

<http://dx.doi.org/10.1590/0104-07072017000350017>

THE HERMENEUTIC AND THE ATLAS.TI SOFTWARE: A PROMISING UNION

Elaine Cristina Novatzki Forte¹, Denise Eloira Pires de Pires², Salvato Vila Verde Pires Trigo³,
Maria Manuela Ferreira Pereira da Siloa Martins⁴

¹ Doctoral. Student in the *Programa de Pós-graduação em Enfermagem, Universidade Federal de Santa Catarina (UFSC)*. Doctoral sandwich in the *Escola Superior de Enfermagem do Porto, Portugal*. Capes Scholarship. Florianópolis, Santa Catarina, Brazil. E-mail: elaine.cnforte@gmail.com

² Ph.D. in Social Sciences. Professor, UFSC. Florianópolis, Santa Catarina, Brazil. E-mail: piresdp@yahoo.com

³ Ph.D. in Literature of Portuguese Expression. Professor, *Universidade Fernando Pessoa*. Porto, Portugal. E-mail: st@ufp.edu.pt

⁴ Ph.D. in Nursing Sciences. Professor, *Escola Superior de Enfermagem do Porto*. Porto, Portugal. E-mail: mmartins@esenf.pt

ABSTRACT

Objective: to describe a possible association of hermeneutic analysis based on Jürgen Habermas and Paul Ricoeur with the main functionalities of Atlas.ti software.

Method: theoretical-methodological reflection that aims to describe a possible association of hermeneutic analysis based on Jürgen Habermas and Paul Ricoeur with the main functionalities of *Atlas.ti software*.

Results: the *software* is an important tool which facilitates the storage and analysis of data, contributing to the challenge of providing quality and credibility in qualitative studies. The use of the software proved to be suitable for the use in approaches such as hermeneutics, it also saves time and facilitates the organization and analysis of data.

Conclusion: Atlas.ti has significant potential when used with comprehensive approaches, such as hermeneutics, and requires the same attention as for other qualitative approaches.

DESCRIPTORS: Qualitative research. Hermeneutics. Software. Data analysis.

A HERMENÊUTICA E O SOFTWARE ATLAS.TI: UNIÃO PROMISSORA

RESUMO

Objetivo: descrever uma possibilidade de associação da análise hermenêutica, com base em Jürgen Habermas e Paul Ricoeur, com as principais funcionalidades do *software Atlas.ti*.

Método: reflexão teórico-metodológica que tem como objetivo descrever uma possibilidade de associação da análise hermenêutica, com base em Jürgen Habermas e Paul Ricoeur, com as principais funcionalidades do *software Atlas.ti*.

Resultados: o *software* se constitui numa importante ferramenta que facilita o armazenamento e análise dos dados, contribuindo com o desafio de prover qualidade e credibilidade em estudos qualitativos. o uso do *software* mostrou-se adequado para utilização em abordagens como a hermenêutica, economizando tempo e facilitando a organização e análise dos dados.

Conclusão: o *Atlas.ti* tem um potencial significativo quando da sua utilização com abordagens compreensivas, como a hermenêutica, e os cuidados a serem considerados são os mesmos referentes a outras abordagens qualitativas.

DESCRIPTORES: Pesquisa qualitativa. Hermenêutica. Software. Análise de dados.

LA HERMENÉUTICA Y EL SOFTWARE *ATLAS.TI*: UNA UNIÓN PROMISORA

RESUMEN

Objetivo: describir la posibilidad de asociación del análisis hermenéutico, con base en Jürgen Habermas y Paul Ricoeur, con las principales funcionalidades del software *Atlas.ti*.

Método: reflexión teórico-metodológica que tiene como objetivo describir una posibilidad de asociación del análisis hermenéutico, con base en Jürgen Habermas y Paul Ricoeur, con las principales funcionalidades del software *Atlas.ti*.

Resultados: el software se constituye en una importante herramienta para garantizar la calidad y la credibilidad de estudios cualitativos, y se hace adecuado para su uso en enfoques como la hermenéutica, pues hay ahorro de tiempo en la organización de los datos.

Conclusión: el *Atlas.ti* tiene un potencial significativo cuando su utilización con enfoques comprensivos, como la hermenéutica, y los cuidados a considerar son los mismos referentes a otros enfoques cualitativos.

DESCRIPTORES: Investigación cualitativa. Hermenéutica. Software. Análisis de datos.

