ATLAS.ti 8: Distinguishing features and functions

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 provided by ATLAS.ti 8 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. See also Silver & Lewins (2014) *Using Software in Qualitative Research: A Step-by-Step Guide*, Sage Publications and Woolf & Silver (2018) *Qualitative analysis with ATLAS.ti: The Five-Level QDA method,* Routledge. Many thanks to Susanne Friese for reviewing this document for accuracy.

Background

http://www.atlasti.com   ATLAS.ti was initially developed as part of the research project ATLAS at the Technical University, Berlin (1998-1992). Thomas Muhr, today CEO of ATLAS.ti Scientific Software Development GmbH, was lead developer on the projects ■ 'ATLAS.ti Scientific Software Development GmbH' continues to develop and support the software ■ ATLAS.ti 8 is available for Windows and Mac ■ There is also a mobile App for Android and iPad

Minimum System Specifications (recommended by developer)

Windows: Ram – 4GB minimum / 8GB recommended. Disk – 100MB minimum / 1GB+ recommended
Mac: OS version 10.10 'Yosemite' or higher ■ See https://atlasti.com/product/technical-info/

Structure of work in ATLAS.ti 8

ATLAS.ti 8 works using an external database system : when data files (called documents) are added to the project file, copies are made and stored externally in a Library (repository) and viewed within the project ■ The interface has four main elements ■ Navigators list components and can be opened and docked in tabbed panels to the right or left of the screen ■ The Workspace is the central area containing tabbed windows ■ Floating windows can be opened and moved around the screen as required ■ In the Windows environment Menu tabs and their associated ribbons across the top of the screen display functions relevant to the current focus In the Mac environment all functions can be accessed from the Main Menu, below which is a quick access toolbar

Figure 1. The ATLAS.ti 8 for Windows user interface, showing the main elements of the interface
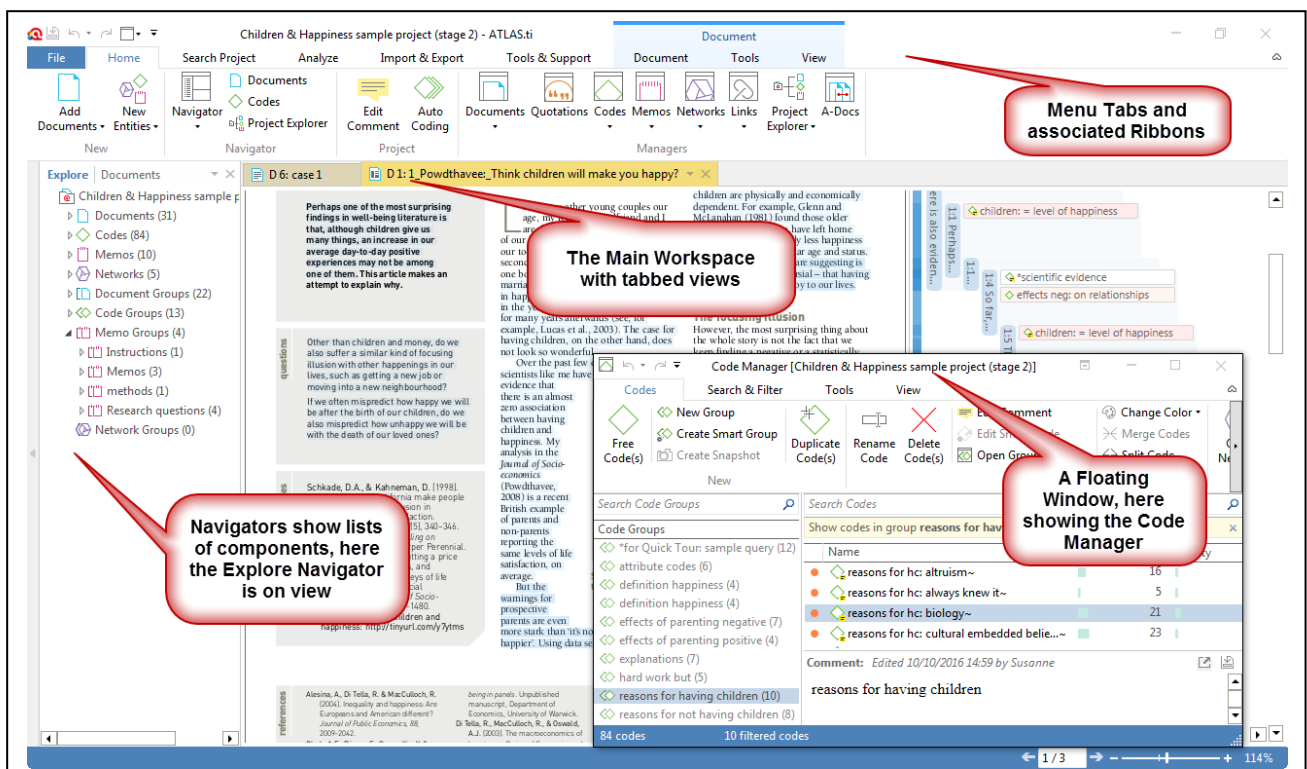
Data types and format in ATLAS.ti 8

