

# USING NVIVO FOR DATA ANALYSIS IN QUALITATIVE RESEARCH

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**ABSTRACT\_** *Qualitative data is characterized by its subjectivity, richness, and comprehensive text-based information. Analyzing qualitative data is often a muddled, vague and time-consuming process. Qualitative data analysis is, the pursuing of the relationship between categories and themes of data seeking to increase the understanding of the phenomenon. Traditionally, researchers utilized colored pens to sort and then cut and categorized these data. The innovations in software technology designed for qualitative data analysis significantly diminish complexity and simplify the difficult task, and consequently make the procedure relatively bearable. NVivo, the qualitative data analysis software developed to manage the 'coding' procedures is considered the best in this regards. This article is devoted to demonstrate the methods in which NVivo can be employed in qualitative data analysis.*

**Keywords:** *Coding, data analysis, Nvivo, qualitative research, survey.*

## Qualitative Research in Education

Qualitative research has become widely accepted across a wide range of education science, including administrative, curriculum, and psychology research. This wide acceptance of qualitative research in education is attributed to large extent to the advantage of this type of research. Unlike the quantitative approach, qualitative inquiry is a method of research that describes phenomena based on the point of view of the informants, discovers multiple realities and develops holistic understanding of the phenomena within a particular context [1]. It has been acknowledged that properly employing the qualitative data gleaned from face to face interviews, field observation and document analysis can lead the researcher to gain a deeper understanding of the problem than merely analyzing data on a large scale [2].

By this approach, the researcher can figure out the knowledge, skills and attitudes pertaining to the studied phenomenon. That is because the qualitative research "provides information about the "human" side of an issue, —that is, the often contradictory behaviours, beliefs, opinions, emotions and relationships of individuals" [3]. One more advantage of the qualitative research is that this approach has its magnitude in the developing countries taking into account their situation. [4] contend that:

In predominantly oral cultures the advantages of personal fieldwork, in-depth interviews and observation are most significant. [Yet,] there remains a tendency in many developing countries for research and policy planning to be based on a system perspective that still neglects the realities of schooling in an everyday context. [4]

There are several justifications for adapting the qualitative approach within the educational field, yet many researchers still avoid using this type of research due to its analyzing difficulty. There is, however, a growing body of literature devoted to simplify analyzing qualitative research in education. The main goal of this article is to pave the way in using the software in analyzing qualitative data.

## Data Analysis

Qualitative data analysis is a "process of bringing order, structure and meaning to the mass of collected data" [5]. Such process is not an easy task. It is disordered, hard, and time consuming, even though it is an innovative and captivating method. Qualitative data analysis is, in fact, pursuing the relationship between categories and themes of data seeking to increase the understanding of the phenomenon. Thus, rather than being strict and procedures-based, the researcher is required to be alert, flexible and positively interact with data collected [6].

Since the qualitative data are text-based, the corner stone of analyzing these data is the coding process. Codes according to [7] are "tags or labels for assigning units of meaning to the descriptive or inferential information compiled during a study". Codes often adhere to chunks of words, phrases, sentences or the entire paragraph. Coding involves pursuing related words or phrases mentioned by the interviewees or in the documents. These words or phrases are then combined together in order to realize the connection between them.

Conventionally, coding was done by hand, utilizing colored pens to sort and then cut and categorize these data. In some cases researcher would photocopy each transcript on different colored paper (i.e. interviewee 1 on red, interviewee 2 on blue etc.) and then pertinent phrases are cut from the script using a pair of scissors and arrange them into heaps. Alternatively, the researcher could use the highlighting function in the word processor to highlight the text he or she is interested in, once more a different color for each interviewee and then bring them together in an electronic file [5], [7]. This task in most of the cases actually is muddled, vague and time-consuming process.

## Using NVivo in data analyzing

Given the innovations in software technology, electronic techniques of data coding are gradually being more employed to obtain rigor in dealing with such data. Moreover, using a

computer basically “ensures that the user is working more methodically, more thoroughly, more attentively” [8]. Thus, qualitative researchers are encouraged to pursue employing this tool as much as possible in their works.