INTRODUCTION

Studies with qualitative approaches are complex and usually go through a multidisciplinary field, involving methodologies of the human and social sciences articulated to theories, concepts and knowledge of several areas of knowledge. These researches often use eclectic methods and forms of analysis, enabling the unveiling of historical and social processes and the construction of new approaches and concepts.¹ In the area of health, qualitative research is oriented towards a better understanding of the meanings and of representations concerning the health and/or illness of people, individually or in groups. Qualitative research will further aid the analysis of subjectivity, meanings, and intersubjectivity in the relationships that determine social reality.²

Among the different branches of thought used in the qualitative methodology, the comprehensive approaches, in particular, have influenced the research of this nature, contributing to the more sustained interpretation of social phenomena. Special emphasis will be placed on dialectical hermeneutics, keeping this reflection in mind. The association of hermeneutics with dialectics critically illuminates the understanding of these phenomena. This interaction, favored by language and the recognition of the need to consider the historical and social context studied, emphasizes meanings and contrasts, the units of meaning and resignification.¹

Therefore, taking a qualitative approach requires the researcher to dedicate and objectively define the phenomenon and to adopt procedures with a view to guaranteeing the continuously required scientific rigor. As mentioned, the process of qualitative research may require the articulation of different branches of thought, which contribute to its problematization and understanding,

calling upon historical period, culture, language and power issues in society, where the object of investigation occurs.

In order to facilitate the process of analyzing a large amount of data, managing the time limits, and ensuring the rigor and scientificity of qualitative research, computer technologies have been increasingly used (CAQDAS - Computer Assisted Qualitative Data Analysis Software), with different types of software for the purpose of data analysis. However, there are those who criticize this type of technological resource, for fear that the researcher will produce too many mechanical data cuts that distract him from the general context and the meanings it produces.³⁻⁴

The *Atlas.ti* (*Qualitative Research and Solutions*) software is an example of CAQDAS, which has been used in several research areas for qualitative data analysis. This technological resource allows for different types of analysis and articulates different theoretical-methodological approaches.⁵ One feasible possibility is to articulate hermeneutic and dialectical hermeneutics with the *Atlas.ti* software resources, as the hermeneutic analysis, similar to other methodological approaches, aims to search by meaning, by sense, by creating and recreating units of analysis at different moments of research.

Authors⁶⁻⁹ have referred to the use of hermeneutics and the resources of *Atlas.ti* in their research, however, no studies discussing how this articulation can be performed have been found. The detailing of information of this nature contributes so that new researchers can use this research strategy. Thus, the present study consists of a theoretical-methodological reflection that aims to describe a possible association of dialectical hermeneutic analysis, based on Jürgen Habermas and Paul Ricoeur, with the main functionalities of *Atlas Ti* software.^{5,10} This study intends to highlight the potentialities and

some indispensable attention in this process and, finally, to present how this articulation was possible in a qualitative documentary research, developed in two countries, Brazil and Portugal.

HERMENEUTIC AS A QUALITATIVE ANALYSIS METHOD

The technique of interpretation, known as hermeneutics, is an important branch of philosophical thought in the human and social sciences, but it also creates a methodological possibility that enhances variability and the epistemological attitude in health research in general and in nursing, in particular. The process of understanding in the hermeneutic viewpoint is present in all life experiences, in which language formulates aspects of human and social reality.¹¹

The Greek origin of the word hermeneutic comes from the verb 'interpret' (*hermeneuō*) and the noun 'interpretation' (*hermeneia*). For Aristotle, the *hermeneia* would be the speech possessing meanings that interprets facts.

In this understanding there is no room for assumptions, the perception of the real is obtained through significant expressions. Prior to Husserl, hermeneutics was only known as a discipline intended to interpret sacred texts.¹² From Schleiermacher and Dilthey, the hermeneutic question is understood as a philosophical problem. With Heidegger, hermeneutics assumes an ontology of existential comprehension and, Gadamer, associates understanding with the aesthetics and history of human beings, enabling its use as a method and serving as a foundation for disciplines that focus on the understanding of language and human behavior.¹²

Based on the formulations of Heidegger and Gadamer, Paul Ricoeur articulates the ontology of understanding with the critical method, in a dialectical validity between explaining and understanding, and this balance comprises all the meaning considered in the text. Thus, the interpretation presents the structure of signification with a direct / primary / literal sense, and yet it enables another indirect / secondary / figurative sense, which is understood through the first.

