

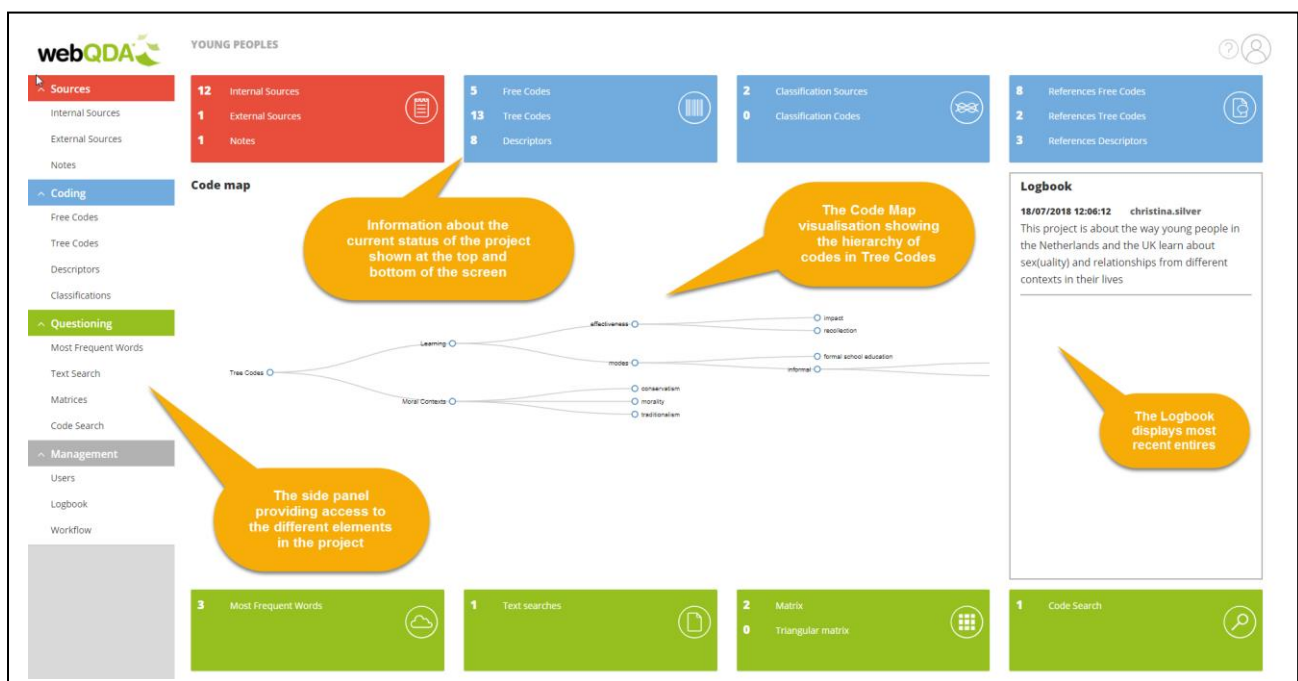
webQDA v3 - Distinguishing features

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 webQDA 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.

Background <https://webqda.net> webQDA is a web-based qualitative application developed by a partnership between the University of Aveiro and the company Micro IO, led by António Pedro Costa, António Moreira and Francislê Neri de Souza ■ webQDA was designed to support collaborative work amongst geographically distributed researchers, and was first released in 2010. The current version 3 was released in 2016 ■ Its logic follows other products on the market, in terms of its 'structural and theoretical design' and was specifically designed to offer common CAQDAS features in an easily comprehensible way, and via an online platform.

Minimum System Specifications (recommended by developer) webQDA was developed using HTML5 standard and is supported by common Internet browsers (Internet Explorer, Firefox, Safari, Chrome, Opera) ■ It requires that the browser allows the use of cookies and runs JavaScript. For optimal user experience the developers recommend a screen resolution equal to or greater than 1280 by 720.

