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A comparison of the qualitative analysis tools

GABEK/WinRelan® and ATLAS.ti™

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Abstract

In recent years, qualitative research became an increasing methodical approach besides quantitative analysis. For that, there are approx. 20 software packages. Two of them are GABEK/WinRelan® and ATLAS.ti™, which are less used than others. The aims of this study are (1) to compare directly both tools with each other by applying the tools, using a pre-interview and (2) to conduct expert interviews to come to a better understanding of how and why either GABEK/WinRelan® or ATLAS.ti™ is used. As qualitative research is helpful to answer questions associated with hypothesis-generating research processes, such as quantitative methods, this paper aims (3) how those qualitative approaches can be analyzed by computer-assisted software. This paper conducted a literature review of both CAQDAS and applied the tools by using a pre-interview for the first comparison of both tools. In the further research, it is planned to conduct expert interviews with users to collect data for a deeper direct comparison of both tools. The results at this stage show that (1) there is no direct comparison of both tools, (2) GABEK/WinRelan® is less known than ATLAS.ti™ and (3) there are differences between the two tools, such as up-to-dateness and user friendliness. The paper concludes at this stage, that both tools have their advantages and disadvantages. GABEK/WinRelan® is with its “Gestalten”-approach (perceptive appearance of holistic processing of complexity) is a deep analysis tool, whereas ATLAS.ti™ has many functions, will be kept up-to-date and is more widespread within the scientific community.

KEYWORDS: GABEK, WinRelan, ATLAS.ti, CAQDAS, Qualitative Research

1 Introduction

Today, there are a lot of computer-assisted qualitative data analysis software (CAQDAS) for qualitative research (for an overview, Woods *et al.*, 2016). CAQDAS tools help the researcher to structure rigorously their qualitative data. In contrast to the manual approach, the tools enable the scholar to invite collaborators to work together on the qualitative research project. Furthermore, CAQDAS tools help to keep an overview of the coding process in general and for large projects in particular (Chandra and Shang, 2019). However, for novice researchers, it might be confusing to find the suitable CAQDAS tool for the own qualitative research project and purpose. To compare all of them it is even harder, due to the time limits each researcher has. For this contribution, I compare two CAQDAS, GABEK/WinRelan® and ATLAS.ti™. On the one hand, GABEK/WinRelan® is intensively used at the Chair for Strategic Management at the University of Halle, including provided qualitative research courses at the university. Hence, there is high expertise about GABEK/WinRelan®. On the other hand, Susanne Frieze, a highly experienced ATLAS.ti™-trainer provided a course for PhD-students, which I attended. Both tools are well known for the analysis of interviews as a data source (Buber and Kraler, 2000; Frieze, 2019). For this contribution, a conducted interview will be used to compare each software's benefit (Weitzman and Miles, 1995a). Such a comparison-approach is not new, especially to compare 2 tools with each other (Schönfelder, 2011; Sotiriadou *et al.*, 2014). Thus, the aim of this contribution is to extend the existing literature by coming to a better understanding of how both tools are differing from each other and which advantages and disadvantages each tool has for the scholar research purpose. This is necessary as both tools are developed over time and may include new features. Furthermore, GABEK/WinRelan® is not so widely used and, thus, needs more understanding. This is also supported by the different authors' calls (Hoover and Koerber, 2011; Odena, 2013; Sin, 2007) including to report the use of the CAQDAS tools, such as GABEK/WinRelan® and ATLAS.ti™ 8. Here

I want to contribute to the scientific discussion about the implication of CAQDAS tools (Dembkowski and Hanmer-Lloyd, 1995; Gilbert, 2002; Gilbert *et al.*, 2014). Based on Chandra and Shang (2017) and in the sense of the KWALON-Experiment (Evers *et al.*, 2011), I provide also a review of the two CAQDAS tools and integrate the comparison within the CAQDAS research (Chandra and Shang, 2017).

To start the first comparison review about the CAQDAS tools GABEK/WinRelan® and ATLAS.ti™, it is advisable to conduct a literature review (LR). Before starting, we should note, whereas ATLAS.ti™ 8 is a widely used program, GABEK/WinRelan® is not commonly used within the international qualitative research community (Paulus and Lester, 2016; Raich *et al.*, 2014)¹. Hence, there might be a lack of knowledge about GABEK/WinRelan® in general and the comparability of both tools in particular. The LR follows in the next section.

