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4-19-2019

## How Do We Like to Learn Qualitative Data Analysis Software?

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### Recommended APA Citation

Freitas, F., Ribeiro, J., Brandão, C., Azevedo de Almeida, C., Neri de Souza, F., & Costa, A. P. (2019). How Do We Like to Learn Qualitative Data Analysis Software?. *The Qualitative Report*, 24(13), 88-106.  
<https://doi.org/10.46743/2160-3715/2019.4133>

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## How Do We Like to Learn Qualitative Data Analysis Software?

### Abstract

The learning of Computer Assisted Qualitative Data Analysis Software (CAQDAS) can represent a great challenge and obstacle to the adoption of these tools in support of research. Thus, it seems imperative that CAQDAS developers devise strategies and tools that stimulate and support researchers in the learning process of their applications. To this end, this study focuses on the learning preferences of CAQDAS users. A focus group was conducted with experienced CAQDAS users and an online questionnaire was administered to 232 users from 29 different countries and representing a diversity of 26 CAQDAS. The obtained data allow to infer that the users privilege the learning in context of training, but, when it comes to self-learning, they tend to opt for interactive tools and to resort to tutorial videos. These results seem to indicate that users are looking for solutions that provide them with a learning experience that is more adapted to their style and in the shortest time possible.

### Keywords

Computer Assisted Qualitative Data Analysis Software, CAQDAS Learning

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### 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 and for PhD scholarship with reference SFRH/BD/110760/2015.

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## How Do We Like to Learn Qualitative Data Analysis Software?

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*The learning of Computer Assisted Qualitative Data Analysis Software (CAQDAS) can represent a great challenge and obstacle to the adoption of these tools in support of research. Thus, it seems imperative that CAQDAS developers devise strategies and tools that stimulate and support researchers in the learning process of their applications. To this end, this study focuses on the learning preferences of CAQDAS users. A focus group was conducted with experienced CAQDAS users and an online questionnaire was administered to 232 users from 29 different countries and representing a diversity of 26 CAQDAS. The obtained data allow to infer that the users privilege the learning in context of training, but, when it comes to self-learning, they tend to opt for interactive tools and to resort to tutorial videos. These results seem to indicate that users are looking for solutions that provide them with a learning experience that is more adapted to their style and in the shortest time possible. Keywords: Computer Assisted Qualitative Data Analysis Software, CAQDAS Learning*

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Specific software packages to support qualitative research enable the organization and systematization of data collection and analysis, as well as enhance the definition of dimensions, categories and subcategories of analysis—usually a very laborious process (Souza, Costa, &

Souza, 2015). On the other hand, qualitative research often produces a large amount of data that requires

organization, structuring and reduction without prejudice to the quality of the inferences that are sought to produce. The rigor should guide the moment of data processing and interpretation, and the qualitative researcher must rely on all available tools to ensure the quality of his work, such as the use of dedicated software, as do those who use inferential statistics for evidence of hypotheses. (Ribeiro, Brandão, & Costa, 2016, p. 158)

The different software packages have been equipped with new functionalities with the aim of answering the various methodologies and techniques of data analysis. We could explain the limitations and potentialities of using these tools, but the characteristics that currently constitute them give them the credibility necessary to be increasingly exploited, making them also more robust (Costa & Minayo, 2018). Costa and Minayo assert that this allows the user to relinquish merely “technical” tasks, that is, that do not require an intellectual effort and, for that reason, can be performed and largely optimized by the software. On the other hand, many users rely too much on these packages and often have create unrealistic expectations. Bazeley (2007) refers that the relative ease of software-assisted coding can reduce critical and reflexive reading, mechanizing qualitative analysis and thus compromise the exploratory and interpretive character of most qualitative investigations.

The potentialities and limitations of a tool are usually associated with the way in which the user appropriates the tools’ technical characteristics and, in the specific case of CAQDAS, complements them with the theoretical knowledge. These ideas lead us to reflect on and question what the CAQDAS learning preferences will be for researchers, as well as to elucidate CAQDAS developers regarding the learning strategies of their products that best satisfy their users.

This paper is divided into five parts: in the first two sections we present our theoretical background, focusing on CAQDAS and adult learning processes; we then present the empirical work developed to answer to our research objectives; and then we present and discuss the obtained results. We conclude with some final considerations.

### **Learning CADQAS**

Whereas it is recognized that the use of CAQDAS will improve the work process and increase research quality, the adoption of QDAS technology such as the NVivo<sup>®</sup> software program is perceived as difficult by qualitative researchers (Salmona & Kaczynski, 2016). Salmona and Kaczynski point out that greater awareness of the potential barriers to technological acceptance will benefit new users who are confronting the challenges of the steep learning curve found in advanced qualitative analysis software.

As CAQDAS are becoming more widely used, it is increasingly important to assess CAQDAS learners’ needs and to develop methods of preparing and evaluating user-friendly training content.

Many CAQDAS present training solutions that are intended for self-study and that are marketed as complete learning solutions; however, little is known regarding how well they work, under what conditions they can be used and if they adjust at all to the self-learning preferences of researchers (Freitas, Ribeiro, Brandão, Reis, Neri de Souza, & Costa 2017). When we address this subject, we must bear in mind, that adults, specifically researchers, usually have specific objectives for learning. Typically, they work with schedules and tight deadlines. When they intend to learn something specific, such as a software, they have a

concrete aim, they need something to improve their work and, normally, do not cope with generalist approaches to teaching and learning. Foremost, we should bear in mind that adults bring a personal baggage related with past experiences (Knowles, Holton III, & Swanson 2005) and with where they want to go with their research.