NVivo, a Qualitative Data Analysis (QDA) computer software package produced by QSR International, has many advantages and may significantly improve the quality of research. Analysis of qualitative data has become easier and yields more professional results. The software indeed reduces a great number of manual tasks and gives the researcher more time to discover tendencies, recognize themes and derive conclusions [9]. In addition, NVivo is considered as an ideal technique for researchers working in a team since it facilitates combining the work of individuals to come up with one project together.

Bazeley [8] mentions five important tasks in which NVivo ease analysis of qualitative data. These tasks include:

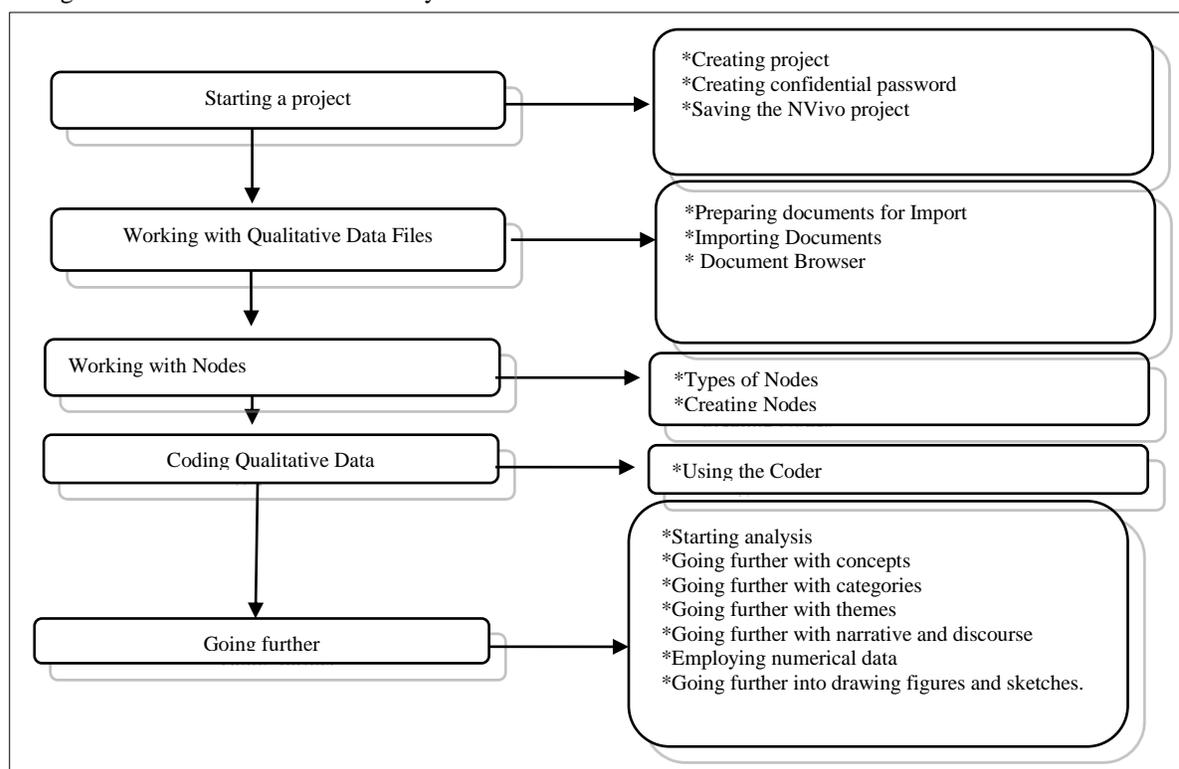
- Manage data: by organizing a number of muddled data documents. That includes interview transcripts, surveys, notes of observations and published documents.
- Manage ideas: in order to understand the conceptual and theoretical issues generated in the course of the study.

- Query data: by posing several questions of the data and utilizing the software in answering these queries. “Results of queries are saved to allow further interrogation and so querying or searching becomes part of an ongoing enquiry process” [8].

- Modeling visually: by creating graphs to demonstrate the relationships between the conceptual and theoretical data.

- Reporting: by utilizing the data collected and the result found to formulate transcript reports about the study conducted.