Thus, language can be expressed in different ways allowing different interpretations, due to the external influences to which it is subject to and the context that must be considered. Therefore, all text is action, in the sense that discourses take a place in the life of the reader and begin to guide their actions.¹²⁻¹³

Therefore, Jürgen Habermas proposes the articulation of hermeneutics with the dialectic, in order to synthesize the processes of interpretation and criticality, through an ontology of understanding and the art of dialoguing and generating controversies, characteristic of the dialectic.¹ Dialectics opposes the hermeneutics in seeking the contradictory meanings of language, in order to provide critical information about a phenomenon. However, in promoting this articulation, Habermas maintains that the same reason, understood and clarified by means of hermeneutics, can be challenged and criticized by the dialectic, especially since language is an instrument of domination, which at the same time shows and hides, assuming itself, for this very reason, as an object of reflection.

This articulation proposed by Habermas is not proper specific technique of qualitative data analysis, but rather of theoretical foundations capable of stripping down language in a different way. Therefore, there is an interactive movement in the complementarities and contradictions between the two approaches, as described by Minayo: "a) both bring the fruitful idea of the historical conditionings of language, relationships and practices into their nucleus; b) both assume that there is no impartial observer; c) both question the technicality in favor of the intersubjective process of understanding and criticism; d) both go beyond the task of being a simple tool for thought, and e) both refer to the praxis structured by tradition, language, power and work".^{1:168}

Therefore, hermeneutics highlights the search for the units of meaning present in language and dialectics follows the path of contrasts and criticism. This presupposes that hermeneutics is not in itself a method, but it opens spaces for methods to be idealized.

Thus, in adopting this articulation of hermeneutics with dialectics to reflect data in a qualitative way, Habermas's approach, which perceives language as action in motion, and Ricoeur's formulations, which interpret language through symbols, are constituted in a different way for certain phenomena of the social sphere, with which the researcher makes objective the reflection and the understanding provided by language.

ORGANIZATION AND CODIFICATION IN QUALITATIVE SOFTWARE: ATLAS.TI

Commercialized since 1993, the *Atlas.ti* software, whose name is inspired by Greek mythology,

the god Atlas, to whom Zeus¹⁵⁻¹⁶ delegated arduous tasks, has the primordial function of containing all the information related to the research. Atlas also refers to the set of geographical maps or to the volume of explanatory illustrations of an area of knowledge. Created by Thomas Muhr at the Technical University of Berlin, its initial purpose was the arduous, time-consuming handling of large amounts of data from research on the impacts of the Chernobyl nuclear accident in 1986.³

Since the release of the first commercial version, the software has been constantly improved. In 2013 and 2015, in order to exchange experiences among researchers from different areas of knowledge the first and second International User Conferences of the tool were held in Berlin. The software has proved to be an undoubtedly valuable tool in qualitative data analysis, giving the researcher greater readiness to play his critical role as a critical and reflective analyst.^{3,5} The main tools of Atlas.ti and the function of each of them are as follows:^{5,10}

- Hermeneutic Unit (HU): hermeneutic unit that stores all the data of a search. Each research should be saved with a specific name and all the research data should be contained in it as well as how they were treated by the researcher.

- Primary Documents (PD): are the data files of the research to be analyzed, which can be in different formats: PDF (Portable Document Format), DOC (Word Document), JPEG (Joint Photographics Experts Group) as well as audio and geoprocessing documents (Google Earth). Each document is identified by the software with the letter P and a subsequent cardinal number.

- Quotations: are the significant sections selected in the documents based on the objectives stipulated by the researcher and according to the theoretical-methodological framework adopted.

- Codes: refers to the encodings performed on the selected segments. Generally, they are compact expressions, and can be a set of words, which denote the meaning / information of the selected quotation.

- Memos: are reminders that may be associated with some theoretical referential or some connection of the researcher's thinking.

- Families: is the tool that allows the organization of analysis categories and also allows the association of documents and memos. It is the phase in which the researcher, independent from the adopted theoretical framework, organizes the data and its interpretations, with meaning, in relation to the *corpus* of the research.

- Networks: are graphical schemes in the format of networks that allow the visualization of the research results. Documents, encodings, analyzed segments, memos, can be inserted in them and they allow visualization of joints between different elements.

