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Conference Paper *in* Advances in Intelligent Systems and Computing · June 2017

DOI: 10.1007/978-3-319-61121-1_16

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In Case of Doubt See the Manual: A Comparative Analysis of (Self)Learning Packages Qualitative Research Software

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Abstract. One of the first precautions that a consumer/user has when acquiring a new product is related to how to use it. In this context, the user manuals can be assumed as one of the main communication channels between the companies that develop the products and the user. Regarding the use of software packages, literature indicates that one of the decisive factors for user's dissatisfaction is related to the difficulty in learning how to work with a software. In this context, Qualitative Data Analysis Software (QDAS) enterprises are increasingly looking to develop features that can decrease user's learning curve of their tools. In this way, this chapter illustrates a comparison of user support features, such as: support and typology of the User Manual; Training; Tutorials; Forums; Frequently asked questions (FAQ's); Workshops. Through a systematic exploration of the native sites guided by a dedicated checklist, it was sought to identify the singularities of the resources to support (self)learning of the different software packages. In order to systematize the offers that each user can find, enabling him/her to choose the package that provides the solutions that best respond to his/her learning style. It was concluded that among the different software packages there are no noteworthy disparities, only in two packages analysed there were shortcomings in the offer of formative and autonomous learning.

Keywords: Qualitative analysis software · User guide · Self-learning · NVivo · Atlas.ti · Dedoose · webQDA · MAXQDA · QDA Miner

A.P. Costa et al. (eds.), *Computer Supported Qualitative Research*,
Advances in Intelligent Systems and Computing 621, DOI 10.1007/978-3-319-61121-1_16

1 Introduction

The current demands increasingly compel researchers to equip themselves with digital tools that provide speed and efficiency in research processes. This situation is even more prominent when we consider qualitative research as a methodology that requires more in-depth and contextualized research [1]. Hence, the provision of appropriate training for qualitative researchers could contribute to increased research quality [2].

The use of digital tools to support data analysis requires the researcher to master technical/methodological knowledge, which can sometimes be demotivating [3, 4]. This view is supported by Moudgalya [5] which states that self-learning tries to provide the student, as far as possible, with control of his/her learning process.

The existence of a large set of offers of qualitative data analysis software (QDAS) packages on the market may hinder the researcher to choose the package that presents the (self)learning tools that best fit to his/her learning style [6]. In this sense, the efficiency of researchers' learning depends on a teaching-learning process adjusted to the styles and rhythms of the learner researcher. Research shows that there is a relationship between learning styles and [6] and the performance of users in learning a software [7]. It further reinforces the idea that a good understanding of the relationship between user learning styles and training models can contribute to the design and implementation of more efficient and effective training courses [7]. In other words, an instructional model effective for some users may not be so for users with a distinct learning style [8]. Other authors such as Silver and Rivers [9] justify the adoption of specific learning models not only due to the technological specificities of the various QDAS, but also due to the diversity of experiences and expertise among users concerning the use of software. Therefore, some authors [10] suggest the use of the teaching/learning method, such as "Five-level QDA", as a method to take advantage of QDAS packages, regardless of methodology, software package or learning mode.

It may be questioned the feasibility of comparing qualitative analysis software packages, because there is always some subjectivity associated with its use, whether at the level of the data to be analysed, the methodologies associated with the research, or the experience in the use of the QDAS by the researcher. Certain procedures/tasks may prove to be more accessible in a particular software compared to other. In most cases users are able to find "alternative solutions" to carry out the operations they want [11]. The present study, contrary to previous ones [12], does not aim to present a comparative approach to the functionality of the QDAS, but rather intends to analyse and synthesize the (self)learning solutions made available by some of the main packages, in order to inform the researchers when selecting the application to use.

The rest of the paper is as follows. First, this paper familiarises the reader in relation to QDAS and some of the characteristics that differentiate some of the main QDAS packages. Next, it explains the methodology that supported this study and present a comparative analysis (self)learning tools made available, as well as the body of latent Internet data, regarding the topics of the forums of several qualitative analysis software packages. It culminates with final considerations, resulting from the analysed data.

