In research and particularly evaluation, we aim to make value judgements about programmes relating to their effectiveness and efficiency in implementation, achievement of outcomes and impacts on civil society. To make these judgements, we collect and analyse data as evidence to substantiate and support our claims. There are two main categories of data which can be collected and analysed, namely quantitative data, which includes data that can be counted in numbers or measured by scale (often assigning numbers to the perceived qualities of things), and qualitative data, which usually includes theming or coding words and stories.

Both quantitative and qualitative data make up the essence of the evaluators toolbox in assessing programmes. In the realm of research and evaluation the debate between the strength of quantitative versus qualitative data analysis has been on-going for decades. However, for the purpose of this article, it is acknowledged that both approaches are valid and pivotal to understanding the context being studied.

**QUANTITATIVE DATA ANALYSIS**

As mentioned, quantitative data is made up of numbers or counts – which usually categorise or scale a phenomenon. When working with numbers – the data collected lends itself to statistical analysis, which can include descriptive analysis (simply describing the mean, median, mode, range and frequency of the data), inferential analysis (using statistical analysis to test hypotheses and make predictions about a population) and correlation analysis (using statistical analysis to assess the relationship between variables) to name but a few. To conduct the data analysis

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Stage of quantitative data, researchers and statisticians use computer assisted analysis programmes, such as the Statistical Package for the Social Sciences (SPSS) and Statistica among others. These programmes ensure valid, reliable and rigorous analysis of the quantitative data and provide researchers with objective findings.

QUALITATIVE DATA ANALYSIS

As discussed in the section above, qualitative data is made up of words, which aim to describe a phenomenon. This type of data can be made up of observations, field notes, interviews, focus groups, surveys, documentary analysis and even images such as photos, videos or drawings.

Qualitative data analysis is in some ways more subjective, as it depends on analysis by one researcher or a team of researchers. This is one of the reasons qualitative data analysis is criticised – due to the subjectivity of the analysis and therefore lack of generalisability (a lack of findings to be inferred to situations outside of the research sample⁴). However, the strength of qualitative data analysis is that it aims to give an in-depth and interpreted understanding of a social phenomenon or research participant.

Analysis types include approaches such as content analysis (where one counts the frequencies of occurrences of a phenomenon or theme), discourse analysis (which looks at how we construct language, how language was used by research participants, and how research participants ‘other’ – or make distinctions between themselves and other people), case study analysis (where one uses in-depth data of one person, group or event to understand the underlying principles) and interpretive phenomenological analysis (which aims to assess how one person makes sense of a given phenomenon), to name but a few⁵.

To assist the qualitative researcher or evaluator during their analysis process, the use of Computer Assisted Qualitative Data Analysis Software (CAQDAS) can speed up the analysis phase, as well as enhance the reliability of findings.

COMPUTER ASSISTED QUALITATIVE DATA ANALYSIS SOFTWARE (CAQDAS)

CAQDAS consists of a range of software packages that facilitate the analysis process through coding, organising and storing data as well as assistance in content analysis (counting frequencies), display and presentation of findings. It is important to remember that CAQDAS do not provide a complete analysed data set.

As has been established within the debate around qualitative data analysis – because the fundamental underpinning of the qualitative approach rests on interpretation and understanding of a story of a person, group or event, it is not possible to rely on a computer to understand the key concepts. Therefore, although CAQDAS cannot analyse the data – it relies on assisting researchers in their process of analysis.

Several CAQDAS packages exist – to name a few:
  - ATLAS.ti
  - E6
  - HyerRESEARCH
  - MAXqda
  - QSR N6
  - QSR NVivo
  - QDA Miner

The current paper will focus on the first package mentioned, ATLAS.ti. This software package was developed by the Technical University of Berlin in 1989 and released its first commercial version in 1993. The latest version of ATLAS.ti is version 7, and a new release of the software package has been made available for use on iPad.

**ATLAS.ti**

Through the ATLAS.ti software, it is possible to store, organise and code text documents such as PDFs and word documents, as well as audio files, video files and photo or graphics images and geo files, as well as assist the researcher in presenting their analysis.