- Outputs: are reports generated by the software from the researcher's needs. These can aggregate the different tools and the association between them, for example, the encodings and their respective fractions of text selected during the analysis.

One of the major concerns in this age of information technology is the preservation of research data, given that the durability of equipment such as computers is finite. In view of this, Atlas.ti provides the safeguard of the hermeneutical unit with the bundle mechanism, which is nothing more than a copy of the complete search with all the necessary data, which can be worked on other computers with the same software, allowing to share broader research, as is the case of multicentric surveys.

The main highlight of this tool is the feasible and uncomplicated way of manipulating the software, i.e., the researcher sees the possibility of analyzing the qualitative data in less time and with greater reliability.

THE HERMENEUTIC AND THE ATLAS.TI SOFTWARE: A PROMISING UNION

The stages of hermeneutic analysis described by Ricoeur in Theory of Interpretation consist of three main moments: "from the first time, the understanding will be a naive grasp of the meaning of the text as a whole. Secondly, it will be a sophisticated mode of understanding supported by explanatory procedures. In the beginning, understanding is a conjecture. In the end, it satisfies the concept of appropriation [...] as the response to a kind of distance associated with the full objectification of the text. Explanation will thus arise as the mediation between two stages of understanding. If you isolate yourself from this concrete process, it is only a mere abstraction, an artifact of methodology."^{17: 86}

In hermeneutics, the first step consists in the initial reading of the text.¹⁷ This reading should be thorough and exhaustive, beginning with the sentences, then the paragraphs, and finally the text as a whole, with careful observation of the details. In the proposed articulation with Atlas.ti software, the units of analysis are the text fragments that will be interpreted, i.e., the quotations. Each quotation,

unit of analysis, is given a significant code for the selected idea.

These units of analysis can be fragments of observation notes, documents, images, and audio records. All material must be inserted in a hermeneutic unit (HU) and saved with the name of the research. The second step described by Ricoeur is a meaning search that manifests itself through the understanding of the first units of analysis and the codes assigned to them. At this point, the primary codes can be reinterpreted and altered with other parts of the text, in order to give meaning to these units of analysis.¹³ In seeking these new meanings, other units of analysis can be formulated, according to the theoretical framework adopted in the research and the objectives proposed by the researcher.

The peak of understanding is attained in the last phase of the hermeneutic process known as the appropriation. This is configured in the multiplicity of meanings and symbols present in language, it is the unveiled message, it is to show and to hide, for there will always be a direct sense of the text that hides another secondary meaning, which will be understood through the first.

At this point, the large final analytical units that can be compiled in the families of the software. These families will be constructed and considered in the whole without order of priority and without taking into account the quantifications of the data. Thus, the analytical units, quotations, with the codes in families, are connected, and networks of meanings can be elaborated in order to more objectively visualize the results of the analysis. Generating reports from formulated analysis units (outputs) is a tool for exporting the research results and preparing reports, manuscripts and presentations of these results.

In this context, the Atlas.ti software is an extremely important tool for research of a qualitative nature, independent of the theoretical and methodological framework adopted. The software especially contributes to saving time during the analysis and for the ease of resuming the analysis units as well as returning to coding as many times as is necessary in order to understand the phenomenon under study, as well as the possibility of demonstrating the large families of meanings through illustrations that facilitate and streamline the reading process.

Despite the software's ease of use in relation to hermeneutic analysis, it is necessary to consider the aspects of methodological care typical of com-

prehensive approaches, as technologies of this nature do not constitute an immediate solution or even an autonomous research tool. We must always submit the tool to the position assumed in the qualitative research.

Therefore, the safeguards regarding the use of software are mainly related to self-coding tools, which do not lend themselves to the hermeneutical approach, because therein lies the risk of the researcher reducing the analysis to a technicalism that is favored by the fragmentation of the data.

Hermeneutics requires the understanding of subjectivity and intersubjectivity, through intentional relationships in an act of consciousness, which in no way can be replaced by technology. Qualitative research continues to evolve in many respects due to the dynamism with which the qualitative researcher is constantly confronted with, therefore, it is necessary to adapt to the new philosophical questions that arise during this process.¹⁸

In summary, Atlas.ti only assists in the analysis process which the researcher establishes for the analytical process and, in this perspective, dialectical hermeneutics demands that the researcher exercises an intense and creative reflection that no technological tool, however useful and trustworthy as it may be, will replace.