2 Comparison of the Programs

As Weitzman and Miles (1995a) state about the question of what the best program is, there is no appropriate answer. "Choosing the right software depends on your own level of work with computers, your time perspective, the particular project you have in mind, and the type of analysis you expect to do" (Weitzman and Miles, 1995a, p. 1). This argument leads us to review the literature for both tools.

2.1 Literature Review

The conducted literature review (LR) for the keywords "ATLAS.TI" AND "GABEK", using the databases Google Scholar and Web of Science (WoS) revealed 35 articles in Google Scholar. No

¹Literature search for the term "GABEK" in WoS revealed 14 scientific papers (all years, i.e. 1945-2019), compared to the search term "ATLAS.TI" WoS offered more than 1,000 papers (all years), as of 2019-07-17.

articles have been found in Web of Science. The first obvious result is, none of both terms have been used, neither in the title, nor in the abstract, nor as keywords (Haas *et al.*, 2018). Thus, there is no ‘direct’ comparative review of ATLAS.ti™ and GABEK/WinRelan®, especially for their may be distinguished functionality (for another comparative review, see Alexa and Zuell, 2000). On the contrary, there are other comparative reviews, which take ATLAS.ti™ and NVivo or both software to compare them with other tools, such as MAXQDA, (see for example Abdekhodaie *et al.*, 2018; Chandra and Shang, 2017; Franzosi *et al.*, 2013; Woods *et al.*, 2015). Nevertheless, a few insights have been found during the LR to compare ATLAS.ti™ and GABEK/WinRelan® with each other.

2.1.1 ‘Indirect’ comparison

If we begin in the past, there is an ‘indirect’ comparison of ATLAS.ti™ and GABEK/WinRelan® (Buber and Kraler, 2000; Weitzman and Miles, 1995b). Both sources using a matrix, created by Weitzman and Miles. This matrix shows similarities and distinctions of different CAQDAS tools by categories, such as Data Entry/Structure, Coding, Memoing/Annotation, Data Linking, Data Output/Display, etc. The authors compare ATLAS.ti™ Ver. 1.1E with other CAQDAS tools. In 2000, Buber and Kraler apply the matrix categorization for GABEK/WinRelan® Ver. 5.00. They argue: “*WinRelan* compares well to other software packages for qualitative data analysis: its special strengths can be seen within the feature clusters ‘graphics editing’, ‘conceptual/theory development’ and ‘search and retrieval’” (p. 130). This statement alone gives little insight. In comparison of Weitzman and Miles (1995b) analysis of ATLAS.ti™ we have an ‘indirect’ comparison of ATLAS.ti™ and GABEK/WinRelan® (Table 1-3 shows similarities and distinctions of ATLAS.ti™ and GABEK/WinRelan®).

Program Features	WinRelan 5.00 (2000)	ATLAS/ti 1.1 E (1995)	
Categorization	"WinRelan can be seen as a mixture of a "code-based theory-builder" and a "conceptual network-builder" (Buber and Kraler, 2000, p. 130).	Atlas.ti is a "code-based theory-builder" (Weitzman and Miles, 1995, p. 217ff.).	similarities and distinctions
DATA ENTRY/STRUCTURE	•	•	
Editor/word processor	—	•	Distinction
Data preformatting	Required	helpful	Distinction
Direct data input	Yes	Yes	Similarity
Compatible with word processors	ASCII, WinWord	ASCII	Distinction
Data types accepted	Text	Text	Similarity
Handling of off-line data	—	—	Similarity
Line numbering	—	Yes	Distinction
Data files easily revisable	•	—	Distinction
Database structure	Structured, Internal Files	unstructured, external-files, indexed	Distinction
Chunking/unitizing	Flexible	free-form/auto	Distinction
Standard chunk sizes	User-defined	word/sentence/para	Distinction
Database capacity	6084 Index Cards	K per file limited by RAM/oo K total	Distinction
CODING	•	•	
Code length	Keyword/Phrase	Phrase	Distinction
On-screen (one-step)	Yes	Yes	Similarity
Code applications	Multiple (3 to 9 is intended)	multiple/overlapping/nesting	Distinction
Multi-levels	None	more than 2	Distinction
Automated coding	No	•	Distinction
Code revision easy	Yes (up to the Gestalten-tree)	**	Distinction
Codes display	List of Keywords	list/network	Distinction
Store facts not in text	Yes	Yes	Similarity
MEMOING/ANNOTATION	—	•	
text editable	not analyzed	Yes (inadvisable)	-
text markable	not analyzed	—	-
text annotation	not analyzed	Yes	-
accepts memos	not analyzed	Yes	-
memos attached to:	not analyzed	text/codes/memos/networks/li nks/relations/families/projects	-
memos/annotations codable	not analyzed	Yes	-
DATA LINKING	Text/Codes	•	Distinction
links made within	not analyzed	T/C/M	-
links made among	not analyzed	T-M, C-M	-
SEARCH AND RETRIEVAL	•	•	
Speed	High	High	Similarity
Search request types	Boolean, Set-logic, Relational, Proximity, Wildcards	Boolean o, Wildcards •, Synonyms •, Relational •	Distinction
Co-occurrence by:	Chunk, File	Chunk	Distinction
Search for:	Keywords/Codes, Chunks, Cases, Relations	codes/text strings	Distinction
Select subgroups of data	Yes	Yes	Similarity
Hits highlighted	—	string/codes/chunk	Distinction
Show hits in context	Limited (to Index Cards)	full	Distinction
Source tags attached	•	•	Similarity
Searches logged, recorded	o	—	Distinction
Hits editable, processable	—	Yes	Distinction

