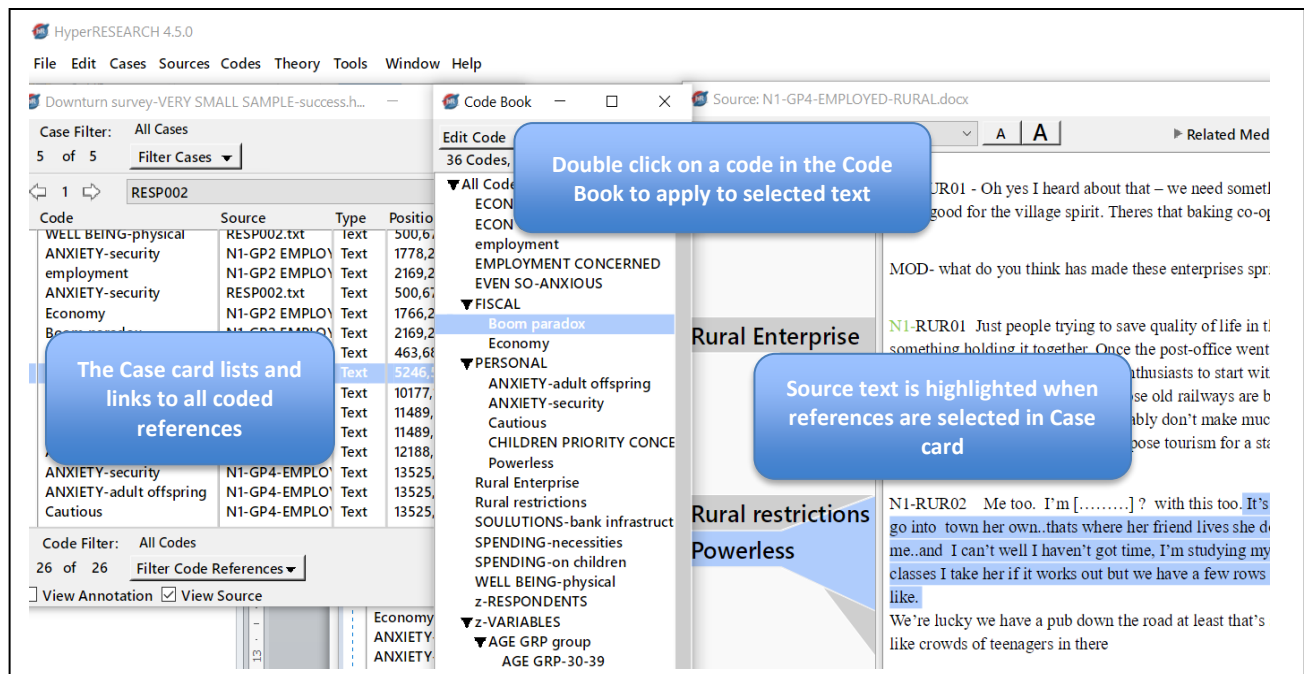

Figure 1. The main areas of work in HyperRESEARCH:
The Case Card, the Code Book and Source Text display

Structure of work in HyperRESEARCH

The case structure is the starting point of a new project or "Study". The case card is the main feature of the interface and is fundamental to the way data within the Study is organized and analysed ∎ Other separate, floating panes include the Code Book and Sources List ∎ The case structure resonates with more traditional cardex systems. The virtual case card acts like an interactive index to all its coded links ∎   Coded references on a case card can relate to only one source data file or several. It is vital to have the correct Case Card open when coding a source file ∎ Cases can consist individual study subjects, institutions, time periods, or any other unit of analysis or categorization. Each source file can be used in one or multiple cases. Source files are stored externally to the Study or project file; all the Source Files and Study file can be packed up into one file by the new Study Packager

Data Types and Formats in HyperRESEARCH

HyperRESEARCH accepts a wide range of qualitative data formats ∎ Textual formats – Word files, Text only, Rich Text Format, Pdf files, Excel or CSV style spread sheet data incorporating e.g. Survey data via the Mixed Methods Import tool. Font settings (typeface and size) can be customized in the text source file and reports windows ∎ Multimedia formats - digital video, sound and graphic files can be directly assigned to the study and treated in similar ways as textual formats - formats include . jpeg, .wav .avi, mov, .mpeg, .mp3. See developer information for complete list and additional advice re multimedia data.