Although there are researchers with diverse computer skills, learning to use software, specifically the one we need for specific tasks, can be troublesome. In addition, not everyone has mastered the methodology they want to embark on, so they often do not know exactly what they want to do with the software.

... learning to use the program in a sophisticated way is intricately bound up with the specific analytic task that is being executed in the software. Yet there is a contradiction between the emergent nature of qualitative analysis and the step-by-step nature of computer software. (Woolf & Silver, 2018, p. 4)

Kolb and Kolb (2005) conceptualize that four different abilities are needed for successful learning: concrete experience (awakening); reflective observation (observing); abstract conceptualization (practicing); and active experimentation (applying). Kolb believes that each of these abilities is part of a learning cycle that repeats itself. He established interactions between concrete, active, reflective and abstract dimensions and classified learning preferences into four styles: Assimilator, Accommodating, Divergent, and Convergent.

Based on Kolb's Learning Model, Keillor and Littlefield (2012) present the table below where it can be read its applicability to online learning.

**Table 1.** Best Instructional Design Practices by Keillor and Littlefield (2012), based on Kolb and Kolb (2005)

<b>Abilities:</b>	<b>The learner:</b>	<b>Content and learning strategy:</b>
<b>Concrete experience</b>	must be interested in adding to his or her knowledge base	arouses the learner's interest
<b>Reflective observation</b>	takes on new information, usually by watching or listening	presents the new information
<b>Abstract conceptualization</b>	practices using the new knowledge	facilitates hands-on activities
<b>Active experimentation</b>	applies the new knowledge	provides a means of practical application

What stands out is that Kolb's experiential learning theory provides a framework for designing active, collaborative and interactive learning experiences that support knowledge construction from the combination of grasping and transforming experience.

These assumptions must be considered in order to adjust the delivery of learning content and strategies. They seem to meet the characteristics of a self-oriented adult that resorts to online materials and tools to cope with an immediate need as is the learning of a dedicated software.

It is easy for people accustomed to teaching and learning online to see that Knowles and Kolb's perspectives fit what is intended by consumers of online learning. Studies have shown that there is a relationship between learning styles (Kolb & Kolb, 2005) and user performance in software learning (Inal & Güner, 2015). These studies further reinforce the idea that a good understanding of the relationship between user learning styles and software package training models can provide major contributions to the conceptions and implementations of more efficient and effective training courses (Inal & Güner, 2015)

Taking the above into consideration, one must bear in mind that training should provide an environment conducive to dialogue and exchange of experience, motivating the student to

share his/her experience. And those responsible for training and the trainee should engage in a mutual sharing relationship.

Considering the above, this study has three research objectives: (1) to identify CAQDAS users' learning strategies and routines/habits; (2) identify characteristics and features of learning tools most appreciated by users; and (3) explore the reasons why these characteristics are appreciated.

## **Methodology**

### **Data Collection**

The data was gathered in two separate moments during the second semester of 2017. The first moment aimed at identifying the CAQDAS users' learning strategies and habits (our first research objective); the second moment also aimed at identifying the CAQDAS users' learning strategies and habits, and to understanding what the users' value in the CAQDAS's learning tools and why (second and third research objectives).

Two instruments were used—first the focus group and then the questionnaire. Both the focus group and the questionnaire had as objectives: (i) to enumerate the explanatory needs of CAQDAS in the learning process; (ii) identify CAQDAS learning strategies for various user profiles; (iii) identify the most important Usability characteristics for the CAQDAS learning process; and (vi) know the functionality preferences for an online learning / help tool in a CAQDAS. However, the focus group could allow the access to rich and in-depth data, compared with the questionnaires, such as: (i) knowing the users' difficulties in the CAQDAS learning process; and (ii) to discuss the organization of contents in a CAQDAS learning tool.

### **Focus Group**

The script was developed according to the first research goal and then validated by two experts in education technology. The group was moderated by the first author and had four participants—researchers with a minimum of two years' experience in the use of CAQDAS. This number of participants, albeit reduced, was due to time constraints during the process of contacting researchers with a recognized expertise in the use of qualitative methods who were available to be in the focus group. The group had researchers aged from twenty to sixty years old, with backgrounds from social sciences. Three hold a PhD and one is a PhD student. As already stated, our aim at this moment was to identify these expert learning strategies and the routines used to enhance learning skills regarding the use of CAQDAS (first research goal). The focus group was recorded and then verbatim transcribed; data was analysed by the first researcher using the content analysis technique in line with Costa and Amado's perspective (2018) with the support of webDQA®.

### **Questionnaire**

In the second part of the study we adopted a method that allowed us to access a representative sample of CAQDAS users. Data was gathered with an online questionnaire using Google Forms®. The questionnaire was composed of 29 items divided into five sections. The 1st section, called "CAQDAS learning habits," we focused on the users' routines and learning preferences; the 2nd section, "Usability and User Experience of CAQDAS self-learning tools," intended to gather users' opinions regarding Usability and User Experience; the 3rd section, "Usability Expectations in a self-learning platform," had the purpose to reveal users' expectations of what would be an ideal tool for self-learning (usability); the 4th section,

“Characterization of the CAQDAS’s uses,” sought to know some of the user’s software features. Finally, the 5th section, “About CAQDAS users,” collected the users’ profile data. Of the 29 questions asked, 26 were closed and three were open—one in the second section and two in the third section. Before made available, the questionnaire was validated by four experts in educational technology. The questionnaire was disseminated among CAQDAS users through e-mails, social networks (qualitative research groups), forums for various CAQDAS software packages, workshops and an international congress on qualitative research.