Table 1: Comparison of ATLAS.ti™ and GABEK/WinRelan®; based on (Buber and Kraler, 2000; Weitzman and Miles, 1995b).

Program Features	WinRelan 5.00 (2000)	ATLAS/ti 1.1 E (1995)	
Categorization	"WinRelan can be seen as a mixture of a "code-based theory-builder" and a "conceptual network-builder" (Buber and Kraler, 2000, p. 130).	Atlas.ti is a "code-based theory-builder" (Weitzman and Miles, 1995, p. 217ff.).	similarities and distinctions
CONCEPTUAL/THEORY DEVELOPMENT	•	•	
System type	Network-based, Code-retrieve, Rule-based	Network-based, Code-retrieve, logic-based	Distinction
Outlining	Gestalten-tree, Graphs, Lists	—	Distinction
Hierarchical/tree structure	Yes	Yes	Similarity
Other network: structure	Yes	Yes	Similarity
Link types	Multiple	specifiable	Distinction
Logical link properties	No	Multiple	Distinction
Hypothesis-testing	Yes	—	Distinction
Multi-case configural comparison	Yes	—	Distinction
System closure	Yes	Yes	Similarity
GRAPHICS EDITING	•	®	
Output quality	High		Distinction
Aesthetic refinements	High	®	Distinction
Intelligent links	Yes	Yes	Similarity
Auto arrange	Yes	hierarchical	Distinction
Auto align	Yes	—	Distinction
Auto space	Yes	—	Distinction
Different node styles	Yes	preset-w/choices	Distinction
Resizable nodes	Yes	—	Distinction
Different link styles	Yes	Yes	Similarity
Segmented links	Yes	—	Distinction
Node text	Yes	label	Distinction
DATA OUTPUT/DISPLAY	•	®	
Output goes to:	Screen/File/Printer/Win Word	Screen/File/Printer	Similarity
Split or alternate screens	Yes	Yes	Similarity
Matrix output	Yes	quant/text	Distinction
Network: output	Yes	Yes	Similarity
Frequency counts	Yes	Yes	Similarity
Numerical data export to:	via WinWord	SPSS/ASCII	
OTHER FEATURES	—		
customization	not analyzed	•	-
automation	not analyzed	none	-
cross-platform portability	not analyzed	—	-
USER FRIENDLINESS	®	•	
Learning effort required	One week	moderate	Distinction
Tutorials	***	— ⁹	Distinction
On-screen help	High	•	Similarity
Documentation	*	®	Distinction
Teach support	*	®	Distinction
Easy to use once learned	***	***	Similarity
PRICE (\$)	On request	Commercial 395, Educational 275, Student 165	Distinction
OPERATING SYSTEM	Windows 9x, NT, Windows 2000	DOS [3.0]	Distinction
HARDWARE REQUIREMENTS	Pentium PC or compatible	486DX with 8MB RAM	Distinction

Table 2: Comparison of ATLAS.ti™ and GABEK/WinRelan®, continued; based on (Buber and Kraler, 2000; Weitzman and Miles, 1995b).