Closeness to data – interactivity in HyperRESEARCH

The Case Cards provide the main hyperlinked contact between the study and any respective source data files. One selected case at a time will always be open; if a source file relevant to that case is also open and is then coded – a Code Reference to that coded segment will appear listed on the Case Card; at a future point in time if the Case Card is open (but not its source file/s) a single click on the listed Code Reference will open the source file. By this means a source file is 'soft-wired' to a case. Additionally, a Source List window can be used to access any Source identified to the study whether they have been coded or not ∎ Hyperlinks connect annotations, case card coded references etc. to source file positions (one click) whether the file is textual or multimedia e.g. the relevant coded video clip will replay as the reference is selected ∎ The coded margin display is interactive ∎ Reports containing references to coded passages are hyperlinked back to source while 'displayed' in the software.

Coding Scheme in HyperRESEARCH

The coding schema is potentially hierarchical to two levels or more in the sense that Groups of codes can be created and sub groups created within a group. Codes themselves cannot form hierarchies and any one code cannot belong in several groups of codes and group labels cannot be treated as codes and applied to data. Groups are mainly for visual and filtering purposes ∎ A group of Variable codes can be created to keep them separated from thematic codes ∎ Any group of codes provide a means of filtering the interface so that only relevant Code Groups are shown on the case cards ∎ Codes generally are listed alphabetically so prefixing is a further way to organize or group them ∎ The Code Map feature allows the 'marking' of some or all of the codes included in a map to create defined collections and thereafter code selections, filtering (and reports) can be made from those starting points.

Coding processes in HyperRESEARCH

Coding qualitative data can happen in several ways in HyperRESEARCH ∎ Coding data at a Case Card – care should be taken to have the relevant Case Card open and a respective (for that Case) source file, open. Codes are assigned to selected text or parts of multimedia by menu selection, double clicking on a code from the

code book or using keyboard shortcuts. The interactive coding reference appears as a line in the Case Card of the case that is selected) ▪ Single clicking on the reference will open the relevant segment, highlighted within the source file ▪ The margin display shows codes that are present with a span indicator to indicate where codes are sitting in data (see Figure 1) ▪ Coding multimedia data - codes can be applied to parts of graphic files, or to clips of audio / video files. Coded multi-media segments are listed in the corresponding Case Card similar to textual references. A single click on a coded reference in the Case Card replays the coded clip.

Basic Retrieval of coded data in HyperRESEARCH

A single click from any individual code reference on any case card will reveal the coded passage within the source data ▪ Any selection of codes using the Codes main menu can feature in a new Report (see Report Builder below); the Display Report option hyperlinks to coded positions in source data or will replay e.g. a coded video clip;   the Export Report option creates an output file.

Organisation of data in HyperRESEARCH

Basic organisation happens through the use of Cases ▪ Organisation can also be implemented through the use of Codes or "Theme" (see Theory Builder tool) ▪ Variable codes e.g. socio demographic categories can be applied automatically via the Mixed Methods Importer tool or manually applied anywhere to categorize a case

Writing tools in HyperRESEARCH

There are three areas for writing within the HyperRESEARCH ▪ Descriptions - Codes can defined by adding Descriptions and these can usefully be included at Reports ▪ Annotations - comments can be attached to coded references on each case card and these annotations are flagged in a column next to the relevant coded reference. They can be included in output reports on coded data etc. ▪ Memos – larger spaces for writing that can be added to a Code Map to add a visual prompt or explanatory caption.