2 Qualitative Data Analysis Software Packages

To meet the challenges and demands that qualitative research poses, the manual organization and analysis of the collected data can prove to be complex, inaccurate, exhausting and very demanding in terms of time expenditure. In this sense, it seems essential to consider the QDAS as an inevitability in the process of qualitative analysis. Currently the market offers more than 40 solutions dedicated to the analysis of qualitative data, divided between free and open source license packages and paid license packages [1]. The free usage QDAS packages include, among others, the following: Aquad; Coding Analysis Toolkit (CAT); ELAN; FreeQDA or Transana. On the other hand, from the packages with paid licenses stand out: NVivo; Dedoose; WebQDA; MAXQDA and QDA Miner.

The most commercialized packages, upon the needed customer acquisition, publicize sets of characteristics expecting to convince the consumer to prefer the solution they present. From forms of data presentation, data questioning and even collaborative work, there are options that can please users with different preferences.

In this section, some of the most used QDAS packages are presented in global terms, focusing on their main functionalities.

2.1 NVivo

NVivo is developed by QSR International and is probably the most well-known QDA package among researchers. The software accompanies research from the early stages of a research project, integrating tools oriented to project design and literature review, as well as to support the production of reports and other scientific papers.

This software can work with multiple file formats (text, images, audio and video) allowing diversity and richness of used data. It features the usual characteristics that allow for text searches, word frequency counting, matrix encoding and coding comparison searches. It also allows summarizing large amounts of data in outline topics and presents a wide range of viewing options that allow to observe patterns, tendencies and connections. It also has good import capabilities, for example, from SurveyMonkey questionnaires, and other data sets, or bibliography reference managers such as EndNote, Refworks or Mendeley. It is also possible to exchange data with more quantitative analysis packages such as Excel, Access or SPSS to conduct research using mixed methods [12, 13]. NVivo offers two distinct features that enable teamwork. With NVivo for Teams and NVivo Server (extra applications), it is possible to manage, access, and work on centrally stored NVivo for Windows projects at the same time, in real time. Through synchronous collaboration, team members can follow the project updates, monitor and keep track of the changes made, as well measure intercoder reliability. Both applications enhance data security, data storage, and data backup in standard NVivo. Although it has a broad scope, these attributes can only be used when installed locally, being lowly versatile and even dissuasive in other platforms. The downside of this software for collaborative work is the requirement to use NVivo for Windows, limiting users who rely on other operating systems [14].

2.2 Atlas.Ti

ATLAS.ti was created at the University of Berlin between 1989–1992, and its first commercial version was launched in 1993. It is distributed by ATLAS.ti Scientific Development GmbH [15].

Initially based on Grounded Theory, it has evolved to empower working qualitative data from other research designs [16]. ATLAS.ti capacitates the use of documents in multiple formats and includes a very solid multimedia analysis, allowing simple encoding of all types of data types, as well as many other features [12]. It facilitates the management of information through the organization of collected data, favouring the indexing, research, theorization and qualifying results [17, 18]. In ATLAS.ti it is possible to import data from Evernote, Twitter and reference managers for a literature review, and import entire surveys to analyse answers to open-ended questions. It also enables network visualizations with complex information shown through intuitive graphics [12].

In this way, it allows to discover and to analyse hidden phenomena in little or non-structured data, like text, multimedia and geospatial data. The software includes tools for finding, coding, and annotating items in documents, and then analysing their importance and visualizing relationships [12]. It is also advocated that helps researchers to focus on material analysis by providing functions that facilitate the management, editing, comparison and creation of hypotheses and theories from large amounts of data in a systematic, creative and flexible way [17].

