

ONENOTE: A DIGITAL TOOL FOR QUALITATIVE RESEARCH

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ABSTRACT

Many introductory qualitative research textbooks emphasise digital tools for data analysis, neglecting tools that support other activities in the qualitative research process. Computer Assisted Qualitative Data Analysis Software (CAQDAS) such as Atlas.ti, Nvivo or Dedoose, are increasingly supporting more of these activities. However, these software packages are usually costly, have a high learning curve and require specialised training, leaving researchers in an "all or nothing" decision in what concerns digital tools to support the entire qualitative research process.

They can resort to digital tools for online collaborative writing and editing, cloud storage for organizing and sharing data files, transcribing, literature managers, mind mapping, and audio or video analysis, making it hard to manage so many disparate tools in an integrated manner.

The goal of this papers is to introduce researchers on how the qualitative research activities can be supported by Microsoft Onenote, a low learning curve digital notebook that affords many of the features of CAQDAS and of other digital tools, in an inexpensive, user-friendly way.

Keywords: CAQDAS, qualitative research process, Onenote, digital tools

FROM CAQDAS TO ONENOTE - A TOOL TO SUPPORT THE QUALITATIVE RESEARCH PROCESS

As Paulus, Lester and Britt (2013) noted in their discourse analysis of introductory qualitative research textbooks, most authors limit their scope of digital tools to Computer Assisted Qualitative Data Analysis Software (CAQDAS). This "overriding focus on data analysis software, while important, has resulted in the exclusion of a broader discussion regarding the potential affordances and constraints of digital tools across the qualitative research process." (Paulus, Lester & Dempster, 2014, p. 2). But qualitative research processes go beyond just data analysis, as they can be read as a set of activities such as (adapted from Miles & Huberman, 1994):

1. collaborating
2. reviewing the literature
3. generating data
4. storing, protecting and managing data
5. searching
6. transcribing
7. memoing
8. editing
9. coding
10. data linking
11. analysing content
12. data displaying
13. graphic mapping
14. writing
15. research project managing

The goal of this paper is to introduce researchers on how the above activities can be supported by Microsoft OneNote, a highly resourceful and customisable digital notebook, in ways that are easy to use, low-cost, scalable and collaborative.

THE CONSTRAINTS OF CAQDAS AS THE CANONICAL DIGITAL TOOL FOR QUALITATIVE RESEARCH

A large investment in digital tools to support research in the qualitative field has been around the development of CAQDAS, such as Atlas.ti, NVivo, Dedoose, MAXQDA, Hyper Research, QDA miner, Transana, among others, through graduate students' and staff training offers and software acquisitions/subscriptions. CAQDAS has been moving beyond rigorous data analysis to support other activities of the qualitative research process. It has been positioned as the repository of all the research data, processes and outputs, through the inclusion of project management like abilities to afford coordination of the activities involved in the entire process (Silver & Lewins, 2014).

CAQDAS packages are usually costly and have a high learning curve, requiring specialised training (Davidson, J. & Di Gregorio, S. 2011, p.636). These features put many researchers in a position of "all or nothing" in what concerns software for coordinating the entire research process. For those who choose "nothing", the only digital tools available are often restricted to online collaborative and offline word processors, cloud storage for organizing and sharing data files, transcribing software, literature managers, mind mapping software, and software for audio or video analysis, leaving them with an increased difficulty in managing the research project as a whole.

These difficulties were felt by the authors in the ongoing research project "Attitudes, expectations and practices in the Portuguese secondary schools science laboratories", funded by the Portuguese National Science Foundation (FCT). Several digital tools were used for reviewing the literature, generating data and memoing (Evernote, OneNote and Papers), transcribing, analysing, coding and data linking (Nvivo), data linking and graphic mapping (VUE and Murally), writing (Adobe Indesign and Microsoft Word), collaborating (Google Drive and Skype), storing, protecting and managing data (Bittorrent Sync and Synctoy) and project managing (folders, Tasks and Google Calendar), making difficult the task of managing and integrating all the available data, tools and processes.

ONENOTE - A TOOL FOR QUALITATIVE RESEARCH

Microsoft OneNote is usually portrayed as a digital notebook for general audiences. It has meanwhile encountered several applications in education, but not in qualitative research, as far as we know. We have used OneNote for research notetaking, memoing and literature reviewing for more than 8 years. Facing these difficulties around digital tools integration and workflows and supported by the literature on software for qualitative research (e.g., Paulus et al., 2013; 2014; Silver & Lewins, 2014), we have developed practices and templates which can make OneNote an extremely useful digital tool for the entire qualitative research process.