Searching /Interrogating the dataset in HyperRESEARCH

Interrogation   happens routinely in HyperRESEARCH by a process of incremental filtering or selecting combinations of codes and/or cases. This can happen via manual selection or by using the more formalized Theory Builder tool (see below) ▪ "Criteria" for selecting codes or cases act as query operators ▪ Filtering of Cases according to e.g. Variable codes provides a way of interrogating subsets of data ▪ Searching by applying links made in a **Code Map** to, for example, select all codes within 1 or 2 etc levels of connectivity (i.e. 1= immediately connected to selected code or 2= connected at one remove etc.) ▪ A Word Counter (based on all text sources) will provide a list or a Word Cloud visualisation ▪ Auto coding can be achieved with added surrounding context or similarly from a selection in the Word Search settings can be saved and reloaded ▪ The **Theory Builder tool**   allows the user to formalise and save searches, helping to determine whether coding supports any assumptions and inferences - e.g. in testing the existence, co-existence (or not) of codes in cases this tool allows three optional progressions; to add a higher concept (Theme) to whole cases; to allow the building of "Rules" in order to progressively test elements of a theory finally via a report that shows which cases have satisfied the theory tests and achieved the Goal. Such theories/hypotheses can be saved re-opened and re-run on newly coded data.

Output in HyperRESEARCH

Output is generated via the **Report Builder** which can be used to reflect the simple or complex status of current filters, providing an easy way to generate a wide range of selectable options to organize and sort the output ▪ Export features now include media content, including coded image and PDF segments, a single

frame from coded video segments ■ A currently exclusive aspect of that Report Builder is the "Mask Confidential Data" tool (see below). ■ Mixed Methods output includes a range of Code frequency charts (exportable to any statistical package including Excel) and Word frequency visualisations including a Word Cloud and a sortable Frequency list ■ Export features now include media content, e.g. coded image and PDF segments or a single frame from coded video segments ■ Report parameters - the way a report is specified can be saved and loaded again. The type of information is saved with the original code and case selections. ■ Code Maps can be exported into MS Word™. ■ **Mask Confidential Data (see Figure 2)** This new tool sits within the Report Builder – it allows the user to 'mask' or anonymize names or sensitive labels or to 'redact' them providing total control over outputs which might be distributed beyond the software project itself.
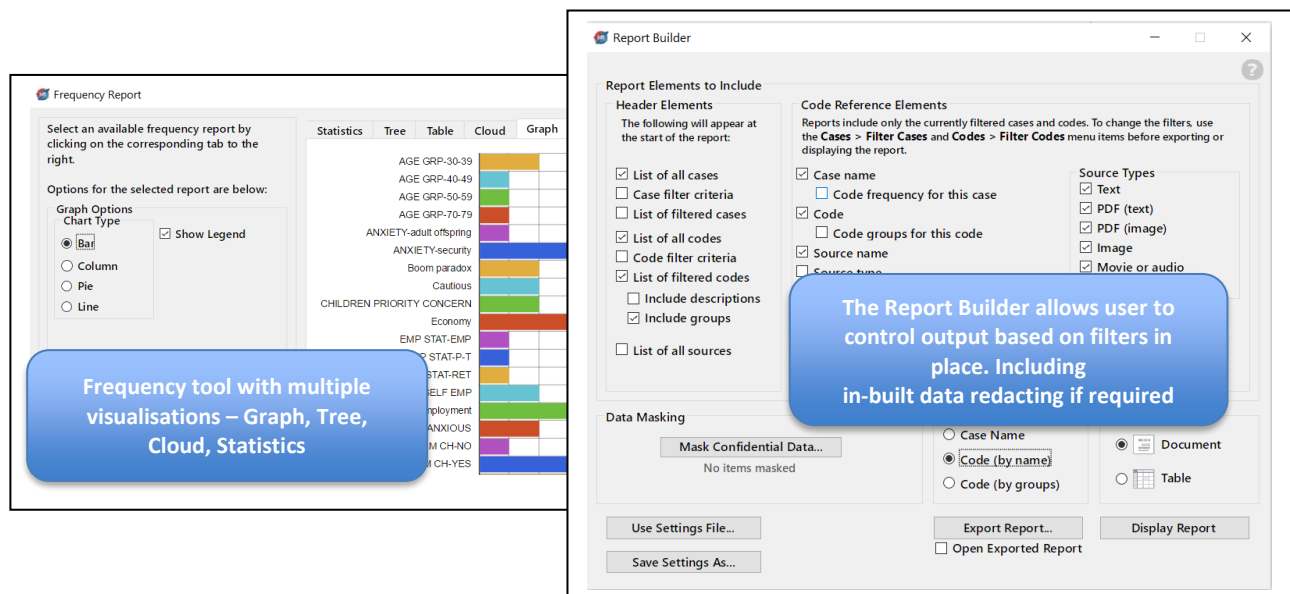