It is noteworthy that ATLAS.ti has possibilities to work with multiple authors and to audit processes. The first is due to the ease in sharing projects and the possibility of use by different users simultaneously; second, it is possible because the whole analysis process can be consulted through the reports made available by the software [16]. Despite announcing collaborative features, the system's teamwork capabilities are still very simple, being restricted to simple project merging tools, simple user management, and shareable document repositories for each project [12, 19]. ATLAS.ti has cross-platform capabilities with versions for Windows and Mac OS computers, and Android and IPad tablets.

2.3 Dedoose

Dedoose is an application developed by UCLA - University of California, Los Angeles, which allows the analysis and interaction of data from qualitative and mixed methods in a collaborative environment [20]. It consists of a multiplatform, web-based application that allows the analysis of text, photos, audio, videos, spreadsheets and other formats. It is accessible through the web and includes the main analytical tools present in the modern CAQDAS packages. It has a simple user interface and is designed to facilitate the collaboration of geographically dispersed researchers who can work with Mac or Windows systems [21]. It is known for qualitative and quantitative data analysis methods in combination with interactive data visualizations [12].

Being a web application it can be accessed through any device with an internet browser, knowing no compatibility issues across platforms. This option is safeguarded with a large investment in security with multiple levels of encryption and password

protection. Performs nightly backups for the convenience of users [22], being this option debatable with the variability of time zones. If connectivity issues arise, one can use Dedoose Desktop App, an alternative way to access Dedoose servers that bypasses problems that may appear when using a browser to connect. Currently, the Dedoose application can be run on Windows, Apple and some Linux versions. Dedoose can also be run through the Photon browser on iPads and Android tablets [20].

One of the strengths of Dedoose is the ability for several team members to work simultaneously, in real time, from any device connected to the Internet. Given its strong collaborative component, Dedoose also has possibilities to gauge intercoder reliability, allowing the work of a second researcher on a document already codified by another researcher, but whose codification is unknown.

In this field, Dedoose presents advanced management of users with different privileges according to their competence to work on the project [23].

2.4 WebQDA

WebQDA is the result of a partnership between the University of Aveiro - Portugal and local companies. It emerged in the market in 2010 with Esfera Crítica and is currently supported by Microio and Ludomedia. Like Dedoose, it is a web-based software that supports the analysis of qualitative data in a collaborative and distributed environment. Being web-based and requiring only a browser to use it, it ensures a very easy use and compatibility between operating systems. Since no installation is required, this feature enables users with very low computer science knowledge to be able to fully use WebQDA on their research projects.

WebQDA enables the analysis of non-numeric and non-structured data (text, image, video, audio), individually or collaboratively, synchronously or asynchronously [24]. Besides allowing the incorporation of files of different formats in its own repository, it allows external connection to different types of sources, such as YouTube or cloud storage systems such as Dropbox. It supports the organization of data in groups and sets and provides automatic backup capabilities. It also enables exporting in a wide range of formats such as text, tables, images, pdf and xml [12].

The software is based on cloud computing. So, it empowers communication, coordination and joint analysis with other researchers, offering two possibilities for participation: (i) visualization of data without change; and (ii) total and unrestricted collaboration.

By using this software it is possible to organize, encode, recode, annotate and interpret different types of data, export different outputs, systematize the analysis through a category tree, keep a detailed record of the entire research context, and question the data, classify relations and construct models [25].

2.5 Maxqda

MAXQDA is developed by Verbi GmbH, which presents it as a software for qualitative, quantitative and mixed research. The capability of data analysis varies according

to the version acquired by the user. Therefore, the Base version allows only the qualitative analysis of text. From the Standard version it is possible to conduct more advanced qualitative data analysis and, with the MAXQDA Plus version, there is room for quantitative text analysis. With the Analytics Pro version it is possible to conduct statistical analysis of data [26].

The software enables to organize, evaluate, code, annotate and interpret various types of data, create reports and visualizations, and share the analysis with other researchers. It is assumed as an integrated solution with tools for conducting qualitative research, but also presents a set of potentialities for the accomplishment of mixed or quantitative analysis [12].