**Storing**

ATLAS.ti enables you to store all research-related documents in one place – a place called a Hermeneutic Unit (HU). This HU will not only store all primary documents, but also any analysis done on these documents, including codes, code families, network views etc. To store documents to the ATLAS.ti HU – the process entails simply uploading the primary documents.

![Primary Doc Manager](image)

Figure 1: Example of the primary document manager storing documents

**Coding**

Coding refers to the process of assigning categories or themes to related segments of information (quotes) relevant to the research topic. Through the coding process in ATLAS.ti, the researcher highlights sections within the report and adds a name to this code. In ATLAS.ti there are options to:
• free-code – give a new name to each new highlighted section
• assign existing codes – apply an existing code to a new highlighted section, thereby adding quotes a category or theme.

Figure 2: Example of a coded section

Each new code is added to a code list. Code lists can be shared within a team – thereby ensuring researchers within a team are coding and therefore analysing documents with similar themes in mind.

Organising
Creating and organising code families
Throughout the analysis, a researcher begins to find similar themes and starts creating codes which are sub-categories of an overlying theme. These overlying themes are called families in ATLAS.ti. It is possible to create families by linking codes – thereby reflecting a relationship between these codes.

The image below gives an example of how the topic of challenges has been made into a code family which link the individual challenges of discrimination, HIV prevalence, etc.

Figure 3: Code family diagram

Presentation
Lastly, ATLAS.ti is able to assist a researcher in presenting data and findings. There are multiple ways of presenting findings in reports, the two types of presentation that will be discussed include presentation of quotations and codes primary documents tables.

ATLAS.ti groups the quotations per code or code family and assists in the referencing process as depicted on the following page:
Challenges: Access to services

P 2: MSM_2011 Report on counselling and paralegal services..pdf - 2:23 [many communities are marginali..]  
(6:486-6:790) (Super)  
Codes:  [Challenges: Access to services - Family: Needs]  
No memos  

many communities are marginalised and lack access to basic services including health care, education etc. Police stations are remotely located from many rural villages making it really difficult for women or girls to seek justice. Community services become really important to those women and girls.

Figure 4: Example of quotation

ATLAS.ti also assists in producing a Codes Primary Documents (CPD) table, showing the counts and frequencies of codes for each document. This table is produced in Excel and can be used in reports.

![Figure 5: Example of a codes primary documents table](image)

**CHALLENGES AND BENEFITS OF USING CAQDAS**

As with any data analysis methodology chosen, there are limitations and benefits of using CAQDAS such as ATLAS.ti.

Some of the limitations to consider before endeavouring to utilise this software are:

- Although the process is more rigorous, it is also more laborious, therefore the time for analysis can take longer.

- The researcher must take the time to learn the programme.

- The software cannot actually do analysis, however can assist during the process of analysis.

- The cost implications related to the purchase of the software must be considered.
Overall the benefits of using CAQDAS such as ATLAS.ti include:

- Documents are stored in one place – the Hermeneutic Unit
- Due to the electronic storage in Hermeneutic Units, it is easy to retrieve data
- Coding does not need to be done manually
- Codes can be extracted easily and in an organised manner
- Code lists can be shared within teams, ensuring the team is using the same ‘framework’ during analysis
- Presentation of data is made easier through ATLAS.ti referencing system and CPD tables
- All analysis can be easily traced back and assessed by an external source if necessary to ensure reliability of analysis.

From the benefits outlined above it shows that CAQDAS such as ATLAS.ti enhance the qualitative data analysis process through ensuring the researcher is able to code faster, more conveniently, store large amounts of data within one place and share coding lists as well as their data analysis process with either team members or external sources.

The use of CAQDAS increases the accountability of the researchers and the reliability of the analysis – however, it must again be mentioned that CAQDAS cannot take the place of a researcher, in that it cannot perform actual analysis.

**FURTHER INFORMATION**

**CAQDAS and ATLAS.ti**
http://www.atlasti.com/
http://caqdas.soc.survev.ac.uk
http://onlineqda.hud.ac.uk/Introduction/index.php
http://www.socresonline.org.uk/1/4/CAQDAS.html

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