APPLICATION OF THE HERMENETIC APPROACH WITH THE ATLAS.TI SOFTWARE IN THE LIGHT OF AN EXAMPLE

The example shown in this section refers to the doctoral thesis "Exposing the wound: the errors of nursing in the Brazilian and Portuguese media". Its purpose is to analyze how the media treats nursing errors. This thesis is based on a qualitative research, with data collection, mainly documentary, in high circulating newspapers from two countries, Brazil and Portugal.

In order to unravel the meanings of the texts produced by the journalistic media, the methodological reference of the dialectical hermeneutics described by Jürgen Habermas was adopted, with the steps of analysis proposed by Paul Ricoeur, due to the complementarity of the two thinkers and their production in relation to this branch of interpretation. The data were collected using report clippings regarding nursing errors and spanned between 2012 and 2016. These reports were saved in their entirety as they were found, without any changes, *ipsis litteris*.

The hermeneutical unit (HU), a term used by

the software, which is perfectly in accordance with the method of analysis adopted, was composed of 112 primary documents, all in PDF format. Although the analyzed documents are considered in the public domain, before entering them in the HU, they received an alphanumeric code stipulated by the researcher, which makes it possible to identify the country, the region of the country and the serial

number of the data collection of each report.

The study generated 454 quotations, 76 primary codes, 46 secondary codes, which were later associated with 14 memos that referred to the large groups of hidden meanings in the texts, and in the end, the research findings were compiled in six families. The analysis process is shown in the 1 and 2 figures.

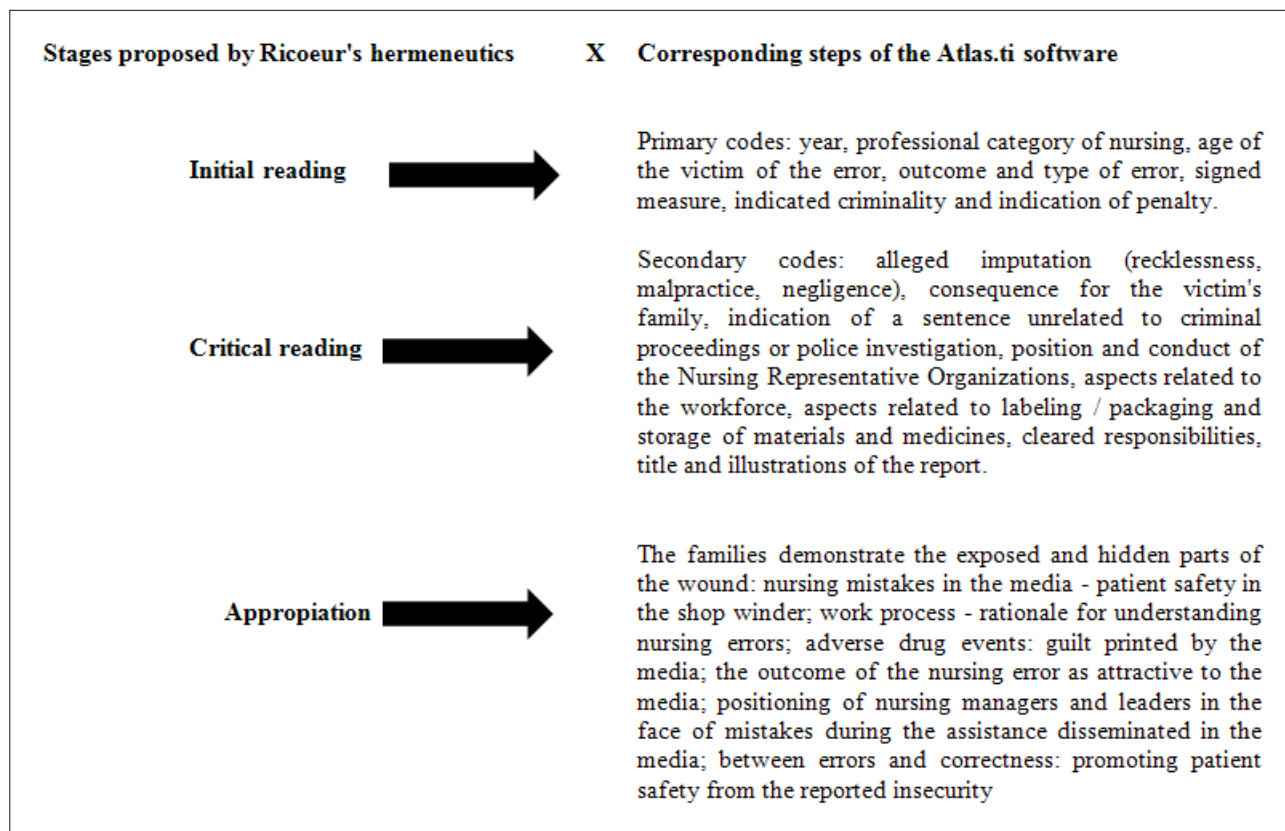


Figure 1 - Stages of research based on hermeneutic associated with Atlas.ti resources