Text Formats : Plain text (.txt), MS Word (.doc, .docx, .rtf), Portable Document Format (.pdf), Open Office (.odt), HyperText Markup Language (.htm, .html) ■ Graphic (image) formats : .bmp, .gif, .jpeg, .png, .tif, .tiff ■ Audio formats : .aac, .m4a, .mp3, .wav ■ Video formats : .3g2, .3gp, .3gpp, .asf, .avi, .m4v, .mov, .mp4, .wmv ■ Survey data : the survey import feature allows mixed qualitative and quantitative data from .xls or .xlsx files to be imported. The information is extracted and as documents, codes and groups within the ATLAS.ti project for analysis ■ In addition, data can be imported from Reference Management software, Evernote, Twitter and SPSS, and Geo Documents can be created – which opens an Open Street world map in which locations can be marked and analysed. For more details see the ATLAS.ti User Manual.

Closeness to data and interactivity in ATLAS.ti 8

Closeness to data is a concept inherent to the design of ATLAS.ti and is most particularly reflected in the status of "Quotations" as independent entities ■ Quotations are selections of data within documents of any type, that are identified as meaningful for analytic purposes. They are independent entities in that they can be identified and listed separately from anything else – so for example, Quotations do not have to be coded in order to be retrieved out of their document context ■ This independence of Quotations is a central functionality of the software ■ Whether coded or not, navigating around Quotations always locates them in the source Document context (although they can also be lifted out of context in Networks, the preview areas in managers and tables, or by outputting) ■ The margin view displaying Quotations and the other components they have been linked to (i.e. Codes, Memos, other Quotations) is interactive and customizable. Highlighting a code/hyperlink/memo in the margin will display the linked quotation. Components can be accessed and edited from the margin view ■ Full Interactivity exists within the Network view and between other project components (e.g. Documents, Quotations, Codes, Memos, Comments, and Networks).

Handling multimedia data in ATLAS.ti 8

Audio-visual data can be directly added, annotated and coded (i.e. a written transcript associated with an audio/video file is not a requirement, but can be accomplished when required) ■ Image snapshots can be created from video documents ■ The Associated Documents facility enables audio/video data files to be synchronised with corresponding written transcript through use of time anchors ■ Upon adding transcripts created using F4/F5 (low cost transcription tool) synchronicity between media automated ■ F4/F5 transcription package available from http://www.audiotranskription.de/english/f4.htm

Coding schema in ATLAS.ti 8

In its main listing and structure the coding schema is visually non-hierarchical and can be sorted in several ways ■ Groups enable short-cut collections of codes to be created, and any code can belong to any number of groups ■ Filter work to a code group to view or generate output on an aspect of the coding schema. Groups are visible and editable from Code Manager. Smart Groups can be created from combinations of Groups (using e.g. AND, OR, ONE OF, NOT operators) ■ Codes can be linked to one another to impose structure on the coding schema, or to illustrate analytic relations (e.g. *is associated with, is a cause of* etc.). ■ Links between codes can be visualised in a network or the Project Explorer ■ Coded quotations can be retrieved based on the properties of links between codes. ■ Inter-coder agreement analysis for assessing how multiple researchers have coded documents.