Like all the software packages analysed in this paper, MAXQDA also enables to work with files that can integrate text, image, audio, and video. Additionally, it presents different aspects such as the "linkage" of the data, being notable Geolink. Other features include the possibility of direct import of different formats and also SPSS data, SurveyMonkey, focus group transcripts, twitter tweets, Endnote bibliographic data, and others [12, 27].

MAXQDA also announces the ability to support teamwork. However, there is only the total or partial sharing of projects and the merging of copies of projects among the members of the team. The manufacturer even announces that MAXQDA is a single-user, non-multiuser program and warns that simultaneous use of the same project file is not possible, consequently, it is not possible for multiple researchers to make changes into the same file at the same time [27].

2.6 QDA Miner

QDA Miner is a product developed by Provalis, which advertises the tool as a software for analysing qualitative data, which enables to encode, annotate, retrieve and analyse small and large quantities of documents and images [28]. An important feature of this software is to integrate a mixed approach to data management and analysis, enabling the user to conduct qualitative and quantitative analysis [29]. The software makes it possible to combine coding results with statistical information, something important for those who wish to adopt a mixed approach in the analysis of information [30]. This ability to integrate qualitative analysis of information with quantitative analysis assists in the identification of data patterns.

QDA Miner works with different types of data, including text files, in ASCII, HTML and PDF. It also works with spreadsheets and databases in Microsoft Access and Excel files, SPSS files, Sav and in Triple-S format [29]. The program shares features with both ProStats WordStat and SimStat. It can perform direct import from Web search platforms, social media, major primary email clients and bibliographic reference managers [31].

QDA Miner calculates coding frequencies, coding co-occurrences, supporting the definition of conceptual maps or graphical representations of the conceptual proximity of ideas (nodes) or cases. It also enables to conduct searches based on keywords or segments, and conduct analysis based on the coding sequence [29, 30]. This turns possible, for example, to observe which ideas tend to arise sequentially in a given document.

It has the potential specifically for conducting research on structured documents. It has query storage capabilities and analysis results, tables, graphs, research notes and citations in one place, making it easy to visualize the data.

It features innovative characteristics such as Geotagging and Time-tagging to associate geographic and time coordinates to text segments or graphical areas, retrieves encoded data based on time or location, and plot events in space and time, and also creates dynamic maps and interactive timelines [31].

Provalis informs that this software can be used between different operating systems, which can be misleading information, since the use beyond the Windows system requires the installation of virtual machines that, inevitably, must use Windows [32].

Finally, as far as teamwork is concerned, QDA Miner also announces this possibility, although limited to some of the previous software packages. Refers to the possibility of gathering the activity of several coders, as well as assessing the inter-coder agreement. But it seems to be limited to a single local installation where the control of user privileges such as access to selected features, modification of documents and access to visualization codes is managed [33].

3 Methodology

In order to carry out this study, it was adopted a methodology that favoured the identification, registration and analysis of QDAS tools related to the (self)learning process. The six software packages, previously selected, were reviewed, taking into account, among other options, their transversality in terms of: operating systems; type of access (Desktop or Web); language in which they are available; and typology of licenses. Considering (self-learning) tools, the offers available for the various packages were analysed with regard to: User Manual; Methodological Manual; Tutorial Videos; Frequently Asked Questions (FAQs); Forum; Blog; Training; Workshops; Webinars; Consulting; or other tools. These data were scrutinized through a systematic search in their respective websites.

In a second phase, and with the aim of complementing the revised data, attention was focused on one of the (self)learning tools - the forums. It was conducted a corpus analysis of the internet data [34, 35] with the objective of carrying out a secondary investigation through the data existing in the forums of the various software packages. Given the large volume of data corpus existing in these forums, it was understood - for a better systematization - to analyse only the topics corresponding to the last month prior to the production of this study. A total of 114 messages from users, trainers, moderators, authors of user manuals and technical support of the forums of the packages were analysed. Of the 114 messages analysed, 62 belonged to NVivo, 25 to Atlas.ti, 12 to webQDA, 11 to MAXQDA and 4 to QDA Miner. Dedoose forum messages were not analysed due to the fact that it was disabled at the time of this study.