Figure 1. The main webQDA interface when opening an existing project



Structure of work in webQDA The webQDA interface comprises a side panel providing access to the four main elements of work: Sources, Coding, Questioning, and Management ■ The Sources area stores data files and Notes about the project ■ The Coding area stores the different components for conceptually and factually organising data as Free Codes, Tree Codes, Descriptors and Classifications (see below for more information about each) ■ The Questioning area provides access to the four ways of interrogating the dataset (see below for more information) ■ The Management area provides access to the central aspects of managing the project – including managing users, managing the project using the Logbook, and providing access to an overview of Workflow actions.

Data types and formats in webQDA Data files are referred to as Sources within webQDA ■ Internal Sources and Notes are created within the project or imported into it (e.g. if transcripts have been created and saved as text files). External Sources are created within the project by establishing links to

externally stored images, audio or video files. Creating a link in this way displays the external file within webQDA where it can be worked with as if it were stored internally ■ **Textual Formats:** Text only (.txt), MS Word (.docx), Portable Document Format (.pdf), MS Excel (.xls, .xlsx). Text documents can be created within WebQDA or imported. Textual formats are fully editable within webQDA ■ **Images:** Embedded images in text documents are lost upon importing into webQDA, but .jpg and .png files can be imported as files ■ **Multimedia formats:** Digital video (.mp4, .ogg, or .webm) and audio files (.mp3, .wav) can be directly imported and treated in similar ways as textual formats.

Closeness to data and interactivity in webQDA

With just four main elements in the webQDA interface it is easy to flick between different aspects of work, and interactivity between the different areas is good ■ The coding schema is displayed on the right when viewing retrieved references, enabling coded references to easily be re-coded from the retrieval view ■ Access from the display of retrieved coded references to the source file, to view in context ■ Results of Questions are interactively linked to the coded references that they represent, and the original Source context.

Handling multimedia data in webQDA

Audio, Video and Image files can be created as Internal or External Sources. Options for working with them are the same either way ■ **Audio and Video Sources** can be transcribed within webQDA by chunking the file up into time-stamped segments and adding text transcripts to each segment. Those segments can then be coded in the same way as references within text Sources ■ **Image Sources.** Rectangular selections can be made within image files to mark particular sections. These selections can be described and given a colour attribute which appears overlaying the image. To code the selections, the text associated with them is selected and coded in the same way as references from any other type of Source.

Figure 2 Transcription and coding of video Source

The screenshot displays the webQDA interface for a video source titled 'USE OF TECHNOLOGY IN QUALITATIVE RESEARCH' by Christina speaking. The interface is divided into several panels:

- Left Panel:** A navigation menu with sections: Sources (Internal, External, Notes), Coding (Free Codes, Tree Codes, Descriptors, Classifications), Questioning (Most Frequent Words, Text Search, Matrices, Code Search), and Management (Users, Logbook, Workflow).
- Center Panel:** A video player showing a woman speaking. Below the video is a transcript with time-stamped segments. A yellow callout points to the transcript, stating: 'Time-stamped segments are created where the transcript is written'.
- Right Panel:** A coding schema panel titled 'Encode'. It lists various codes under 'Free Codes' and 'Tree Codes'. A yellow callout points to this panel, stating: 'Codes are listed in the side panel, to apply to selected references'.
- Transcript Area:** A yellow callout points to a specific segment of the transcript, stating: 'Hovering the cursor over yellow highlighted references flags up the codes that have been applied at that point'.
- Transcript Content:** The transcript includes segments such as:
 - 00:00:00 - 00:00:09: 'Ok, I started with my undergraduate dissertation at the University of... in the UK, and I was studying Sociology and Politics'
 - 00:00:09 - 00:00:24: 'And then I... they are very interested in methods, and did my Masters in Social Research Methods, and then my PhD, and that's when I became interested in using software to undertake qualitative analysis'
 - 00:00:24 - 00:00:32: 'The book that I published with my colleague Ann Lewins, a couple of years ago, is all about different ways of using software for different types of project, so we take three different case-study projects and follow them through the book, giving examples of different ways of using software tools for different methodological approaches'
 - 00:00:45 - 00:01:31: 'Well, CAQDAS packages have been around for many years, almost 25 years now, but technology has developed a lot in that time, and now we're at the point that technology can give assistance to the way that we do our research, so for the future, as a community, qualitative researchers need to think about whether they want to embrace technology and make use of the power that technology gives us, or whether we want to resist those changes in technology and continue working in more traditional ways. I think that's a really big issue for the community to grapple with. My personal opinion is that we can harness technology to make our practices more powerful, and that will be what I'll be talking about in my Keynote this afternoon'