Legend	for GABEK and Atlas.ti	Data	Types
●	.. Strong	T	text
⊗	.. Ok	Q	quantitative
○	.. Weak	G	graphic
—	.. absent	AU	audio
***	.. definitely	V	video
**	.. mostly		
*	.. is awkward	Data	Types
p	partially	MU	multiple
—	No	OV	overlapping
N/A	Not Applicable	N	nesting
7	more than 2 during hypothesis-testing only	Data	Linking
8	with add-on	T	text
9	example materials included	C	codes
		AU	annotations
		M	memos
		O	off-line

Table 3: Legend for the Comparison of ATLAS.ti™ and GABEK/WinRelan®; based on (Buber and Kraler, 2000; Weitzman and Miles, 1995b).

2.1.1.1 Code-Based Theory-Builders

The comparison reveals some insights. Whereas ATLAS.ti™ is categorized to be a Code-Based Theory-Builders (Weitzman and Miles, 1995b), GABEK/WinRelan® is in between the category Code-Based Theory-Builders and Conceptual Network-Builders (Buber and Kraler, 2000). Code-Based Theory-Builders are able to do proper code-and-retrieve operations. They are mostly used to build up and test theories, provide structure and help to connect codes with each other. Code-Based Theory-Builders are based on Code-and-Retrieve Programs (Weitzman and Miles, 1995b). Code-and-Retrieve Programs, on the other hand, are able to “divide text into segments or chunks, attach codes to the chunks, and find and display all the chunks with a given code (or combination of codes)” (Weitzman and Miles, 1995b, p. 243). They are helper to digitalizes the manual approach, such as to take over the work with note cards and scissors and paper (Weitzman and Miles, 1995b).

2.1.1.2 Conceptual Network-Builders

In general, Conceptual Network-Builders differ from Code-Based Theory-Builders in building up networks, to connect links and nodes. The network can be graphically displayed. They are "real semantic networks" (Weitzman and Miles, 1995b, p. 244). In Weitzman and Miles's book, ATLAS.ti™ is listed as Code-Based Theory-Builders. However, as the authors argue, the tool can represent all data (such as memos, codes, etc.) as networks as well (Weitzman and Miles, 1995b).

2.1.1.3 Summary

For a 'quasi' comparison, I want to summarize some similarities and distinctions from the tables 1-3 of both sources Weitzman and Miles (1995b) and Buber and Kraler (2000).

Both sources claim for their tool user-friendliness. ATLAS.ti™ has an easy entry and a fast learning curve by example materials, as well as a precise, written manual (Weitzman and Miles, 1995b). GABEK/WinRelan® has no complex and complicated user interface and it is possible to import the findings to Microsoft Word (Buber and Kraler, 2000).

By both GABEK/WinRelan® and ATLAS.ti™ it is possible to use the tools for the presentation of findings. ATLAS.ti™ is capable to present the hierarchical relationship of the codes as well as the code structure (Weitzman and Miles, 1995b). With GABEK/WinRelan® it is possible to show the gestalten-trees, as well as causal nets (Buber and Kraler, 2000).

For theory development, it is possible with GABEK/WinRelan® to incorporate assessments and in-between relationships of variables with the getalt-graph (Buber and Kraler, 2000). By ATLAS.ti™ there is the opportunity to implement links between memos, codes, and quotations, thus, to address the links with distinguished coherent characteristics. Furthermore, it is also possible to transfer the whole network of codes into a new hermeneutic unit and, hence, takes the researcher's theoretical construct to apply it to other data (Weitzman and Miles, 1995b).

However, both analyses are 20 years old. Thus, there is a need for a new comparison, due to program changes for both tools during the last 20 years. The current version is 5.16.001. Already in Buber and Kraler hoped, using version 5.00, "to see in further upgrades of *WinRelan*. Specifically, an update of the program should offer an explicitly memo and annotation function; this would be especially helpful in hypothesis building. Another useful feature would be multimedia import files which would provide compatibility with picture, video and sound file formats" (Buber and Kraler, 2000, p. 133). Newer reviewed studies follow in the next section.