In the analysis of the latent data of the Internet, three areas were focused: (i) the typology of questions made by the users; (ii) answers with instructions from the trainers, moderators, technical support or authors of user manuals; (iii) suggestions for improvement, referenced by users, to be introduced in the analysed packages.

Regarding the typology of questions posed by users, three categories were defined: (i) "Executive Issues", allusive to all questions related to doubts for the execution of a certain action or process in the course of using the software; (ii) "Methodological questions", concerning doubts about the sequence of actions (codification, matrixes, functionalities, etc.) more appropriate to certain projects; and finally (iii) "Technical Issues", concerning all questions associated with anomalies (system bugs, etc.) arising from the execution of operations. Concerning the answers to the questions asked in the forums, the instructions given were considered, and if the questions were answered in the forum itself or if they referred to other sites.

Collaborative answers were also analysed, that is the answers given by users in support of questions posed by other users and not by forum moderators or technical support elements.

Finally, some of the messages that contained proposals for improvements were analysed considering: (i) usability; (ii) support; (iii) instructional clarity; and (iv) technical matters. The "usability" proposals refer to the improvements needed for a more efficient use of the software, while the suggestions of "support" concern the need for improvement in the support to the users. "Instructional clarity" is related to improvements in the instructions (text or figures) of the steps to be performed, while the "technical issues" point to functionalities, or technical procedures, that the software should provide. The analysis of the suggestions messages in the forums was aimed at understanding the needs of users who were not effectively answered by the (self) learning tools provided by the various packages.

The analysis of the messages of the forums was based on the collection from the various forums, later placed and organized in a QDAS software, where they were analysed qualitatively.

4 Analysis of the (Self)Learning Tools of Qualitative Data Analysis Software Packages

In the current context of rapid technological progress and commercial competition, QDAS package developers look at the technical capabilities of their competitors, seeking to integrate them (adapting and refining) into new versions of their software [11]. In this way, the current software packages do not differ much in the level of the functionalities that they deliver. The great contrast between QDAS packages may be essentially the cost of licenses and the difficulties associated with usability and learning [3].

Table 1 presents, in a general way, the list of (self)learning tools in the six analysed packages, considering the latest versions of the applications at the date of this study. In the following sections are discussed the tools analysed in terms of their function and assistance in the various QDAS packages.

Table 1. List of (self)learning tools in the analysed QDAS packages

Ferramentas	NVivo	Atlas.ti	Dedoose	webQDA	MAXQDA	QDA Miner
Methodological manuals	√	–	–	√	√	–
Video tutorials	√	√	√	–	√	√
FAQs	√	√	√	–	√	√
Forum	√	√	–	√	√	√*
Blog	√	√	√	√	√	√
Training	√	√	–	√	√	√
Workshops	√	√	–	√	√	√
Webinars	√	√(free)	√	√(free)	√	√(free)
Consulting	√	√	–	√	√	√
Other tools	–	Resources for methodology classes	–	Methodological E-books	MAXQDA Analytics Pro	–

*Available only in a LinkedIn closed group

4.1 The User Guides and Methodological Guides

According to the analysis made, it is possible to verify, as it would be expected, that all the packages provide a manual to the users. The User Manual turns out to be one of the resources that the users most resort to in case of doubts in the execution of some task [36], so it is not surprising that it is available in various media (paper, PDF and HTML). However, it is noticeable the increasing lack of interest of QDAS developers in producing User Manuals on paper, so that of the six packages analysed, only NVivo still provides paper manuals (see Table 1).

In addition to the User Manuals, the Methodological Manuals present themselves as excellent (self-learning) instruments, contextualizing procedural indications with methodological orientations, thus creating a complement that can more effectively help the user's understanding of "how" and "when" you may be able to use certain actions while using the software. This idea is supported by some authors [37] when they sustain that the effective use of QDAS is related to the methodological awareness, combined with the expertise in the techniques of analysis.