The questionnaire was answered by 232 users from 29 different countries and representing a diversity of 26 CAQDAS. Fifty seven percent of respondents were female (n = 133) and 43% were male (n = 99). In terms of age, 16% (n = 36) were between 20-30 years, 33% (n = 77) between 31-40 years, 31% (n = 72) between 41-50 years, between 51-60 years, 0.7% (n = 2) between 61-70 years and 0.3% (n = 1) between 71-80 years. In terms of education, the majority are PhD students with 31% (n = 73), followed by PhD with 29% (n = 68), masters students 15% (n = 35), with postdoctoral 10% (n=22), with a degree 4% (n=9) and finally, researchers doing postdoctoral research (n=5).

Due to the immense variety of CAQDAS patented in the questionnaire, it was decided to focus in this paper the data regarding the five most represented CAQDAS, namely: webQDA<sup>®</sup> (n=109), NVivo<sup>®</sup> (n=85), Atlas.ti<sup>®</sup> (n=48); QDA Miner<sup>®</sup> (n=11); MAXQDA<sup>®</sup> (n= 29); being the total of answers 282. This apparent gap, compared to the total number of participants in the questionnaire (n=232), reflects that some researchers use more than one CAQDAS package.

Regarding the coding for the second research goal, the data from closed questions were coded by the fifth author and validated by the first one and the data have been treated in the Google Forms<sup>®</sup> application. Data from open questions was coded by the fifth and the first author while discussing the coding. Data for the third research goal was coded by the fifth author and validated by the first. The method used for analysing the qualitative data was content analysis (Costa & Amado, 2018; Esteves, 2006) through webQDA<sup>®</sup> software.

## **Results and Discussion**

Next, we present and discuss the research findings, considering each of our specific objectives.

### **Users’ Strategies and Routines/Habits of Learning CAQDAS**

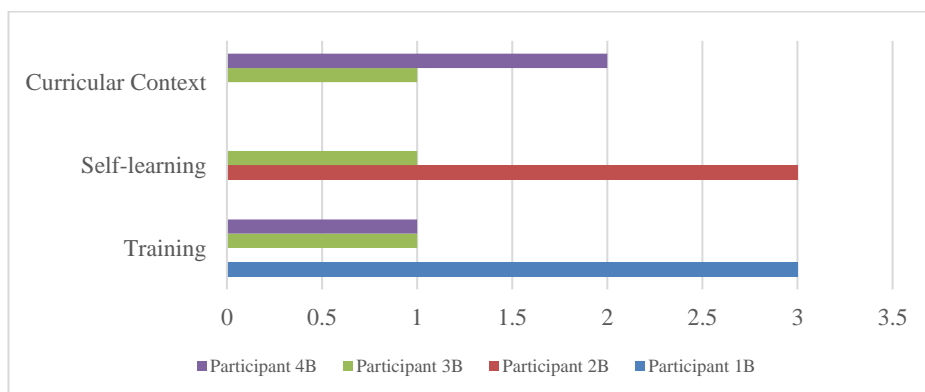
As already mentioned, one of the study’s research goals was to identify the strategies and routines of CAQDAS users. When we refer to the strategies, we are considering the procedures that users use in order to gain knowledge regarding how to use CAQDAS, while the routines are related to the more informal, autonomous and recurrent procedures as a complement to the learning of the CAQDAS.

Table 2 represents and describes the categories identified in the data, regarding the learning strategies of the users participating in the focus group. These participants referred as training strategies of CAQDAS: training; self-learning; and the learning in curricular context.

**Table 2.** CAQDAS Learning Strategies identified in the focus group.

Dimension	Categories	Description
CAQDAS Strategies	Learning	
	Training	Referring to the learning of CAQDAS in formations promoted by the various CAQDAS packages.
	Self-learning	Allusive to personal initiative in acquiring knowledge independently.
	Curricular Context	Concerning the learning of CAQDAS in the context of methodology classes.

Figures 1 and 2 present the learning strategies of the focal group participants (figure 1) and the questionnaire participants (figure 2).



**Figure 1** Number of references about learning strategies of the participants in the Focus Group.

Figure 1 shows that there is no clear preference for a strategy alone, and it is possible to observe the diversity of strategies chosen by the focus group participants. Nonetheless, two of the participants opted for only one learning strategy (Participant 1B – Training; and Participant 2B – Self-learning). This may be justified by additional data collected in the focus group. Specifically, Participant 2B only resorted to self-learning due to the need to analyse qualitative data in the scope of his doctoral thesis and because there were no CAQDAS training at his institution or curricular context at the time. Participant 1B, however, only opts for Training as a strategy because it was the first strategy he used and because, according to him, it corresponds to his learning style. At the same time, we see that almost all the participants resorted to CAQDAS training at some point:

The first contact was in a training with teacher C, and .... at the time I believe it was still with NVivo and ... it seems that it is truly fundamental to have first initial training. – Participant 1B

(...) in another situation was with teacher C, who is also one of the organizers and promoters, along with professor A, invited me to do the training, but the funny thing is that I did advanced training before the initial ... (general laughter) ... but .... for me it was super important ... – Participant 3B

Another relevant data that emerges from the discourse of these participants is related to the option for self-learning of CAQDAS. In fact, literature shows that this strategy is a recurrent option on the part of the users (Freitas, et al., 2017).