Before a qualitative researcher starts using the NVivo software, he or she has to obtain a thorough knowledge and skills of applying this software. The researcher may pursue some workshops that emphasize the application and techniques of NVivo software. In addition, the researcher can go through tutorials attached with the NVivo software. Those tutorials offer step-by-step animated displays and the researcher can commence employing QSR software straight away. The procedures figured out by [8] in employing Nvivo software program are useful in analyzing the qualitative data. These procedures are illustrated in Figure 1.



**Figure 1**  
**Procedure Followed in Applying NVivo Software.**  
Adopted from [8]

- **Starting a project:** The first step in this stage is to create a project comprised of all the documents, coding data and associated information that can assist during the analysis

process. Seeking to restrict access to the data recorded the researcher may create a confidential password in the project as appears in Figure (2).

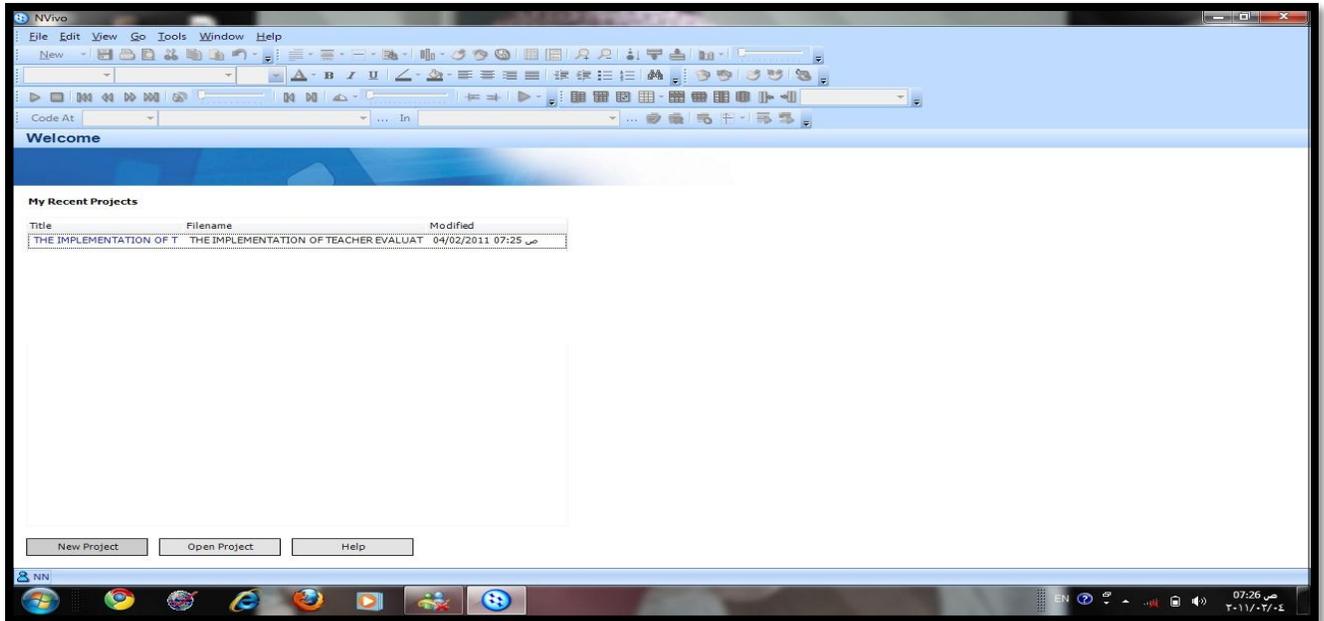


Figure 2 NVivo Screenshot of a Study's Project

- **Working with Qualitative Data Files:** Typically, the researcher records interviews digitally to capture all the details revealed by the interviewee. He/she is recommended to store the - based.

electronic sound files under a name of each interviewee. These interviews have to be transcribed and stored in a word processing application in order to make them text