Coding schema in webQDA

There are three areas to the coding schema in webQDA ■ **The Free Codes** area allows the creation of codes in a flat list structure. Although Free Codes can be grouped into Folders, it is not possible to create sub-codes in this area or to code at the Folder level ■ **The Tree Codes** area allows the creation of a hierarchical structure of codes and sub-codes. Coding can happen at any level, although the hierarchies are not functional – i.e. coding applied to a sub-code is not automatically aggregated up the hierarchy ■ **Descriptors** work in the same way as Tree Codes but are in a separate area and are designed for 'descriptive encodings' – i.e. as opposed to conceptual or thematic coding ■ Coding schemas can be imported from spreadsheet applications.

Coding Processes in webQDA

Data segments (called References) that are identified as meaningful are selected and Codes or Descriptors applied to them using the side panel ■ References that have been coded are highlighted in yellow within Sources (Internals, Externals or Notes) ■ The same or overlapping References can be coded to several different Codes and/or Descriptors.

Basic Retrieval of coded data in webQDA

All References that have been coded are highlighted in yellow within Sources ■ References linked to Codes and Descriptors are shown separately ■ Hovering over yellow highlighted References flags up the Code/Descriptor to which they are linked ■ References coded to an individual Code/Descriptor are retrieved by double clicking on it from the main Coding Area, which displays all the References linked to that Code/Descriptor, across all Sources, in a separate display ■ There is no code margin view visualising the application of Codes/Descriptors sequentially through Sources.

Data organization in webQDA

Data can be organised in three ways in webQDA ■ Folders can be created to store and organise sources, for example according to data type ■ Sources and Codes can be associated with Classifications and various Attributes and Properties (values). The Properties of Attributes can be given one of four types: text, integer, decimal, or date ■ Descriptors work in the same way as codes and are designed to enable selections of data within Sources to be associated with factual information, called 'descriptive encodings'.

Writing tools in webQDA

Writing in webQDA is enabled in two ways ■ Notes are a type of Source and can therefore be worked with in the same way as Internal and External Sources – i.e. the content of Notes can be coded using Free codes, Tree codes and Descriptors, they can be organised into Folders, be associated with Attribute Properties via Classifications, and be included in searches in the Questioning area ■ The Logbook is a central area for keeping a record of the progress of a project as a whole, where dated entries can be created at any time by different users.

Linking devices in webQDA

Linking tools in webQDA are limited to linking to externally stored images, video and audio in the External Sources area, to enable work with such media when the files are not stored locally.

Visual tools in webQDA

Visual tools in WebQDA are limited to two features ■ The Code Map provides a visualisation of the structure of Free Codes, Tree Codes or Descriptors ■ The Cloud provides a visualisation of the results of running a Most Frequent Words search, where the larger the word the most frequently it occurs within the parameters of the criteria set when creating the search ■ There is no modelling or mapping tool for creating or visualising connections between codes or other items.