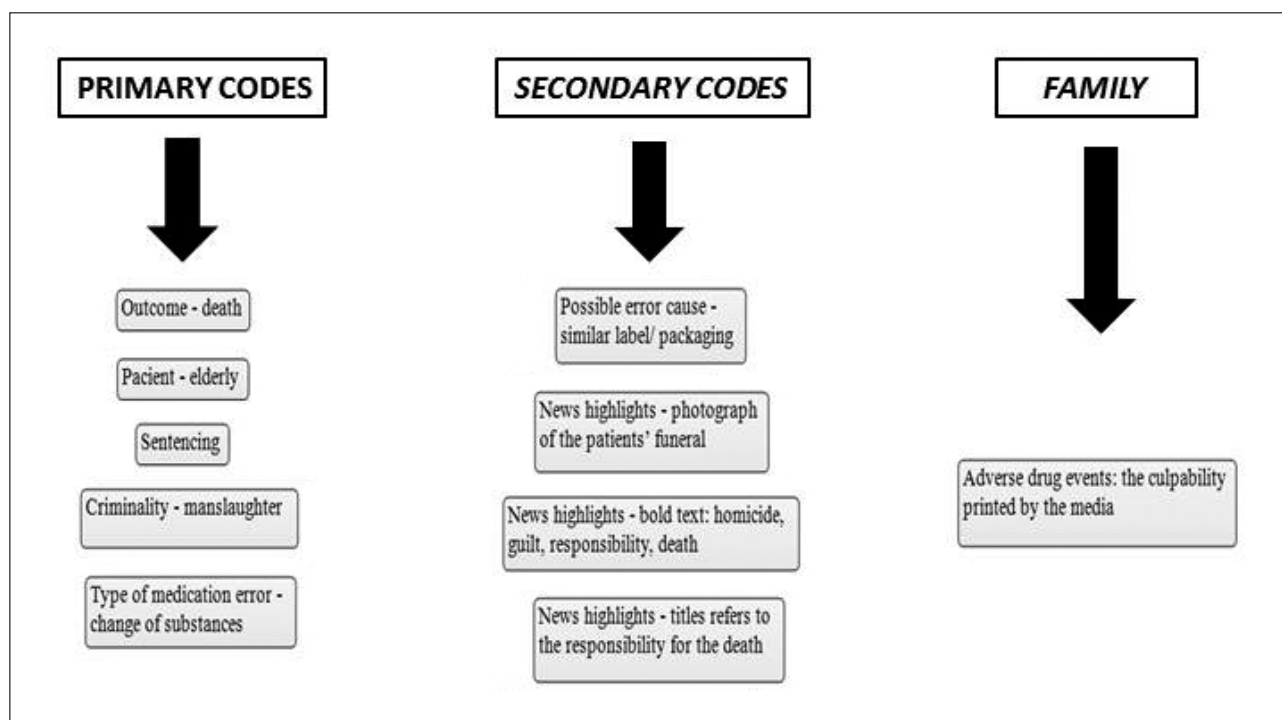


Figure 2 - Example of coding units of analysis and creation of the large interpretation family

From primary codes made at the first reading, a second coding was performed giving special attention to the information of the text, the form of writing and the highlights used. Each family of meaning is formulated in view of the codifications previously performed with the purpose of composing the analysis in a reflexive manner, understanding the symbols that emerge and are submerged in the reported text.

CONCLUSION

The study showed that the association of the Atlas.ti software with data analysis in the perspective of hermeneutic represents a productive possibility. This technology proved to be suitable for use in research of this approach, without disturbing the directives of hermeneutical thought and dialectics. Besides saving time in the management and organization of the research data the resources of Atlas.ti, help to facilitate the analysis process and to maintain the scientific and methodological rigor.