Figure 2. Frequency tool and Report Builder (including Mask Confidential Data Tool)

Teamworking HyperRESEARCH

Merging study files in HyperRESEARCH is a controlled, manual process. You can merge two (or more) studies by using the Import Other Studies command in File menu which allows the user to apply differential labelling in the case of duplicated items, e.g. codes or cases. There is a new Intercoder Reliability Tool to help assess coder agreement amongst teams.

Comment on HyperRESEARCH

Cross platform - Apple Macintosh and Microsoft Windows versions provides analytic options for a wide number of users. HyperRESEARCH belongs to a small body of software for qualitative data analysis that were from the outset specifically written and kept up to date for Mac users.

User interface - the interface is simple to navigate at one level however the case card structure requires practice and care to initially familiarize with and set up efficiently for analysis.

Interactivity from cases and codes to source locations in the data is excellent. *The user will be mostly be working between Case Cards and their direct connections with Sources. The interface consists of a number of independent or floating panes. A useful Ctrl U (Windows)/Cmd U (macOS) function brings all the different panes to the front when working in multiple applications.*

The unit of the analysis *is the 'case' not the file, this may or may not appeal to users. Any number of files (or just one) can be referenced to one case; so email, chat, interview data, photographs could all apply to one case. The obverse of that is that even in a relatively simple dataset parts of one file could be referenced at multiple cases where there are e.g. connections of topic or origin which are encapsulated at the case level. At one level, the case structure of HyperRESEARCH makes a complex issue really easy though the decision about what actually constitutes a case may be tricky. At another level it is a little slippery when starting out; this is because data files are not naturally 'hard wired' to cases so that the user, when in coding mode, must always be aware what case is open so that the coding at the open source file goes to the correct case card. Cases on view are affected by the range of simple to complex filtering methods, the status of which pervades current work (until cleared). It would therefore be useful to have a display item which could remind the user what the current basis of filtration is.*

Multimedia data and text - *integrates direct analysis of either multimedia or indirect coding of the related synchronized Transcribe transcript but only the latter if a Transcribe document is open.*

The Theory Builder tool *is an unusual device (amongst CAQDAS packages) because it formalizes a 'hypothesis test' process and is very useful for many projects. This can, at stages of the test, result in the application of "Themes" to cases to characterize the results of an intermediate stage of the test in those cases. Ultimately once the "Goal" of the test is achieved, the result is an even more complex case selection. Themes for instance can then act as Criteria for doing further interrogations or filtrations. The power of the Theory Builder emphasises the importance of understanding how the choice of case (whether comprising one file or several) is fundamental. The production of new Cases based on dimensions discovered or required is possible at any stage which is very flexible.*

The Code Map *is an interesting device. The ability to arrange a code map with connections between codes is not unusual, but the ability to display (and output) only the codes (and associated data) in the main interface directly from a specific arrangement in a map, is unique and incredibly useful. However, the different functions here are controlled by mode-oriented icons which can be cumbersome. Executing mode functions in the map happens via a mix of single click, Mac style long click or right clicks which is a little confusing until you get used to it.*

The Report builder *(see Figure 2) is an excellent tool. There are numerous clear and uniquely versatile options for customizing the output of retrievals (based on the current state of filters). Via tick boxes, the user has complete control about how much information is included (and importantly how retrieval is sorted) in the report. Hyperlinks from the live "Display" report maintain easy access to source context. Having carefully created a report's settings it is extremely beneficial that you are able to save the settings that you have put in place.*

Data Protection: *the* *Mask Confidential Data* *tool is currently exclusive to HyperRESEARCH and provides a post hoc way of e.g. anonymizing any output which is incredibly useful when working with qualitative data.*

Moving the study - *It is important to practice early on and develop a workable protocol for safely moving work. A Study Packager in the Tools menu is a new tool which helps the process of packing up both the externally stored files and the Study.*