2.1.2 ‘Direct’ Comparison

Most studies about ATLAS.ti™ and GABEK/WinRelan® are application studies following reports about how the tool has been used. The comparisons in these studies are merely ‘side effects’ of the main study focus (for example, Pechlaner *et al.*, 2012). However, little comparisons, such as that GABEK/WinRelan® is a less generic CAQDAS than ATLAS.ti™ lack of evidence and use of reports (Pechlaner *et al.*, 2012). A good general report of how to use a CAQDAS is given by Raich *et al.* (2014), using GABEK/WinRelan®. They give some hints of comparison with other undefined CAQDAS. The authors argue how the tool can be used to qualitative/quantitative hybrid-analysis approaches in so doing “intertwines classic qualitative analysis steps, such as coding and evaluating, with quantitative analysis steps, such as counting and cluster analysis, to explore one textual data set with all its facets” (p. 741). However, this shows a benefit for GABEK/WinRelan® and might be a limitation for ATLAS.ti™, thus, the latter has the option to connect tools, such as SPSS and Microsoft Excel for mixed-method approaches and further analyzes (Niglas, 2007; Raich *et al.*, 2014). No direct comparison of both tools was conducted.

The brief literature review reveals a gap for a new comparison of the two CAQDAS tools because the other studies (1) are 20 years old, (2) only mentioned one of the tools, or (3) only mentioned

both tools, without any analysis. Hence, a new comparative study is needed. Under the next two subsections, I want to show from the literature, briefly, what both tools are capable of nowadays (1) without a comparison and (2) without any claim to completeness.

2.1.3 ATLAS.ti™

In general, as many CAQDAS tools, ATLAS.ti™ is capable of creating memos, attaching them to codes, quotations and data, interrogating and searching data, as well as visualizes aggregate them (Abdekhodaie *et al.*, 2018; Chandra and Shang, 2017). Input data might be graphical, audio, video or textual data (Chandra and Shang, 2017). Especially for loaded textual data, such as interview transcripts, the tool treats them “as a single entity for analysis” (p. 98). For the output, it is possible to share and export the results for further empirical evaluation to XML and SPSS (Chandra and Shang, 2017).

Authors used the software in different ways, such as, a more reliable and efficient method in comparison with pen and paper work (Ismail *et al.*, 2013), a tool for WINDOWS and MAC PCs (Paulus and Bennett, 2015), a software for a grounded theory approach (Muhr, 1991). Villiers *et al.* (2005) used the tool as follows: "preparation and importing of the data, getting to know and coding the data, retrieval, and examination of codes and quotations, creation of families and creation of networks" (p. 520). As the use of ATLAS.ti™ for SLR, see Fornari *et al.* (2019).

2.1.4 GABEK/WinRelan®

When talking about GABEK and WinRelan, one has to distinguish between the method GABEK (**G**anzheitliche **B**ewältigung von **K**omplexität – Holistic Processing of Complexity) and its software tool WinRelan (Windows Relation Analysis) (Buber and Kraler, 2000; Zelger, 2000). As the method GABEK, which based on the theory of “Wahrnehmungsgestalten” (perceptive appearance) by (Stumpf, 1939), can deal with unsorted verbal data, they can be structured with the computer-

assisted software WinRelan. GABEK/WinRelan® is made for coding of text from ASCII (txt)- and doc-files as input data (Buber and Kraler, 2000). These texts can be made from interviews, newspapers, etc. to create keywords within “text units” (Raich *et al.*, 2014). The tool is not capable of using graphical, audio, video or textual data. With the codes, it is possible to produce causal network graphs (Zelger, 2000). The software has certain advantages. These are: it is capable of (1) to analysis an ample scale of unsorted verbal text, made from language of everyday life, (2) causal coding and can present the statements and opinions of the interviewees’, (3) to create gestalten-trees with gestalten of higher order, called hypergestalten for extracting a succinct visual summary of the data structure and its content (Raich *et al.*, 2014).

2.2 Pre-Interview

The interview is with an employee of a globally operating corporation, with a local site in Germany. In this site, there are approx. 1200 employees. Compared to that, there are approx. 145,000 employees worldwide. The interview was transcribed and divided into text units (Miller, 1956). The next step was to implement the text units in GABEK/WinRelan® and ATLAS.ti™. For GABEK/WinRelan®, I followed the method analyses process by Buber and Kraler (2000), Raich *et al.* (2014), Zelger (2000) and Zelger (2008). For ATLAS.ti™, I followed the process by Friese (2019).