My first experience with content analysis software was with Nud \* ist, QSR, which was one of the software NVivo created before and it was from him that I

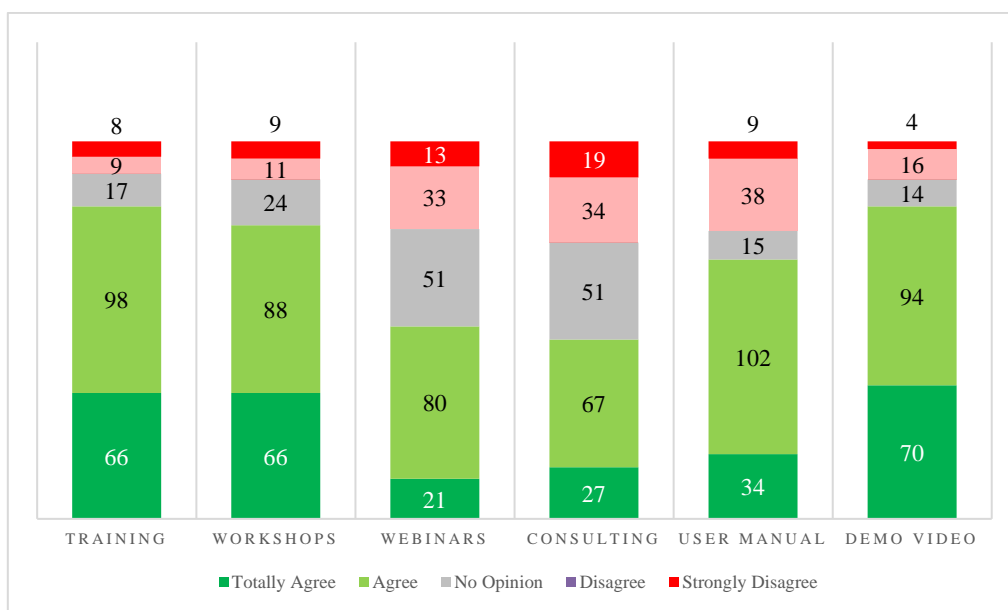


analyzed the data from my PhD. So ... it was an experience ... quite interesting because I had to be self-taught, did not I? – Participant 2B

My trajectory was a little bit, just a little bit like the participant 2B, in the sense that I did the training already as a trainer’s assistant (smiles) ... because I already had a notion as a self-taught person. – Participant 3B

These data can be complemented with the answers that the CAQDAS users gave in the questionnaire. Contrary to what happened with the focus group, the question posed in the questionnaire was closed, and only the degree of agreement on the different learning strategies presented was requested (the agreement meant that the participants used the strategy). The options presented to participants (i.e., learning strategies) were identified in a study by Freitas, Ribeiro, Brandão, Reis, Neri de Souza and Costa (2017) using a survey of the various learning offers provided by the main CAQDAS packages available.

The data presented in figure 2 seems to show, once again, that the users have no clear preferential strategy; rather, they use various strategies. This data seems to support the idea that users are looking for the tools that best fit their own learning style (Kolb & Kolb, 2005). However, it is possible to see that among the strategies with the highest level of agreement is the option to view tutorial videos (i.e., demo video), with 164 users agreeing or totally agreeing. This fact is highlighted by Moudgalya (2014), when affirming that the generic acceptance of spoken tutorials is closely related to their adaptability to self-learning.



**Figure 2** Degree of agreement on learning strategies of the CAQDAS users (questionnaires).

Trainings and workshops also seem to meet user preferences, which is coherent with the trend identified in the focus group (see figure 1). However, the data that may seem more intriguing is related to the use of the user manual, where 136 users agree or totally agree to resort to this learning strategy. This becomes relevant insofar as it seems to contradict research (e.g., Novick & Ward, 2006) claiming that users of computer applications favour online help or the help of other experienced users, instead of consulting user manuals.

Among the most disagreeing strategies is the use of consultancies (53 users disagree or totally disagree) and webinars (46 users disagree or totally disagree). It was also in these learning strategies that the greatest number of “no opinion” answers (51 users each) was

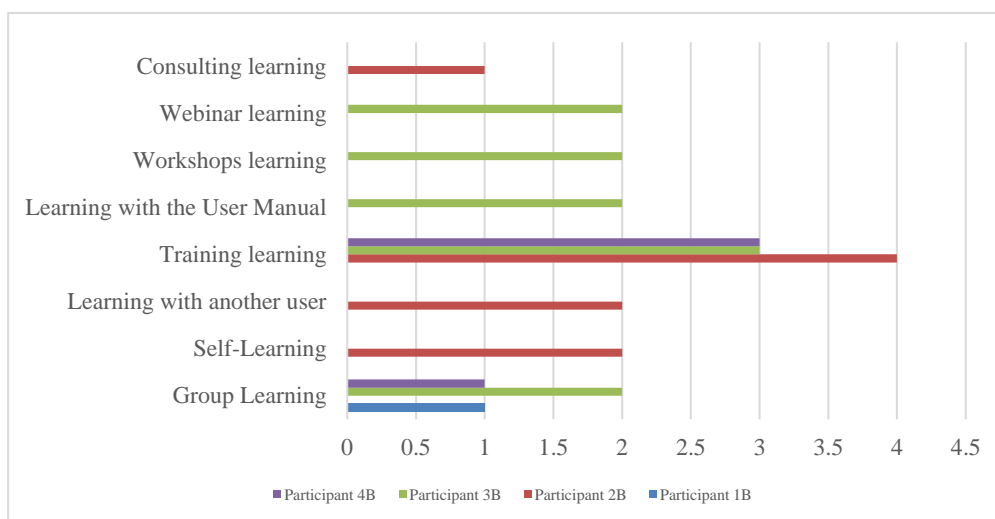
observed, which may suggest that these strategies are those that least appear to capture the interest of users.

Let us now focus on learning routines, which (as already mentioned) are more informal, autonomous, recurrent and complementary learning procedures. Table 3 presents the learning routines present in the questionnaire and the focus group.