Table 1 – Qualitative research activities and Onenote affordances

Qualitative research activities	Onenote affordances
Collaborating	<p>Access to pages can be conditional or full</p> <p>Web app, tablet and smartphone apps as well as a software for Mac OS and Windows</p> <p>Works online and offline, with live syncing or asynchronous updates</p> <p>Collaborators can have viewing or editing privileges</p> <p>Marks recent editing and authors</p> <p>Through customisation, allows chatting around any piece of text, attribution of tasks, and retrieval and reporting on activities</p>
Reviewing the literature	<p>Through custom templates facilitates file management, indexing, annotation, linking, tagging, searching with retrieval of citations in context</p> <p>Insertion in the working pages of PDF files and their printouts. All PDF content of the library can be searchable</p>
Generating data	<p>Captures text, webpages, audio, images, screenshots and video directly to its pages</p> <p>Handwriting and drawing abilities</p> <p>Multi-platform - PC, Mac, Android, iOS and Windows Phone.</p> <p>Allows the insertion of documents, Excel, PDF, audio and video files</p> <p>Advanced web clipping abilities</p> <p>OCR capabilities - extract text from scans and pictures</p> <p>Transcribes voice to text (in Windows Phone) and vice-versa</p>
Storing, protecting and managing data	<p>Uses cloud storage with synced computer storage for file management and sharing</p> <p>Ability to password-protect any section</p> <p>Organization with many levels of depth - notebook, sections group, sections, pages, subpages, sub-subpages</p> <p>Pages can be based on paper sizes or open infinite canvas, allowing linear and non-linear organization of text, graphing and drawing</p>
Searching	<p>Word search tools with reporting ability</p> <p>Searching for words in images, audio and video files</p> <p>Searching across notebooks, sections, pages, subpages, sub-subpages</p>
Transcribing	<p>Converts handwriting into text</p> <p>Audio and video files recorded inside a page sync the notes taken during the recording with the specific time of the audio/video. When the note is "played", the file is "played"</p>
Memoing	<p>Handwritten, text, audio and video memoing associated with the content at the paragraph level or at the audio and video timetag</p>

Editing and writing	Advanced text editing and basic styles Outliner abilities Works simultaneously in multiple windows Allows clean full screen editing for decluttered writing Design of custom templates to organize writing Automatically saves pages versions that can be recovered at any moment Proofing tools and thesaurus Translation tools Advanced handling of tables
Coding	Paragraph based tagging system Allows for custom coding Search and retrieval abilities with basic operators Generates code search reports
Data linking	Allows hyperlinking of any pieces of text or file within and between any pages of Onenote and to external pages and files
Data displaying	Graphical design characteristics for drawing and making graphics Organization and manipulation of any content Live embedding of Excel and Visio pages
Graphic mapping	Graphical design characteristics allowing for graphical mapping
Research project managing	Through custom templates, facilitates planning pages and calendars Direct Outlook integration with the possibility of setting calendar appointments and reminders

Onenote also has the possibility of working with macros, easy short user programing, through Onestastic, an add-in which allows for the customization of procedures. There are also other add-ins, such as Mathematics, that compute standard and advanced mathematical and statistical functions and graphic plotting, and Onenote Gem, a commercial add-in which extends its annotation and commenting abilities, furthers connection to other applications (Mindmanager, Evernote), and so on.

We are actively developing templates, workflows, digital research notebooks and training to support the research community in using Onenote in their research ligfe, making them available at the website <http://onenoteinresearch.com>.

Figure 1 – Snapshots of the use of Onenote in several research activities

Using OneNote as a meta-tool across the qualitative research process

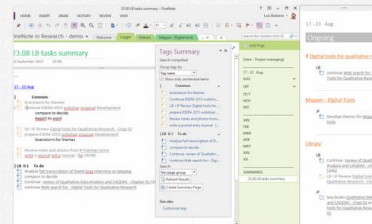
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Abstract

Many introductory qualitative research textbooks emphasize digital tools for data analysis, neglecting tools that support other activities in the qualitative research process. Computer Assisted Qualitative Data Analysis Software (CAQDAS) such as Atlas.ti, NVivo or Dedoose, are increasingly supporting more of these activities. However, these software packages are usually costly, have a high learning curve and require specialised training, leaving researchers in an 'all or nothing' decision in what concerns digital tools to support the entire qualitative research process.