3 Results and Findings

Using summarized findings, this subsection illustrates briefly the analysis and interpretation of the literature review using ATLAS.ti™ and GABEK/WinRelan®, except the older ‘indirect’ compar-

ison of Buber and Kraler (2000) and Weitzman and Miles (1995b). Both tools have their limitations. Moreover, based on the pre-interview and its implementation, crucial comparable parts of the tools changed, as it is used the latest available versions, in 2019. The latest differences are available in table 4.

3.1 Summary of some findings using ATLAS.ti™

In contrast to GABEK/WinRelan®, ATLAS.ti™ (version 1.1E, dated 1995) does not follow strictly classic qualitative analysis stages in its intertwining manner (Raich *et al.*, 2014). Despite the usage of video as input data, there are still challenges of compute-interpretation of the data format, thus during the analysis, the transcripts are not reliable due to interpretation errors (Gibson *et al.*, 2005; Paulus and Lester, 2016).

The latest available version 8.4.18.0 (dated 2019) reveals the following differences: (1) it is possible to use besides text-data also audio-, video-, and graphic-data. (2) About the database structure, compared to older versions, now it is possible to use structured and internal files (i.e. imported and created files which are stored in an internal database). (3) The standard chunk size has been extended from word/sentence/paragraphs to chapters and documents. (4) In the category Code revision easy (i.e. user friendliness of updating coding categories), there it is now possible to revise the coding categories via code manager. (5) About search request types, now it is possible to use the ‘query tool’ for requests on Boolean, Wildcards, Synonyms, Relational, Set-logic. (6) With the current version it is possible to test hypothesis. (7) The outlining option (e.g. setting up a structure for what the user is writing and shows it in various levels of detail) changed from absent to graphs, network view and hyperlink structures. (8) In the old version, there was no output quality possible, now it is.

3.2 Summary of some findings using GABEK/WinRelan®

The Analysis with GABEK/WinRelan® (version 5.00, dated 2000) is maybe time-consuming throughout the coding. Especially, in large scale projects, this may lead to high costs – the more interviews are coded, the more rounds of coding may have to be made (Raich *et al.*, 2014). An exact split of the coding and their meanings is a unique benefit of GABEK/WinRelan®, however it may lead to a substantial coding effort, due to no option for screening and prioritizing during the coding itself (Pechlaner *et al.*, 2012).

Further hints supporting the need for a comparative review approach for both tools were found during the LR. For example, GABEK/WinRelan® is capable to create “publication-ready images of node networks” (Chandra and Shang, 2017, p. 112) for code plotting? Chandra and Shang (2017) compared commonly known CAQDAS tools, such as ATLAS.ti™ with the software R and its qualitative research extension, called RQDA. The authors argue that no other CAQDAS tool is capable of displaying ready node network images to publish. Therefore, is GABEK/WinRelan® capable of using different languages? ATLAS.ti™ is not, because as the authors state only the RQDA tool can use nine languages, which enables the analysis of cross-cultural studies (Chandra and Shang, 2017). The reviewed literature could not give an answer.

With the latest version 5.22.001 (dated 2019), there are also changes exist. (1) The accepted data types are now TXT, XML and DOC files, compared to the old version, which only accepted TXT files. (2) About the chunking/unitizing (e.g. making the "pieces" the user will attach codes to), now it is possible to do it automatically, instead of just manually from older versions. (3) The numerical data can now be exported to DOC and XML files. In the old version, there the export was limited only to WinWord.

Further comparison by categorization there is the table 4.