Of the six packages analysed, it is verified that half provide these contents (NVivo, webQDA and MAXQDA). It should be noted that in the case of webQDA, the Methodological Manual is available in several thematic e-books (Case Study, Content Analysis, Reflective Interview, etc.).

4.2 Tutorial Videos

As with user manuals, tutorial videos are among the most commonly used features in case of any doubt in the execution of any process arising from the use of the software. According to Moudgalya [38], the main reason for the wide acceptance of Spoken Tutorials is the self-learn capability. All the analysed packages provide videos

organized by themes, thus enabling a more assertive and clear consultation of how to perform certain operations. It should be noted that, in the case of Dedoose software, the tutorial videos are part of the user manual in HTML format, complementing the existing step-by-step instructions. In the remaining packages, with the exception of webQDA, the tutorial videos are made available on YouTube channels (in the case of NVivo) or in specific links on the internet pages of each software.

4.3 FAQs

Frequently Asked Questions (FAQs) are presented as a solution to the most general and frequent questions of users. This is an efficient way for QDAS packages to be able to "answer" to users' questions without requiring individualized, personalized support.

Similarly, this tool is presented in almost all analysed packages. However, its generalist nature may prove to be inefficient in situations of more specific doubts.

4.4 Blogs

One of the good resources for (self)learning related to methodological issues is blogs. All analysed packages provide their users with blogs with diversified information.

Blogs can also be viewed as a platform where the various QDAS packages publicize and promote the capabilities and tools of their applications through demonstrations or sharing of studies conducted by other researchers. In this sense, blogs can present themselves as a valid tool for (self)learning, providing the user with valid demonstrative resources on how to develop a research project using that software.

4.5 Training, Workshops, Webinars and Consultancy

The self-learning tools mentioned above are characterized by being asynchronous, thus limiting the interaction of users in case of doubts or difficulties in the execution of a particular operation. The trainings, workshops, webinars and consultancies, appear as synchronous resources, allowing a greater involvement and intervention of the user in the learning process. It may not make much sense to speak in self-learning in the context of training, workshop, webinars or consulting, but rather in learning, since these environments essentially privilege transmissive teaching, and may be somewhat devoid of exploratory element on the part of the user.

Of all the analysed packages, the Dedoose was the one that revealed greater shortage of offers at this level, not unveiling the existence of training, workshops and consultancy in its webpage, identifying only the offer of webinars. With regard to the remaining packages, all offer this range of training services in full.

Training and consultancy, due to the content presented and the number of hours available, can be presented as more consistent solutions for the acquisition of knowledge. However, they are paid services, which in some situations may be a deterrent to user learning. As an option, some software packages (e.g., Atlas.ti, webQDA and QDA Miner) run free webinars as a way to make their products known, their potential and in some cases

methodological demonstrations with the use of their applications. In other situations, workshops are promoted, which may, in some moments, be equally gratuitous.

4.6 Forums Analysis

As mentioned above, this research used the forums of the QDAS packages in order to collect data complementary to the information described above. The data corpus provided in the forums presents itself as the only content available on the pages of the QDAS packages that allows to identify the real difficulties and doubts of the users of the various packages.

The first point that was analysed concerns the typology of questions that the various profiles of users place, being relevant to know the motivation with which they ask for help. In Table 2 it can be seen that 46 out of the total 83 questions in the forums are related to executive issues, that is, how-to-do questions. This reveals that, on more than half of the forums' questions, users are looking for solutions that answer the "way" to perform certain actions.

"Is there a way to use linked documents in the Mac version?" - ATLAS.ti user
"Could you let me know how i can quickly see how many nodes I have? Also how many documents I have. I know its very basic but I don't seem to be able to find/see this very quickly. Many thanks" - Nvivo user

The users who place the questions are characterized by being almost entirely users with Basic profile, with only two references to advanced user questions. An interesting fact to note is that QDAS packages trainers also turn to forums to ask questions about executive issues

"(...) Does anyone have a way to do this at the moment you need to click between the two document from OPEN ITEMS there is no tab as there is in WIN version but actually being able to view side by side would really help. Any suggestions or work arounds people can suggest?" - Nvivo Trainer

Issues related to technical anomalies (24 references) also occupy a good part of the messages list of the forums.