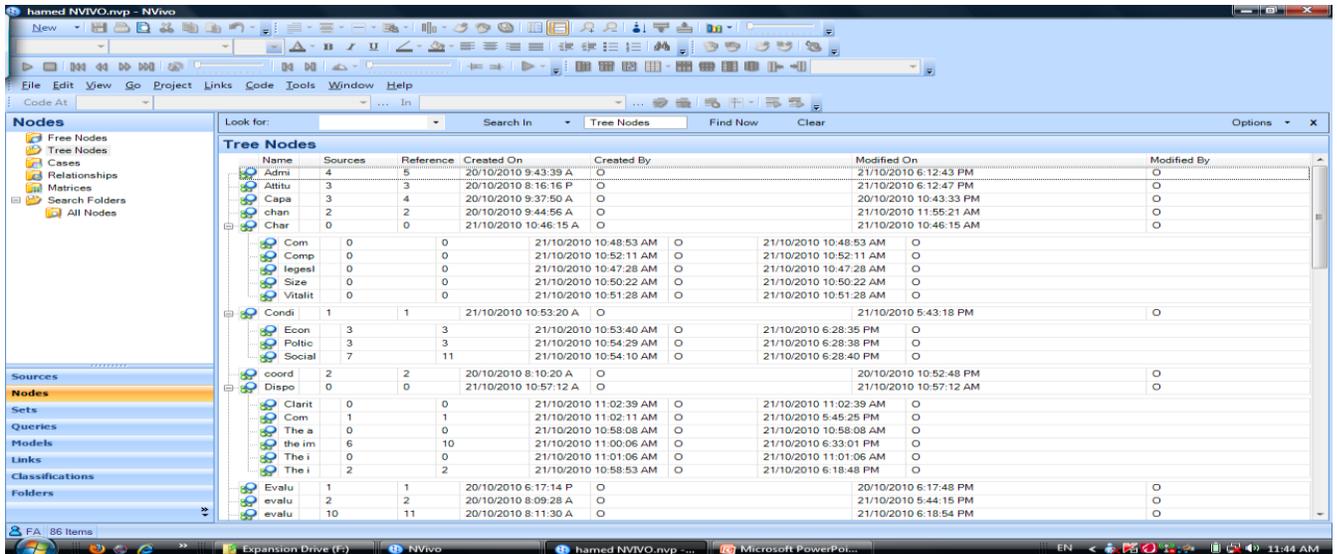