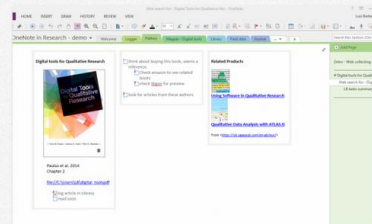
Affordances for Research

Here is a list of affordances we identified and developed into OneNote to adapt it to integrate...



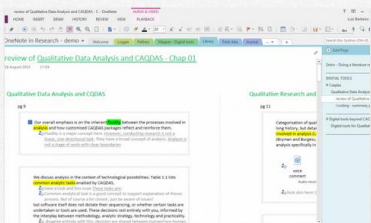
Project Managing

You can do macro and micro project management in our digital research notebook. The macro...



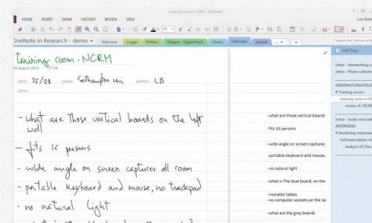
Web collecting and analysing

The web search collector/analyser lets you organise your web searches into a matrix-like page, where...



Doing a literature review

You can do in-depth literature reviews, analysing your selected texts with several tools: Publication files...



Handwriting collection, conversion and analysis

The handwriting collector allows you to add handwritten notes through mobile devices (mobile phones, tablets,...

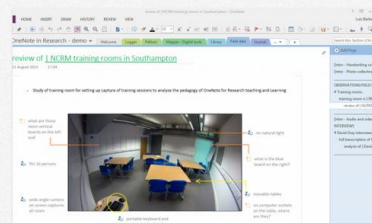
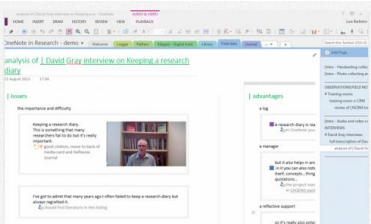


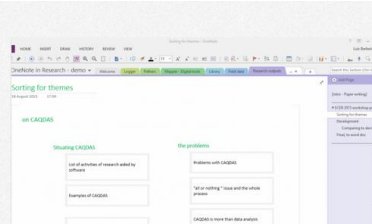
Photo collecting and analysing

With the photo collector, you can capture photos directly to your notebook from mobile devices, and organize them...



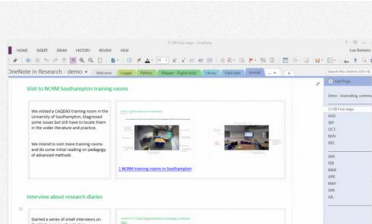
Audio and video collecting, transcribing and analysing

With the audio and video collector you can record audio or video directly into a...



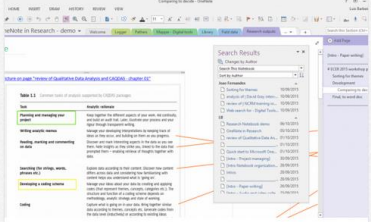
Writing papers

You can prepare a paper from the conceptual to the prefinal stage. Start with a...



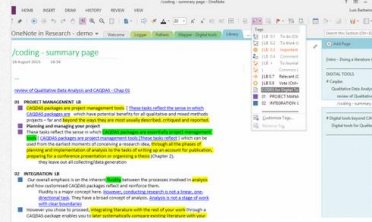
Journaling, communication and reflexivity

The Journal section allows you to keep a personal or collaborative journal of the research...



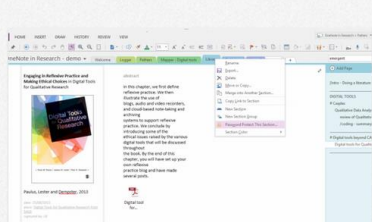
Doing Collaborative or Participatory projects

Some features of our digital research notebooks are uniquely suited to support Collaborative or Participatory...



Tagging and coding

OneNote comes with many useful tags, which you can apply, not just to pages, but ...



Organizing intuitively like in a paper notebook

You can organize your work through pages in sections. We have developed some sections that...

By introducing the research community to an inexpensive, user friendly and low learning curve software we hope to broaden the scope of digital tools available to researchers for improving qualitative research in Science Education.

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