"I am currently running NVivo 11.2.1.616 Windows 64-bit on a computer with a high resolution display (MacBook Pro Retina 15", Windows 10 Home 64-bit, Apple Boot Camp). The display is currently set at 175% scaling. The fonts and graphics in NVivo 11 do not appear to scale with the resolution settings, with all UI elements appearing blurry." - NVivo user

Table 2. Questions placed in the forums according to the type of user

Type of user	Type of questions		
	Executive questions	Methodological questions	Technical questions
Basic	44	13	23
Trainer	1	0	0
Advanced	1	0	1
Total	**46**	**13**	**24**

Table 3. Typology of questions placed according to the QDAS packages users

User's packages	Type of questions		
	Executive questions	Methodological questions	Technical questions
NVivo	19	5	14
Atlas.ti	11	0	9
webQDA	9	7	0
MAXQDA	5	0	1
QDA Miner	2	1	0
Total	**46**	**13**	**24**

Besides the questions posed by the various users, it seems pertinent to identify to which QDAS packages these questions pertain. Table 3 indicates that, for NVivo and ATLAS.ti users, there is a high balance between executive and technical issues. This data suggests that the users of these packages are those who most feel difficulties related to the technical side. Another relevant issue concerns the questions of methodological forum.

Although the forums are spaces made available by the various QDAS packages for the sharing of ideas and doubts of this nature, it is verified that of the 83 questions analysed, only 13 were methodological. And the users of webQDA are the ones that ask more questions (7) compared to the other packages. The problem of the apparent misuse of the forums may also be due to users who, instead of reporting technical anomalies in more appropriate spaces, use forums when in many cases they are designed to discuss only issues of methodological nature and execution of procedures.

"Thank you for the suggestion, but please remember that the forum is not a support channel as such. It is a platform for users to discuss "how to" and methodological questions. For actual technical problems or questions, it is best to contact our support directly. Hope this helps. All the best" - ATLAS.ti moderator

After the analysis of the types of questions posed by the various users of QDAS packages, the responses that the moderators, technical support and authors of user manuals present in the forum were considered (see Table 4). The analysis sought to explore whether user responses were actually answered in the forums themselves, or whether other solutions were suggested to resolve doubts.

Table 4. Answers to user questions per QDAS package

Packages	Answers to user questions							
	Answers in forum	Answers with links from forum	Refer to support	Refer to the user manual	Refer to webinars	Refer back to external websites	Refer to the help page	Refer to FAQs
NVivo	21	1	4	0	0	0	15	1
Atlas.ti	6	0	2	0	0	0	0	0
webQDA	5	0	0	1	0	0	0	0
MAXQDA	5	0	3	0	0	1	0	0
QDAMiner	1	0	0	0	1	0	0	0
Total	**38**	**1**	**9**	**1**	**1**	**1**	**15**	**1**

We analysed 67 responses, categorized by the "location" of resolution or instruction presented. It should be noted that the apparent discrepancy between the number of questions asked (83) and the number of responses analysed (67) does not mean that there has been a lack of response from the moderators. This is due to the existence of several similar issues in some topics, sometimes resulting in a single response from the moderators.

As would be expected, most of the questions (38) were answered directly in the forums, and no QDAS package left unanswered questions. And the only answers sent to the help pages (15) refer to NVivo software. This situation can be better understood if we recall that the NVivo forum is the one that presented a higher index of technical issues (see Table 3), so it is understandable that the responses of the moderators go to the "Help" pages. However, it should be noted that in some cases these "referrals" functioned more as a complement to the responses presented in the forums.