**Table 3.** CAQDAS Learning Routines (questionnaire and focus group).

Dimension	Categories	Description
CAQDAS Learning Routines	Group Learning	Regarding group learning (classroom, workshops, trainings, etc.)
	Self-learning	Allusive to personal initiative in acquiring knowledge independently
	Learning with another user	Concerning learning through a more experienced and knowledgeable user
	Training learning	Referring to the learning of CAQDAS in formations promoted by the various CAQDAS packages
	Learning with the User Manual	Alluding to autonomous learning by consulting the user manual
	Workshops learning	Concerning learning in workshop environment (less workload compared to training)
	Webinar learning	Concerning learning in webinar sessions (synchronous sessions through the Internet)
	Consulting learning	Allusive to learning in consolation sessions, through a more personalized and individualized learning

Figure 3 shows that some of the participants in the focus group adopted the above strategies as routines.



**Figure 3** Number on references on CAWDAS Learning Routines (focus group).

The data presented here seems to reveal that users continue to resort to training, but this time as a way to deal with the learning gaps they still feel in the use of CAQDAS.

Hmmm, a person starts to learn, and then other doubts come up he/she thinks ...  
 “if I had done a training, I would have found my way.” – Participant 4B

(...) training, in my opinion, is essential. – Participant 2B

In addition to learning in a training context, group learning arises, proving to be a routine that is also valued by users, as this privilege the exchange of ideas and experiences among users. When asked during the focus group about learning routines, users attest to this fact by stating that:

I prefer to learn in groups, because it gives me the opportunity when I have my doubts, and I can take advantage of the doubts of others. And I do ... it's more adapted ... for me, my doubts limit me because I only have one experience ... while another person may already be in a higher level of learning ... already tried, goes tell me about the difficulties I still do not have because I'm at a level below ... and therefore I think I learn a lot more if I'm in a group. – Participant 1B

I think so ... when it's a small group, if it's well done I think it's great ... because a question may be the answer to what I wanted. Or sometimes of things I did not think ... "it makes so much sense for my work" ... So, in a group I think it makes a lot of sense when it comes to methodology, analysis ... – Participant 3B

Another data, which seems to support and reinforce the data on figure 2, is related to the apparent little interest that consultancies arouse among users. Although the consulting services by most CAQDAS packages provide a personalized and individualized learning (Freitas, Ribeiro, Brandão, de Souza, Costa, & Reis, 2017), the reality is that, as far as paid services are concerned, users seem to show a clear preference for training. Perhaps this idea can be better understood if we consider that, unlike consultancies, training environments can provide moments of group learning, as already mentioned in the above paragraphs.

### Users' Most Appreciated Characteristics and Features in CAQDAS Learning Tools

The second objective of this study is to present the characteristics and features that the users most appreciate in the CAQDAS learning tools. This study defines "characteristics" as the adjectival elements of the learning tools, while the functionalities refer to specific technical resources. Table 4 presents the CAQDAS' characteristics most appreciated by our participants.

**Table 4.** CAQDAS most appreciated characteristics in the learning tools (questionnaire).

Dimension	Categories	Description
CAQDAS Appreciated Characteristics in the Learning Tools	Most	
	Accessibility	Referring to the ease of access to CAQDAS learning tools.
	Multimedia	Allusive to the inclusion of videos and images as a complement to the textual instructions
	Demonstrative Projects	Concerning the exemplification of models (projects) where users can find answers to how to use the software
	Understandable instructions	Regarding the instruction that are easily understandable to users
	Usability	Allusive to a set of characteristics that the user considers providing a more efficient and effective use.

As already mentioned in the methodology section, we only consider for this study the responses of the users of the five most represented CAQDAS in the questionnaire, as well as the five categories of analysis most mentioned by the respondents. Thus, with respect to the learning tools' characteristics most valued (see Figure 4), the CAQDAS' usability is the one that is most mentioned by users (98 references).

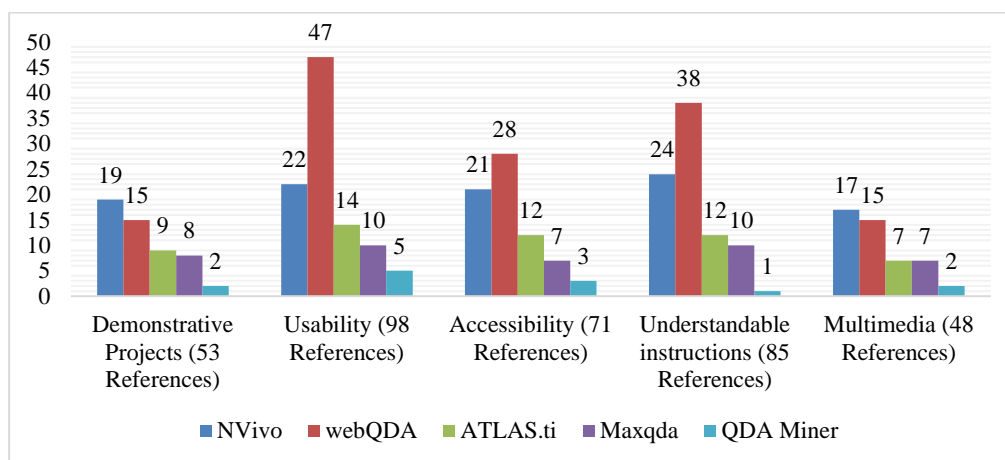
Simplicity, functionality, and practicality – Inquirer<sup>1</sup> # 96 (NVivo<sup>®</sup> User)

Easy to use – Inquirer # 126 (NVivo<sup>®</sup> and webQDA<sup>®</sup> User)

Ease of use. – Inquirer # 129 (NVivo<sup>®</sup> User)

Simplicity, usefulness, practicality – Inquirer # 118 (ATLAS.ti<sup>®</sup> User)

This data becomes relevant as far as it is usability that can help define success or failure in the use of a resource (Preece, Rogers, & Sharp, 2002). Among the user groups of CAQDAS, the question of usability seems to arouse more interest among users of webQDA<sup>®</sup>, with 47 references on this subject. This data seems to show that the theme of usability, in the use of a CAQDAS, is seen as an essential issue for users of webQDA<sup>®</sup>. Salmona and Kaczynski (2016) refer that the first barrier to CAQDAS use involves a researcher's intention to use technology based upon perceived ease of use and that minimal effort is desired when considering the adoption of a new software program. In their research, NVivo is recognized as a complicated software program, the use of which requires considerable effort with a steep learning curve.