Searching and interrogating the database in webQDA

The Questioning area provides four ways to interrogate the database ■ Most Frequent Words allows frequently occurring words to be retrieved within Sources. The user specifies the number of most frequent words to search for, and the minimum length of words to be found. Results are listed in a table or can be visualised in a Cloud. Results are interactively linked to Source context from where user-specified context surrounding each relevant 'hit' can take place. Alternatively, every instance of a word found can be automatically coded from the result view ■ Text Search allows specific words and phrases to be identified within Sources (both Internal and External) and Notes. There are several options for specifying how words are found ■ "Matrices" allow the user to interrogate the relationship between any elements in the project (i.e. Sources, Notes, Codes, Descriptors, and the Properties/Values of Attributes assigned to Sources or Codes). The Boolean search operators AND, OR and NOT are available to define the relationship between each row and column in the matrix question, and Inclusion and Exclusion restrictions are available to scope the matrix result to different elements ■ Code Search allows references to be retrieved on the basis of the codes that have been applied. Boolean operators AND, OR and NOT are available to specify how Codes applied to References are found ■ All interrogations are automatically saved by virtue of their creation.

Figure 3. Examples of results of Interrogations (accessed from Questioning Area)



Output in WebQDA

Outputting different aspects of the project is enabled by exporting as .pdf, MS Excel or .png files ■ Lists in each of the main areas (Sources, Coding, Questioning and Management) can be exported as .pdf and MS Excel files ■ Retrieved references at Codes and Descriptors can be exported as PDF files ■ The Cloud visualisation from a Most Frequent Words search can be exported as .pdf, MS Excel or .png files.

Team-working in WebQDA

webQDA is designed around the need for multiple researchers to work concurrently on a research project ■ Users can be added to projects at any point and access work by logging in using a password ■ Users are one of three types. Managers create webQDA projects and control access to other users. Collaborators can access and work on all elements of the project. Guests can see work being undertaken within a project but cannot make any changes.

Comments on webQDA

webQDA is a simple application providing core tools to enable code-based approaches to qualitative data analysis. The user-interface is clean and intuitive, and the application is easy to learn and start using.

As a web-based application, users needn't install software, although will only be able to access projects when connected to the internet. The pricing structure is different from most other CAQDAS packages and may offer added flexibility to some users.

The way re-coding of coded references from the retrieval view is enabled is very useful because the coding scheme is by default displayed on the right panel when viewing retrieved coded references. However, it is a shame that the same functionality is not provided when viewing the results of a Coding Query

webQDA supports team-working amongst geographically dispersed researchers. The web-based interface offers a flexible way of working and the ability to work concurrently without complicated server installations and set-ups is beneficial.

It is straightforward to transcribe video and audio data in webQDA, and to edit the transcript as the analysis proceeds, which is incredibly useful. However, there currently are no keyboard short-cuts or other tools to facilitate the process, so the user is reliant on using the mouse to stop and start the audio or video, which makes transcription a little more cumbersome and time-consuming than in other programs.

The lack of a margin display showing coded references is a limitation in comparison to other CAQDAS packages; the main implication of this being that it is less easy to identify patterns and relationships in how data have been coded sequentially throughout a data file.

There is a good range of interrogation options in the Questioning area for exploring the content of texts and the application of coded to references. It is straightforward to build a question and the criteria for specifying the parameters of the question are powerful. It is particularly useful that questions are automatically saved upon their creation, meaning the user does not have to remember to do this, and automatically has a record of all interrogations undertaken. However, the current inability to auto-code for repeated structures within or across data files (such as speakers in focus-group discussions or actors in observational field notes), and to specify the amount of surrounding context to code around 'hits' found by the Most Frequent Words and Text Search are limitations in comparison to other CAQDAS packages.

The ability to analyse writing captured in Notes is useful. As is the central Logbook for capturing progress amongst different team-members in a collaborative project in a central location. However, the inability to annotate specific references within Sources may be seen as limiting for certain analytic approaches.

Linking tools are less well-developed than comparable functions in other CAQDAS packages

Further Reading

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- P. Costa, F. N. de Souza, L. P. Reis and F. Freitas, "Features for the promotion of collaborative work in qualitative research: WebQDA software," 2016 11th Iberian Conference on Information Systems and Technologies (CISTI), Gran Canaria, 2016, pp. 1-6.
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- di Gregorio, S & Davidson J (2008) **Qualitative Research for Software Users**, McGraw Hill, Open University Press, UK