Coding Processes in ATLAS.ti 8

Coding is enabled by linking Quotations to Codes. This can be achieved in several ways, including by drag-and-drop, by List Coding, Open Coding and Coding *In Vivo* ■ In addition, coding can be accomplished by searching for strings of text (e.g. words and/or phrases using the Auto-coding feature), and the Focus Group Coding feature (which searches for patterns based on speaker identifiers in textual documents) ■ Quotations can be coded to multiple codes simultaneously ■ The margin view displays quotations created within documents, the codes, memos and other quotations that have been linked to them, and code groups, memo groups and networks. The margin view display can be filtered, and codes, comments and memos can be edited from the margin view.

Basic Retrieval of coded data in ATLAS.ti 8

Coded data are retrieved by navigating through Documents to view Quotations in source context. Textual and graphic Quotations are highlighted, audio-visual Quotations are played back ■ Filtering to Groups of Codes and/or Documents focuses the view for internal retrieval or output purposes ■ Lift Quotations out of context by outputting or visualising in a Network View ■ The margin display provides an overview of how Documents are coded in their entirety and can be filtered in various respects ■ Code Groups, hyperlinks and memos linked to Quotations can also be visualised in the margin, as required

Data organization in ATLAS.ti 8

Organizing whole Documents for the purpose of filtering to subsets or querying is achieved by creating short-cut collections of Documents, known as Document Groups (e.g. socio-demographic groupings such as gender, age-group, marital status, etc). Functionality replicates that for organizing Codes and Memos ■ The Smart-Group tool allows combinations of Groups to be created (using AND, OR, ONE OF, NOT operators). Smart Groups are dynamic so that e.g. as more Documents are added to the original Groups the Smart-Groups automatically update ■ Basic document Group structure can be implemented via the survey import feature ■ Organisation of parts of documents (e.g. speaker sections in focus-group data) happens on the level of coding, using the Focus Group Coding or Auto-coding features.

Writing tools in ATLAS.ti 8

ATLAS.ti allows the user to write in many different spaces ■ Memos are a main object at the same level as other components, such as Documents, Quotations and Codes ■ The content of several memos can easily be outputted into one file ■ Memos can be linked to Quotations, Codes and other Memos. ■ Links created between Memos and other objects are functional in that visualising them in a Network view will illustrate any other linked items ■ Comments are spaces to write that are linked to other components – i.e. Code Comments can be used to define Codes, Quotation Comments can be used to write annotations about meaningful selections of data, Document Comments can be used to store background information about data files, etc. ■ In addition, there is a central Project Comment for keeping notes about the project as a whole