**Figure 4** Number of references on CAQDAS most appreciated characteristics in the learning tools (questionnaire).

It is also important to emphasize the relevance that users give to the quality of the instructions on the learning tool, which need to be understandable (85 references). This data seems to suggest that many users may find it difficult to understand the instructions provided by the learning support tools.

Clear, concise and non-redundant information to understand the information without “losing” too much time. – Inquirer # 21 (NVivo<sup>®</sup> and webQDA<sup>®</sup> User)

explanations straight forward and clear – Inquirer # 72 (MAXQDA<sup>®</sup> User)

<sup>1</sup> Refers to a questionnaire respondent.

Understandable language – Inquirer # 83 (ATLAS.ti and MAXQDA® User)

Accessibility also had a significant number of references (71). Presumably, accessibility tends to be confused with usability concepts by respondents, but the accessibility feature mentioned here refers only to users' ease of access to the CAQDAS learning tools. The fact that it is the third most-mentioned feature seems to reflect an effective user concern, stating that user-friendly help instructions are as important as having an easy access to them.

(...) the ease of finding the help you need, as it provides security in understanding the functionalities. – Inquirer # 153 (webQDA® User)

(...) be accessible to consultation without having to close the project (eg, help menu, by keyword). – Inquirer # 116 (NVivo® User)

In the light of the above, we find that interest in instruction, accessibility and usability seems to be in line with what is intended by self-learners, who want to follow their own time and style, as is the case of e-learning users (Debevc & Bele, 2008).

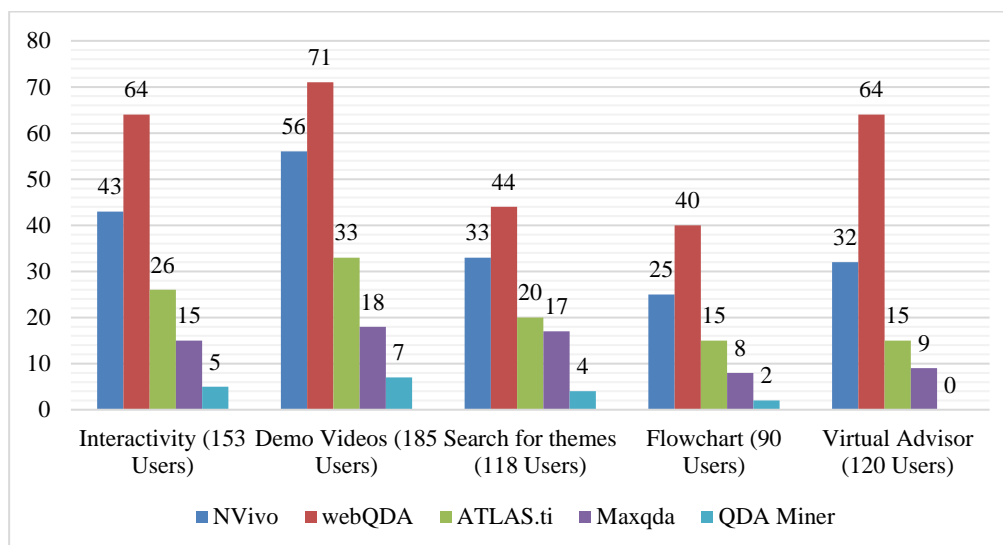
Of all the data presented in figure 4, the one that seems most surprising, is the preference for multimedia resources (images and video), emerging only as the fifth preferred characteristic of users (48 references). This data becomes unexpected insofar as it appears as an apparent contradiction, compared to the data presented in figure 2. In this figure the respondents demonstrate the highest degree of agreement regarding the use of videos tutorials as a learning strategy. One possible explanation for this result may be related to the fact that many users do not identify multimedia as a characteristic of learning tools, such the ones indicated in Fig. 4, but rather as a feature.

Table 5 presents the description of the features most appreciated by users. Contrary to the characteristics—more related to “adjectival” elements of learning—the feature of the learning tools appear as “plugins” associated with the characteristics mentioned before. It is important to note that the data in this table comes from a closed multiple-choice question, where participants could select the features that they considered more important. The options available to participants were: (i) Interactivity; (ii) Annotations; (iii) The existence of a “Virtual Methodological Advisor”; (iv) Inclusion of demonstration videos; (v) Topic search option; (vi) The existence of FAQs; (vii) The existence of flowcharts (diagram or schematic representation of a process); (viii) Virtual Guide Tool; (ix) Glossary with technical terms; (x) The existence of a personal and customized learning environment; (xi) Community and collaborative forums; and (xii) another option at the user's choice.

**Table 5.** Characteristics of CAQDAS most relevant features of the learning tools (questionnaires).

<b>Dimension</b>	<b>Categories</b>	<b>Description</b>
CAQDAS Most Relevant Features of the Learning Tools	Demo Videos	Referring the use of video tutorials to support learning
	Flowchart	Allusive to the diagrams or representations of a process
	Interactivity	Concerning the human-computer interaction provided by the learning tools
	Search for themes	Concerning the possibility of the user to search the topics that he/she wants to learn.
	Virtual Advisor	Alluding to the “virtual advisor” Methodological support.