"You can find some more details about auto coding by source style or structure at the following link: http://help-nv11.qsr...ent_sources.htm*"* - NVivo moderator

Another interesting fact is the small number of answers that refer to FAQs. This seems to highlight the unique nature of users' doubts and the role of forums as privileged spaces for acquiring learning, by not referring users to an environment of preconceived answers, instead investing in a more personalized response.

Table 5 presents the collaborative responses per QDAS package. That is, when a user (other than the forum moderator) takes the initiative to answer a question posed by another user, as a way to help him/her in his doubt. Of the 114 messages analysed, only 5 corresponded to collaborative responses. These data are of special interest if one takes into account that, for some users of QDAS [36], resorting to more experienced users in case of doubts is the second most frequently used option after consulting the User Manual. Though, given the modest number of collaborative responses collected, it seems clear that forums are not yet an alternative for users who favour more collaborative learning. This may be due, in all likelihood, to the rapid and expectant responses from the technical support and forum moderators, which may discourage the input of other users. This may also be due to the fact that users access the forums in order to see their questions answered, not getting involved in the doubts and difficulties of other users. However, this situation seems to detract somewhat from the concept of forum as a collaborative learning environment [39], making it a space that most resembles technical support.

Table 5. Number of references of collaborative responses per QDAS package

Packages	Collaborative answers
NVivo	2
Atlas.ti	3
webQDA	0
MAXQDA	0
QDA Miner	0

Table 6. Number of references to suggestions for improvement by users

Type of user	Improvement suggestions			
	Usability	Support	Instructional clarity	Technical
Basic	4	1	1	10

Finally, some suggestions for improvements mentioned by users in some QDAS forums messages were observed. It seemed pertinent to see if these messages presented suggestions or requests related to instructional or learning improvements. Of the 83 questions analysed, 16 mentioned suggestions for improvements, and those of a technical nature were the ones that were mentioned the most (Table 6).

"It would be fantastic if NVivo were able to more easily recognise the formatting/syntax of.srt files." - Nvivo user

It is curious that in 16 references of improvements, only a suggestion of instructional characteristics existed. This fact seems to demonstrate that, at this level, the QDAS packages analysed seem to respond to the instructional needs of their users.

"I suggest that the illustration on p. 45 is misleading as it indicates 2 hard returns in between the two paragraphs of Alexander's long comment. The summary on p. 47 is much clearer." - ATLAS.ti user

5 Final Considerations

When searching for the (self)learning tools of the various QDAS packages, as well as the various messages present in the forums, there are few disparities between the various packages with regard to their (self)learning tool proposals. As with technology resources, the learning features offered by the analysed packages are all very similar, covering almost all dimensions. The only two safeguards relate to autonomous learning and formative learning, with Dedoose presenting some limitations at the formative level and webQDA revealing more limitations in the provision of autonomous learning tools.

It is also noted that QDAS users present more questions related to the execution of tasks, to the detriment of methodological issues, which are placed on a third level, behind technical doubts. This fact seems to show that, as far as QDAS learning is concerned, users feel more compelled to look for information on how to work with QDAS, than to know the methodologies that support and justify the performance of certain QDAS operations. This may be due to the fact that users view the QDAS learning support platforms only as a technical support rather than as methodological guides, leaving that part to be consulted in other sources of information.

The data presented in this paper may have been subject to some limitations. First of all, the restricted sample of QDAS packages analysed, as well as the latent data from the forums, which reproduce only one month of records. However, it reveals that there is a considerable demand for information from users regarding the execution of processes in QDAS, and that the various packages analysed, although they offer a very

diverse range of learning offers, do not guide the user towards the (self)learning tools that best fit his/her learning style.

It is concluded that it would be pertinent to develop studies that seek to systematize these (self)learning tools in order to articulate them with the learning styles of the users of the QDAS packages. These studies could result in knowledge that could provide users with a more effective and efficient experience in (self)learning qualitative analysis software packages.

Acknowledgements. As an epilogue, we would like to thank the Foundation for Science and Technology (FCT) and the Centre for Research "Didactics and Technology in the Training of Trainers (CIDTFF) for the financial support granted in this study.

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