The care that must be taken into account in this process is not different from that of other qualitative approaches, as the data do not speak for themselves and the meanings that emerge from them are part of the researcher's perspective. This article was not intended to show the Atlas.ti software in terms of its instructional functionalities, with all its

possible tools, because there are specific manuals available on the web and in the software itself for this purpose.

REFERENCES

1. Minayo MCS. O desafio do conhecimento. 14^a ed. São Paulo (SP): Hucitec; 2014.
2. Minayo MCS. Fundamentos, percalços e expansão das abordagens qualitativas. In: Souza DN, Costa AP, Souza FN. Investigação qualitativa: inovação, dilemas e desafios. Oliveira de Azeméis (PT): Ludomedia; 2016.
3. Flick U. Introdução à pesquisa qualitativa. Porto Alegre (RS): Artmed; 2009.
4. Polit DF, Beck CT. Fundamentos de pesquisa em enfermagem. Avaliação de evidências para a prática da enfermagem. 7^a ed. Porto Alegre (RS): Artmed; 2016.
5. Friese S. Qualitative data analysis with ATLAS.ti. 2nd ed. London (UK): Sage; 2014.
6. Martorell-Poveda MA, Martínez-Hernández A, Carceller-Maicas N, Correa-Urquiza M. Self-care strategies for emotional distress among young adults in Catalonia: a qualitative study. Int J Ment Health Syst [Internet]. 2015 Mar [cited 2017 Feb 2]; 9(9). Available from <https://doi.org/10.1186/s13033-015-0001-2>
7. Manzi A, Magge H, Hedt-Gauthier BL, Michaelis AP, Cyamatore FR, Nyirazinyoye L, et al. Clinical mentorship to improve pediatric quality of care at the health centers in rural Rwanda: a qualitative study of perceptions and acceptability of health care workers. BMC Health Serv Res [Internet].

- 2014 [cited 2017 Jan 7]; 14:275. Available from: <https://10.1186/1472-6963-14-275>
8. Correa MV, Hernández MB. Care and self-care among families with a person suffering from bipolar disorder and belonging to the psychoeducational group of the psychiatry department of the University of Antioquia, Colombia. *Rev Colomb Psiquiatr* [Internet]. 2013 Mar [cited 2016 Dec 2];42(1):81-96. Available from: [https://10.1016/S0034-7450\(14\)60089-5](https://10.1016/S0034-7450(14)60089-5)
 9. Vocht H, Hordern A, Notter J, Wiel HV. Stepped skills: a team approach towards communication about sexuality and intimacy in cancer and palliative care. *Australas Med J* [Internet]. 2011 [cited 2017 Nov 22]; 4(11):610-9. Available from: <https://10.4066/AMJ.20111047>
 10. Atlas.ti. Atlas.ti scientific software development GmbH. Qualitative data analysis. Version 7.5.10. Berlin; 2015.
 11. Minayo MCS. Hermenêutica-dialética como o caminho do pensamento social. In: Minayo MCS, Deslandes SF. *Caminhos do pensamento: epistemologia e método*. 3ª reimp. Rio de Janeiro (RJ): FIOCRUZ; 2013. p. 83-107.
 12. Ricoeur P. O conflito das interpretações: ensaios de hermenêutica. Rio de Janeiro (RJ): Imago; 1978.
 13. Ricoeur P. *Interpretação e ideologias*. 4 ed. Rio de Janeiro (RJ): Francisco Alves; 1990.
 14. Habermas J. *Dialética e hermenêutica*. Porto Alegre (RS): LPM; 1987.
 15. Rand A. *A revolta de Atlas*. Rio de Janeiro (RJ): Arqueiro, v. 1; 2010.
 16. Legewie H. ATLAS.ti - How it all began. A grandfather's perspective. In: ATLAS.ti user conference 2013: fostering dialog on qualitative methods [Internet] 2013 [cited 2016 May 10]. Available from: https://depositonce.tu-berlin.de/bitstream/11303/5125/1/02_legewie_4414.pdf
 17. Ricoeur P. *Teoria da interpretação: o discurso e o excesso de significação*. Lisboa (PT): Edições 70; 2016.
 18. Andrews T. Ontological issues in qualitative research in nursing. *Texto Contexto Enferm* [Internet]. 2016 Oct [cited 2017 Mar 5]; 25(3): Available from: <https://10.1590/0104-0707201600453editorial>