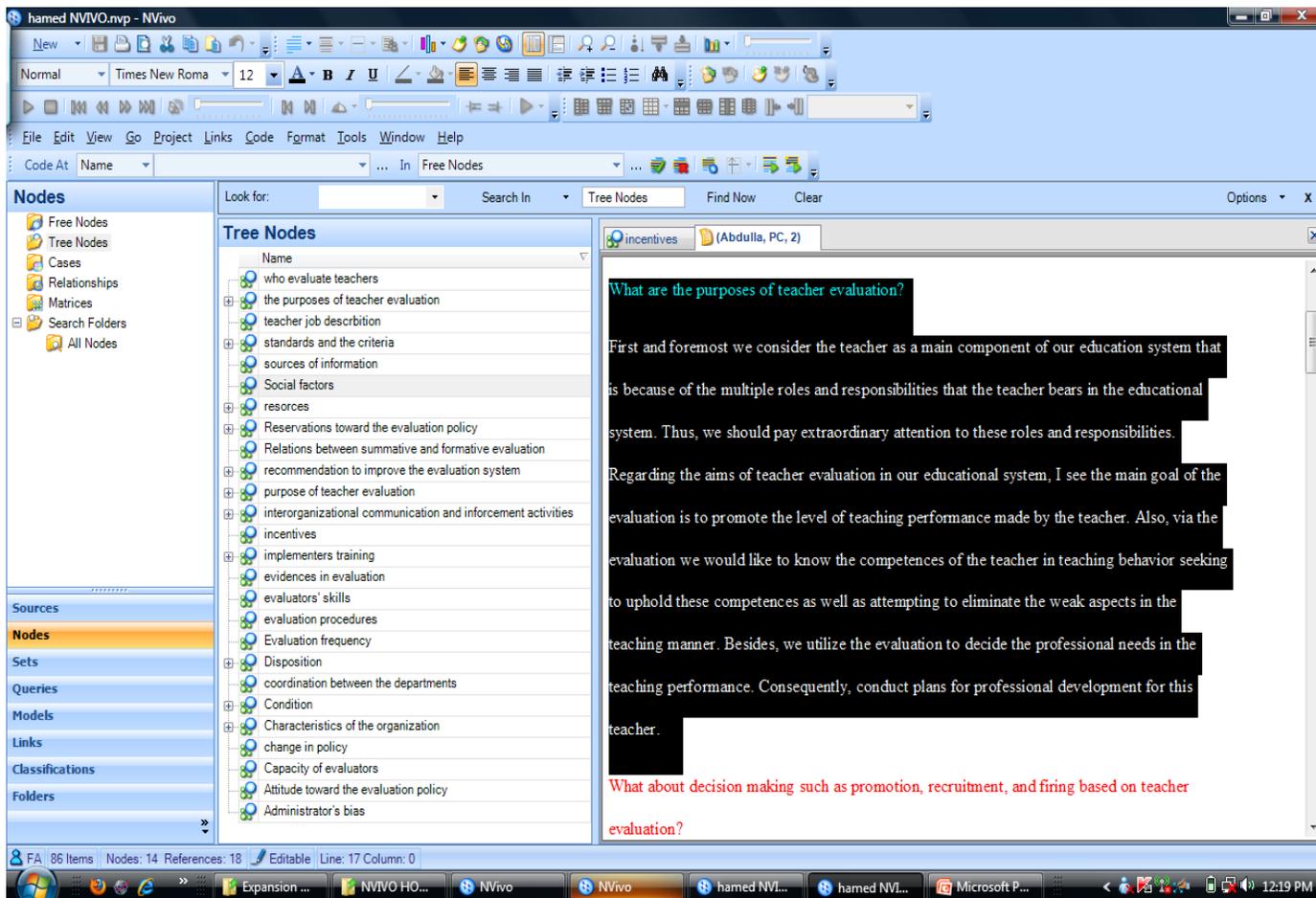