Program Features	WinRelan 5.22.001 (2019)	ATLAS/ti 8.4.18.0 (2019)	
Categorization	"WinRelan can be seen as a mixture of a "code-based theory-builder" and a "conceptual network-builder" (Buber and Kraler, 2000, p. 130).	Atlas.ti is a "code-based theory-builder" (Weitzman and Miles, 1995, p. 217ff.).	similarities and distinctions
DATA ENTRY/STRUCTURE	•	•	
Compatible with word processors	ASCII, WinWord	ASCII, WinWord	Similarity
Data types accepted	TEXT (TXT, XML, DOC)	33 (TEXT-, AUDIO-, GRAPHIC-, VIDEO-, PDF-data)	Distinction
Line numbering	–	–	Similarity
Data files easily revisable	•	•	Distinction
Database structure	Structured, Internal Files	Structured, Internal Files, indexed	Distinction
Chunking/unitizing	Flexible (manual & auto)	free-form/auto	Distinction
Standard chunk sizes	User-defined	word/sentence/para/chap/doc	Distinction
CODING	•	•	
Code length	Keyword/Phrase (35 characters)	Keyword/Phrase (1000 characters)	Distinction
On-screen (one-step)	Yes	Yes	Similarity
Code applications	Multiple (3 to 9 is recommended)	multiple/overlapping/nesting	Distinction
Multi-levels	None (any hierarchically outline only by gestalten tree)	more than 2	Distinction
Automated coding	No	•	Distinction
Code revision easy	Yes (up to the Gestalten-tree)	*** (via code manager)	Distinction
Codes display	List of Keywords (sort alphabetically and by number)	list/network	Distinction
Store facts not in text	Yes	Yes (by Survey data XLS-files)	Similarity
SEARCH AND RETRIEVAL	•	•	
Search request types	Boolean (AND ≠ UND; no NOT/NICHT), Set-logic, Relational, Proximity, Wildcards (without *)	With Query tool (Boolean, Wildcards, Synonyms, Relational, Set-logic), ordinary search → rudimentary no type codes/text strings/	Distinction
Search for:	Keywords/Codes, Chunks, Cases, Relations	word/sentence/para/chap/doc	Distinction
Searches logged, recorded	–	–	Distinction
CONCEPTUAL/THEORY DEVELOPMENT	•	•	
Outlining	Gestalten-tree, Graphs, Lists	Graphs, network view, hyperlink structures	Distinction
Link types	Multiple	Multiple/specifiable	Distinction
Hypothesis-testing	Yes	Yes	Distinction
GRAPHICS EDITING	•	•	
Output quality	High	High	Distinction
Aesthetic refinements	•	•	Distinction
Auto space	Yes	Yes	Distinction
Resizable nodes	Yes	Yes	Distinction
DATA OUTPUT/DISPLAY	•	•	
Numerical data export to:	DOC/XML	SPSS/ASCII/XML/XLSX/QDC	
USER FRIENDLINESS	•	•	
Learning effort required	One week	Two weeks	Distinction
Tutorials	•	•	Distinction
On-screen help	High	High	Similarity
Documentation	•	•	Similarity
PRICE (€)	Professional 948 (3 user), University 474 (2 u.), Student 156 (1 u.), Campus 2.160	Professional 5.100 (5 user), University 590 (1 u.), Student 75 (1 u.), Campus via request	Distinction
OPERATING SYSTEM	Win	Win, OSX, iPad, Android	Distinction
PRICE (€)	156 (1 u.), Campus 2.160	75 (1 u.), Campus via request	Distinction
OPERATING SYSTEM	Win	Win, OSX, iPad, Android	Distinction

Table 4: Direct Comparison of ATLAS.ti™ and GABEK/WinRelan® of 2019 versions (grey shaded are differences to the 'Indirect' Comparison).

4 Summary

In 2019, the study was presented at the 3th Qualmet Symposium conference.² This paper has analyzed the differences of two qualitative research tools, GABEK/WinRelan® and ATLAS.ti™. In a first step, related literature was reviewed. It reveals, that there are differences in the level of awareness, comparing both tools. In the scientific community, ATLAS.ti™ is much more known than GABEK/WinRelan®. In a second step of the analysis, the paper applied the ‘categorization matrix’ of Weitzman and Miles to obtain more results. During the analysis, there were made ‘indirect’ and ‘direct’ comparisons of both tools. The ‘indirect’ comparison was made based on 20 years old references of Weitzman and Miles and Buber and Kraler. The ‘direct’ comparison was conducted based on interview data, using it for the latest versions of both tools. It shows progress for both tools during the last 20 years, however during that two decades changes for ATLAS.ti™ are distinctly, whereas changes for GABEK/WinRelan® are there. The third step (still in progress) is to conduct expert interviews with scholars using the tools. With this, there coming up limitations such as there were only few interview data available for step two. Future research is needed to come to a better understanding of CAQDAS in general and for both tools in particular. In sum, their certain benefits, especially for novice scholars in qualitative research and practitioners are crucial, because when a CAQDAS is needed, it is used for a certain purpose linked to a scholar’s analytical techniques.

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