Searching and interrogating the database in ATLAS.ti 8

There are several ways to search and interrogate within an ATLAS.ti project ■ The Search Project feature allows words or phrases to be found in the name, content or comments of project components (e.g. codes, documents, memos, groups, networks, etc.), either across the whole project, or on the basis of the user that created them ■ The content of Documents can also be searched for words/phrases using the Search Document feature, words can be counted using the Word List feature and visualised in a Word Cloud. In addition, quotations containing searched-for words/phrases can be quickly linked to Codes using the Auto-code feature ■ Global Filters allow the project to be temporarily scoped based on individual or combinations of Groups or Smart Groups. This allows a straightforward way to, for example, retrieve Coded-Quotations based on Groups of Documents and Codes ■ The Query Tool retrieves quotations based on the Codes they have been linked to, using Set and Proximity operators (e.g. AND, OR, ONE OF, NOT and COOCCURS, FOLLOWS, ENCLOSES etc.). In addition 3 semantic operators (UP, DOWN, SIBLINGS) allow retrieval based on the presence of transitive links made between codes. Retrieval within the Query Tool can be scoped to individual Documents, or on the basis of Document Groups. Smart Codes are uniquely saved queries but are listed as codes. Once created, double clicking on a Smart Code will re-run the query. Smart Codes can be constituent in another query, which itself can become a Smart Code, thereby enabling easy up to date navigation around complex combinations of coded data. Smart Codes can be created at any stage of work. Snapshot Smart Codes capture a search at a specific point in time ■ Co-occurrence tools allow Quotations to be retrieved based on the presences of combinations of Codes. The Co-occurrence Explorer shows co-occurrences in a hierarchical tree view. The Co-Occurrence Table allows Coded-Quotations to be retrieved in a matrix of Codes by Codes. ■ In addition, the Code-Document Table displays a cross-tabulation of Codes by Documents ■ Networks can also be used to visually interrogate connections (see below).

Linking devices in ATLAS.ti 8

Linking is very flexible in ATLAS.ti in that almost any project object can be linked to any other ■ Linking is functional in that subsequently opening a Network on a linked object will automatically show other objects linked to it ■ Effective hyperlinking between points in the data is enabled due to the centrality of the quotation. This allows the tracking of sequence or process within or between data files without abstracting to the coding level. User defined relationships can be created between hyperlinked quotations, as well as between Codes.
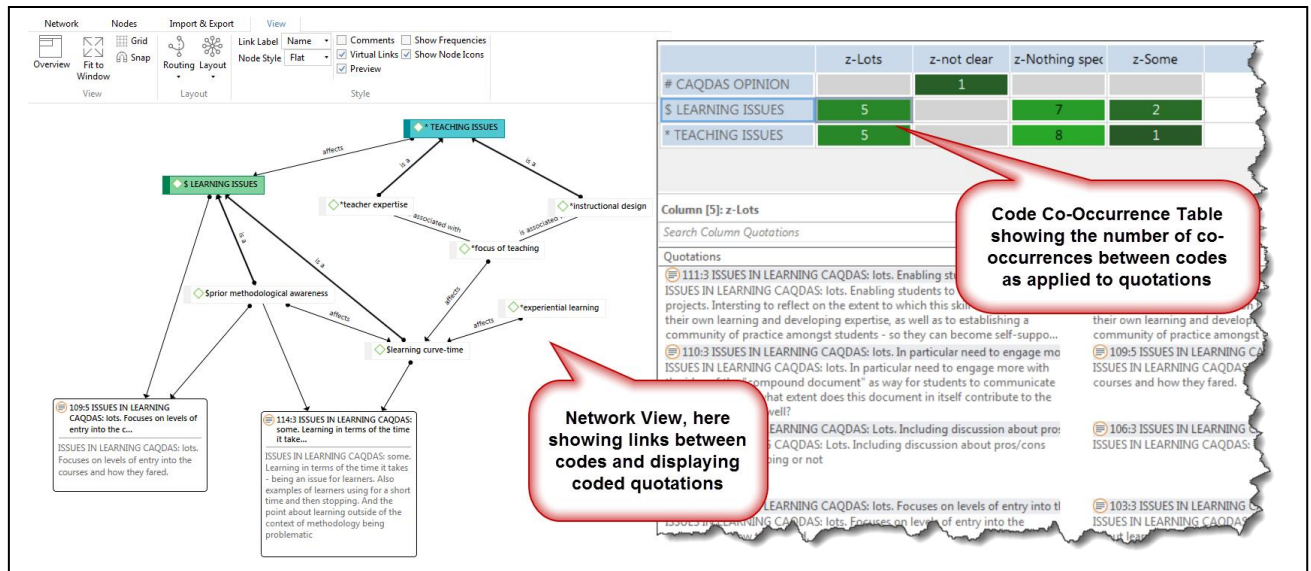