Figure 5 translates the five most commonly chosen features by users.



**Figure 5** CAQDAS’s learning tools most relevant features.

Data shows, once again, that the tutorial videos are seen as essential for the autonomous learning of the CAQDAS, with 185 users expressing their clear preference for this functionality. These data is consistent with the study by Wells, Barry, and Spence (2012), which demonstrates the relevance and positive impact that tutorial videos have on learning among university students.

Interactivity appears as the second most appreciated feature, being selected by 153 users. This seems to highlight CAQDAS users’ preference for learning tools that privilege using interactive solutions. This fact may help to understand why many CAQDAS developers are increasingly investing in user manuals in HTML format rather than paper manuals (Freitas, Neri de Souza, & Costa, 2016; Freitas, et al., 2017).

The “Virtual Advisor” was the third choice of users (120 users), and this option may reflect the need to complement the methodological approach to the CAQDAS learning process. This is valued by Gilbert, Jackson and Gregorio (2014), who state that the use of a CAQDAS, in addition to requiring general computer skills, requires something even more important, a clear understanding of qualitative research methods.

### User Reasons to Choose the Features and Functionalities of CAQDAS Learning Tools

In order to deepen the understanding of the options chosen by users, they were asked to justify the reasons for their choice, through an open question. Table 6 shows the dimensions resulting from the analysis. It should be noted that this study considered only the two most valued features: demo (tutorial) videos and interactivity.

**Table 6.** Justifications of CAQDAS users regarding preferred features.

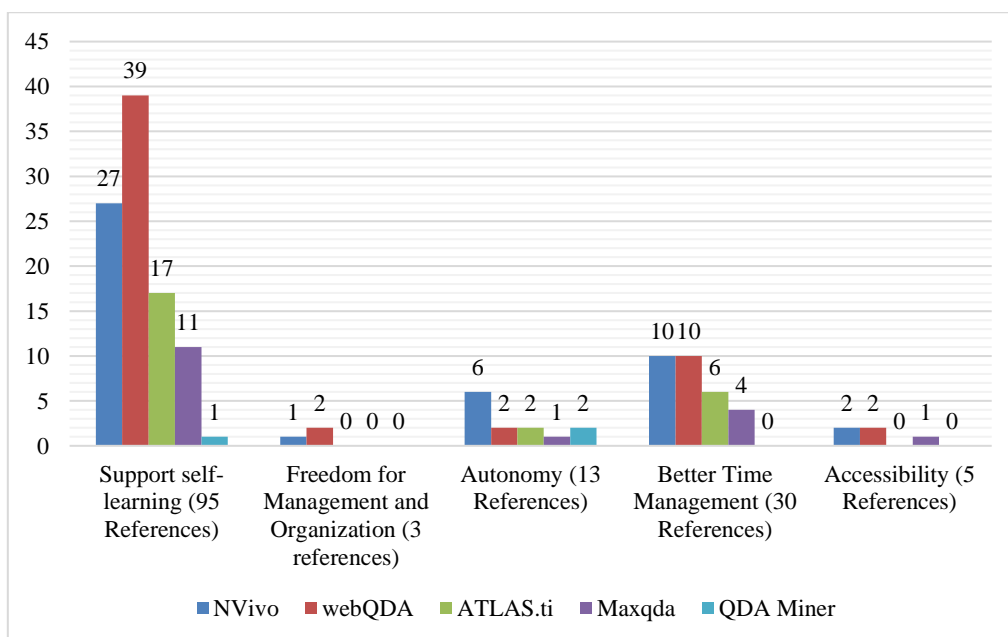
Dimension	Categories	Description
Justifications of users regarding preferred features	Accessibility	Refers to the ease of access to CAQDAS learning tools.
	Autonomy	Allusive to freedom and independence for the user to access the learning contents
	Better Time Management	Concerning the time savings provided by the features of the Learning tools
	Freedom for Management and Organization	Concerning the freedom provided to the user to manage and organize the information he wants to learn
	Good UX	Alluding to the characteristics that provide a good User Experience
	Support self-learning	Concerning the simpler and easier way of the user to acquire knowledge

The ability to support self-learning emerged as the most relevant. In the case of demo (tutorial) videos (figure 6), there were 95 references, while in Interactivity (figure 7) were 42 references. Data shows that, in both functionalities (Tutorial videos and Interactivity), users clearly demonstrated that their option was due essentially to the support and facility that both these functionalities make available in the self-learning process. Regarding the preference for video tutorials, users mentioned:

They allow a better demonstration and guidance in the learning process, in addition to being able to use them again – Inquirer # 100 (ATLAS.ti® and MAXQDA® User)

ease of self-learning through image and video – Inquirer # 47 (NVivo® User)

Demonstrative videos can answer the questions of parts that may not be clear in the use of the software. – Inquirer # 123 (webQDA® User)