Figure 3 NVivo Screenshot of the Tree Nodes

The next step is to import the files which the researcher intends to analyze. This procedure is basically done via steering to the location where the file has been stored, then picking the appropriate file extension. NVivo automatically imports the selected documents into the application. Also using the Document Browser allows the researcher to recognize all of the text in the imported document.

**- Working with Nodes:** The function of nodes is to store a place in NVivo for references to code text. That means the two types of nodes, tree and free, contain the all known information about a particular concept or category “[8]. Two common nodes available are: Tree nodes and free nodes. Tree nodes are illustrated in Figure (3).

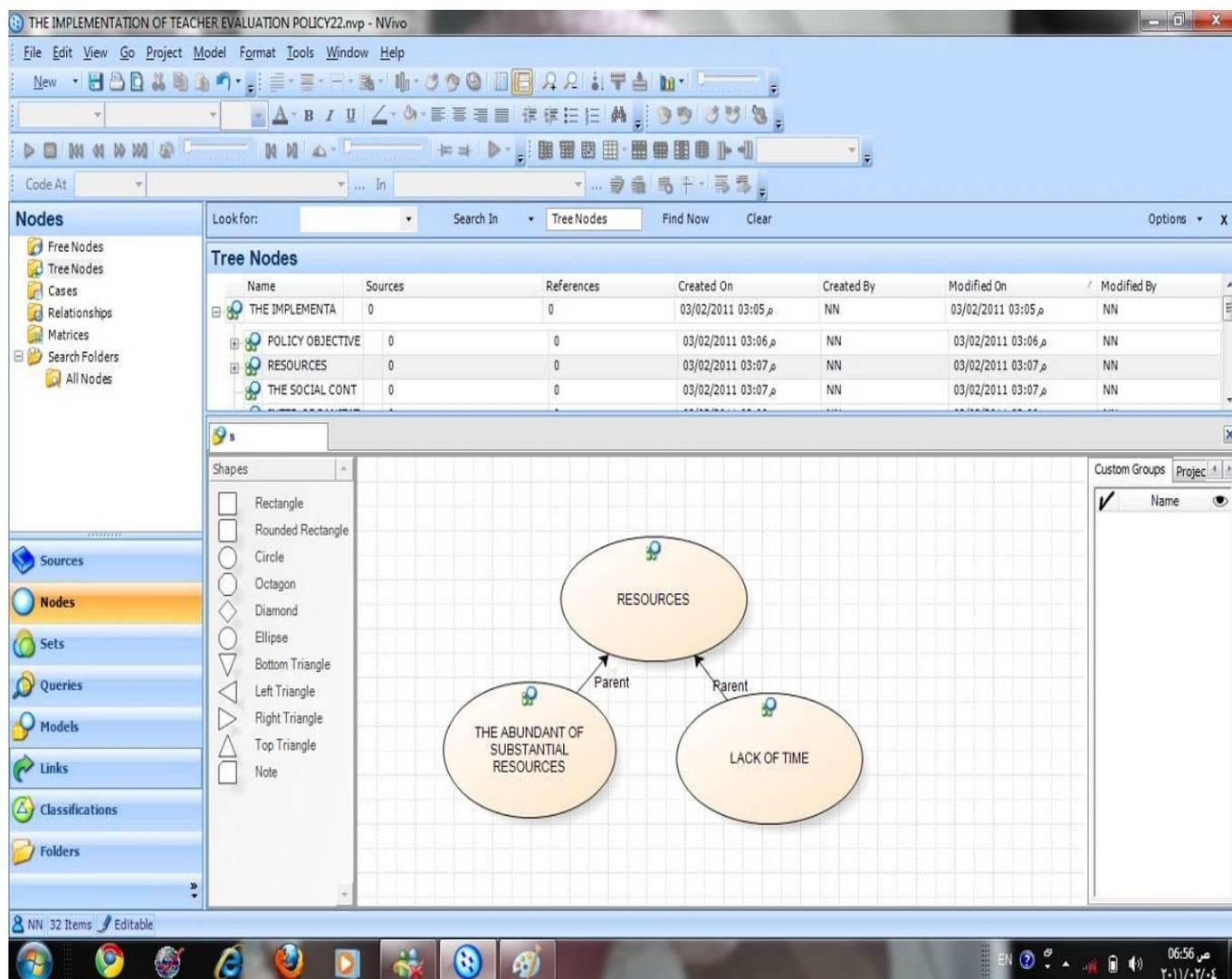


**Figure 4**  
NVivo sample of the coding process

**- Coding Qualitative Data:** To code a chunk of data in a project document under a particular node, the researcher can highlight the text via the mouse and pull the highlighted text to the identified node. When the cursor is located over the node, the highlighted text changes color and the relevant node linked with the text shows up on the Coding Stripe to the right of the browser as appears in Figure (4). That allows assigning multiple codes to the same chunk of the text as well by going through the same process.

**Going further:** In this stage, the researcher can go forward to analyze the data. [8] suggests that further than just code and retrieve in the context of those basic

principles of continues analysis, creativity tempered by rigor and care, through documentation and flexibility along with disciplinary awareness. At this stage, the researcher should focus on the techniques for utilizing the available tools productively and analytically. These techniques facilitate the development of the concepts, categories and themes, as well as going further with the narrative and discourse pertaining to the study. At this stage also, the researcher can employ several numerical data obtained during the study conducted. These numerical data can sometimes be demonstrated as figures and sketches to facilitate the reading of the findings as appear in Figure (5).



**Figure 5:**  
NVivo sample of an early category catalogue displayed as a sketch

### Summary

NVivo has various advantages and may significantly improve the quality of research. Analysis of qualitative data has become easier than ever before and yields more professional results. The software greatly reduces manual tasks and gives the researcher more time to discover tendencies, recognize themes and derive conclusions. In addition, NVivo is considered as an ideal technique for researchers working in a team since it facilitates combining the work of individuals to come up with one project. This software has an advantage in managing data and ideas, querying data, modeling visually and reporting. All in all, qualitative researcher is strongly advised to pursue the procedures of this software in order to ease the muddled, vague and time-consuming task. Employing qualitative

approach in education is postulated to develop fundamentally to parallelize with the fast advancement of Computer Assisted/Aided Qualitative Data Analysis (CAQDAS).

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