Figure 2. Examples of visualisations in ATLAS.ti: the Network View and the Code Co-occurrence Table

Output in ATLAS.ti 8

The Report tool allows different aspects of work to be exported from the Managers for documents, quotations, codes, memos and networks. Reports can be save in different formats and filtered for focused output. ■ The whole project can be exported as an SPSS syntax file in order to undertake further statistical analysis. ■ The Codebook (list of codes) can also be exported, either as a MS Excel spreadsheet or in QDC format (a common exchange format that can be imported into other CAQDAS packages).

Team-working in ATLAS.ti 8

Team working is enabled by each user working on separate versions of a common project, which are then importing projects to combine work. Each user has their own copies of the documents in their own project library ■ ATLAS.ti supports mixed team working – i.e. where different users are working with the Mac and Windows version of the software.

Comments on ATLAS.ti 8

Flexibility - different ways of working to suit different purposes. Functionality does not rely on code and retrieve yet if that is all the user needs it is very easy to get to that point. The flexibility provided by the quotation structure and the ability to hyperlink between places in the data without abstracting to the coding level is useful and unique in comparison to other software packages. If used extensively the user must come up with ways of managing these linkages, but this functionality offers options to those not employing code-based analytic processes.

Support for pdf documents is highly developed and provides a completely accurate representation of the pdf and its layout, images etc. This is most useful if the exact layout of the pdf is important for the researcher in respect of the analysis. In addition, that highlighting and annotations made on pdf files before adding them to an ATLAS.ti project are preserved, is very useful.

Excellent co-occurrence Table Explorer This provides an easy way, without building a query, to find the co-occurrence of any code with any other code in the data – easy options for varying co-occurrences.

Main working code list (Codes manager) does not have a functioning hierarchical structure to choose from, though it is possible to create code connections and collections of a hierarchical nature. To some users this is an attraction because they feel restricted by hierarchies. To others it lacks choice since visually hierarchical structures can provide a way to systematically 'tidy up' a codes list. However, the ability to link codes to one another using user-defined relations offers a powerful way of imposing hierarchy on a list of codes. That these code links are also fully functional and dynamic is a unique feature of ATLAS.ti

The Query tool : some search operators have very precise parameters and the user must be aware of these to interpret results and their implications reliably. The query tool is easy to use as a result of its visual query-building, especially for simple retrievals. However, it is not possible to lacks the ability to integrate searches for text with searches for coded data. Semantic query operators based on links created between codes unique.

Unique smart codes function (via Query tool) is an economic and efficient way to remind, pose questions or build hypotheses. Smart codes provide a straightforward way to re-run simple or complex searches. The presence of smart codes in the codes list is a constant reminder of previously posed queries which facilitates continuity and rigour.

The network tool is very flexible in that any object can be linked to almost anything else. The software remembers previously created links, so the user needs to be sure the connection remains relevant, or use proxy codes to illustrate an abstract model. The ability to see the content of quotations in networks is useful for analytic and display purposes, and is unique in its functionality.

Word cruncher has no Key Word In Context functionality: compared to other software the word frequency tool is rather basic and not interactively connected to the words found in their document context.

The Apps for iPad and Android provide an excellent mobile accompaniment to work with ATLAS.ti.

Further Reading

- Friese, S (2014) Qualitative Data Analysis with ATLAS.ti, Sage Publications (3rd edition 2019)
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- Woolf, N & Silver, C (2018) Qualitative Analysis with ATLAS.ti: The Five-Level QDA® Method. Routledge
- di Gregorio, S & Davidson J (2008) **Qualitative Research for Software Users**, McGraw Hill, Open University Press, UK (uses an ATLAS.ti project as worked example)