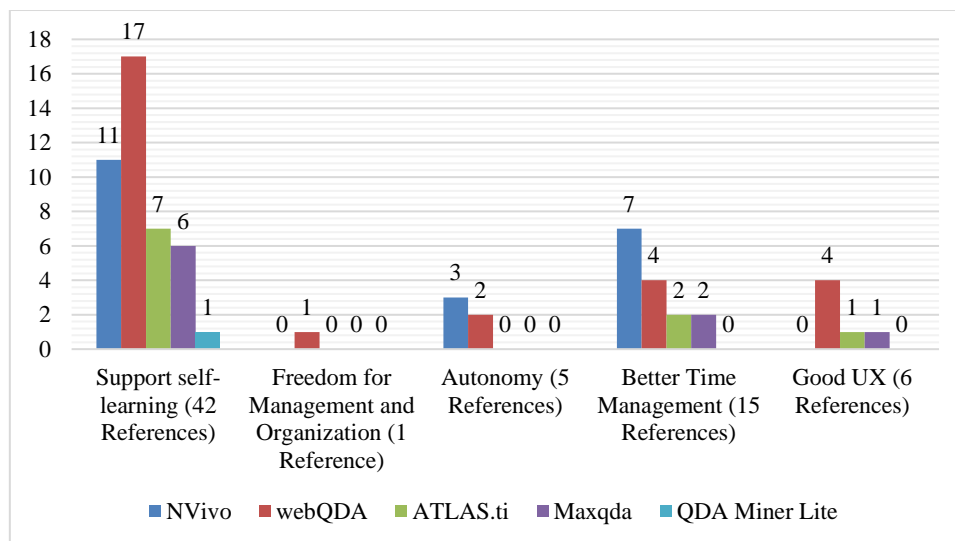
**Figure 6** Number of references on justifications of CAQDAS users regarding preferred features (demo videos).

Regarding interactivity the users mentioned:

Interactive environment is very usefull when learning new skills – Inquirer # 57 (MAXQDA® User)

Interactivity fosters learning which means I rely less on tutorials as I go forward – Inquirer # 68 (ATLAS.ti® MAXQDA® User)

(...) are important to my learning style. – Inquirer # 162 (NVivo® and webQDA® User)



**Figure 7** Number of references on justifications of CAQDAS users regarding preferred features (Interactivity).

The second most mentioned justification, simultaneously in both functionalities, is the possibility that the tutorial videos and the interactivity provide regarding time management. In both features the users recognized that the existence of interactive functionalities, supports them in a better management of the time during the learning process. This is particularly relevant if we take into account that a considerable number of researchers, using qualitative analysis software packages, do so in the scope of their masters, doctoral or post-graduate projects (Freitas et al., 2016; Silver & Rivers, 2015), so there is no great deal of time available to learn a software. Also, we are focusing adult learners, a population that values feasible learning (Knowles et al., 2005).

If well done, the demonstration videos illustrate procedures necessary to perform the intended operations in a short period of time – Inquirer # 21 (NVivo® and webQDA® User)

They are options that facilitate the search for help and allow it to be done at a relevant time without much effort. – Inquirer # 21 (ATLAS.ti®, NVivo® and MAXQDA® User)

Interactivity, enables speed and resolution of specific issues – Inquirer # 5 (NVivo® User)



Interactivity can shorten the time needed for learning and if simple give the user satisfaction that he learned step by step. – Inquirer # 28 (NVivo<sup>®</sup> and webQDA<sup>®</sup> User)

### **Final Considerations**

This research focused the process of learning a Computer Assisted Qualitative Data Analysis Software (CAQDAS), while considering the specificities of adult learning processes. We gathered data from researchers who use different CAQDAS, using two research methods— a focus group and a questionnaire. By doing so we intended not only to gain a better understanding of the strategies and routines of researchers (regarding CAQDAS) but also to give voice to those who need to use and, hence, to learn how to benefit their own research with the use of CAQDAS in the most effective way. Understanding the needs and practices of this specific population supports the definition of good resources, thus promoting the competencies of researchers and, consequently (we believe) the quality of the research they develop.

In the beginning of this paper we stressed the importance of several assumptions which impact adult learning. Researchers when learning to use a CAQDAS present readiness to learn (given the nature of their work—researching) and motivation to learn. In this research we focused individuals who resort to a tool—CAQDAS—to accomplish their own work. Hence, they are inherently motivated and orientated to learn. Our results also support that researchers use strategies which may be rapidly accessed and understood and, importantly, connected with their own research. Consequently, we are indeed dealing with self-directed learners.

Results show that when learning a CAQDAS, the user resource to various strategies, which we believe reflects their own search for tools that best fit their learning style, and their specific questions or doubts at a given moment. Nonetheless, tutorial videos seem to be one of the preferred strategies, a result that supports the importance of visual and practical demonstrations of tools and procedures, as well as the possibility of the users being able to control the learning process (namely with the use of pause, fast forward, etc). Despite some resources and strategies emerging in our results as being more used and, hence, more important to users, we believe it is fundamental to continue to present researchers with the various existing resources, while continuing to invest in improving all of them, not only the ones which are most used. This is based in the notion that adult learners value learning processes that account for their own specificities. Therefore, having the possibility to use the resource that each researcher finds to fit his/her own learning style is fundamental and creates optimal conditions for researchers to engage in the process of learning to use CAQDAS. This allows them to self-manage their learning process, which is highly valued by adult learners.

This research presents limitations that must be considered. Most part of the data was coded by two researchers; however, data regarding the first research objective was coded only by the first author. In addition, the number of participants in the focus group was lower than the advisable. As already stated, this was given to constraints regarding recruiting participants. Nonetheless, a bigger focus group could provide us with more information.

Given the importance of creating conditions for adult learners to engage in learning processes that consider their specific and individual needs, we believe that CAQDAS presenting several learning tools is extremely positive. This creates adequate conditions for a self-directed learner—such as researchers—to choose autonomously the tools he/she feels is the most appropriate for him/her in a particular moment and in relation to a specific task (e.g., considering the type of data in the research project).

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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 and for PhD scholarship with reference SFRH/BD/110760/2015.

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#### **Article Citation**

Freitas, F., Ribeiro, J., Brandão, C., Azevedo de Almeida, C., Neri de Souza, F., & Costa, A. P. (2019). How do we like to learn qualitative data analysis software? *The Qualitative Report*, 24(13), 88-106. Retrieved from <https://nsuworks.nova.edu/tqr/vol24/iss13/8>

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