ANÁLISE DE CONTEÚDO TEMÁTICA: HÁ UMA DIFERENÇA NA UTILIZAÇÃO E NAS VANTAGENS OFERECIDAS PELOS SOFTWARES MAXQDA® E NVIVO®?

THEMATIC CONTENT ANALYSIS: IS THERE A DIFFERENCE BETWEEN THE SUPPORT PROVIDED BY THE MAXQDA® AND NVIVO® SOFTWARE PACKAGES?

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ABSTRACT

Content analysis is widely used in qualitative research. It can be organized into three approaches: lexical analysis (nature and richness of the vocabulary), syntactic (verb tenses and modes) and thematic (themes and frequency), used complementarily or separately, depending on the research objective. Whatever the approach, the volume of data is usually large and qualitative data analysis software could help simplify the operational activities. The aim of this study is to analyze the contribution of the NVivo® and MAXQDA® software packages in thematic content analysis. Achieving this objective involves a review of the main characteristics of thematic content analysis and an examination of both software packages, and finally, a comparison between them. The main results are: the similarity between the features available for qualitative data analysis in the two software packages and the differences in their interfaces. The potential gain provided by using these packages depends on the researcher's knowledge of content analysis since they do not substitute the researcher in the coding process. A considerable reduction in execution time of the analysis, as well as the possibility of applying different filters are important benefits obtained aiding the researcher to reflect on the data collected and obtain inferences.

Keywords: content analysis, MAXQDA®, NVIVO®, benefits, comparative analysis.

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RESUMO

A análise de conteúdo é amplamente utilizada na pesquisa qualitativa e apresenta três abordagens: análise léxica (natureza e riqueza do vocabulário), análise sintática (tempos verbais e modos) e análise temática (palavras e frequência). Estas podem ser utilizadas de forma complementar ou separadamente, conforme o objetivo da pesquisa. Em todas as abordagens, o volume de dados é geralmente grande e um software de análise de dados pode ajudar na simplificação das atividades operacionais. O objetivo deste estudo é analisar a contribuição dos softwares NVivo® e MAXQDA ® na análise de conteúdo temática. Assim, foi realizada uma revisão das principais características da análise de conteúdo temática e das características dos softwares NVivo® e MAXQDA®, procedendo-se, então, à comparação entre eles. Observou-se a semelhança em termos de recursos disponíveis para a análise de dados qualitativos nos dois softwares e a diferença na interface com o usuário. Ressalta-se que o conhecimento do pesquisador sobre análise do conteúdo é fundamental, uma vez que os softwares não codificam os dados. A redução considerável no tempo de execução da análise, bem como a possibilidade de aplicar diferentes filtros, são benefícios importantes obtidos auxiliando o investigador a refletir sobre os dados coletados.

Palavras-chave: análise de conteúdo, MAXQDA®, NVivo®, vantagens, análise comparativa.

1 INTRODUÇÃO

The use of qualitative research has grown in different areas of management field. In operations management, for example, it has been used to supplement analyzes obtained from surveys, deepening the understanding of the context (SOLTANI et al, 2011). The work developed by Barnham (2010) demonstrates that qualitative research is also effective in the marketing area, which is important to explore relational and socially constructed phenomena, making the results useful in a commercial context. In summary, the understanding of human behavior is facilitated through "methodological triangulation", a term used in the social sciences to describe the combined use of more than two research methods to reach more reliable results (GORDON, 2011). According to Kneipp et al. (2013) 36% of the articles with qualitative research, published in *Revista de Administração da Universidade Federal de Santa Maria*, used the content analysis.

Although qualitative research generates valuable insights about the analyzed object, in both cases – in an exploratory phase, in which the researcher aims to understand the context and, in a confirmatory phase, in which the researcher seeks to further conclusions on quantitative analyzes, it remains the discussion about the need to incorporate some scientific elements that minimize the subjectivity embedded in the qualitative research results (BULGĂREA, 2011). According to Hair et al (2012), qualitative research tends to focus on collecting detailed primary data of relatively small samples of individuals, through interviews or behavior observation. For example, Morais Neto et al. (2012) and Minello and Birrer (2012) used content analysis according to the recommendations of Bardin (1977; 2011). Nevertheless, these authors do not mention actions that minimize subjectivity of content analysis.

Aiming to minimizer subjectivity in qualitative analysis, researchers have benefited from the provision of different software that operationalizes the analysis of the data collected. This shift has significant implications in practice of researchers and lectures (SICAMMA; PENNA, 2008). A recent research conducted by Houghton et al (2013) describes the use of software in qualitative data analysis as a strategy used to ensure methodological rigor, ie, credibility, dependability, confirmability and transferability of qualitative research.

One of the most widely used technique for analyzing qualitative data is the content analysis which can be organized into three approaches: lexical analysis (nature and richness of the vocabulary), syntactic (verb tenses and modes) and thematic (themes and frequency). These approaches

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may be used together or separately, depending on the research objective. Whatever the approach or approaches chosen, the volume of work is usually large, depending on the amount of data involved as well as the maturity of the recursive process, that is, whether it is at the open, axial or selective coding stage. This paper addresses the analysis of thematic content and the use of software as a means to facilitate the process of defining and analyzing the categories (themes).

During open coding, the concepts and their properties are identified, as at this stage the goal is to generate codes. Axial coding is employed to develop the categories systematically and organize them according to the relationship between the codes. Finally, selective coding is used to integrate and refine the categories.

The encoding process demands time and attention on the part of the researcher, and can lead to errors in the application of codes to the text under analysis. One way to avoid such errors is to have the same researcher, or other researchers, repeat the encoding process. In addition, the use of this type of software for data analysis can help avoid coding errors. Pelle (2004) describes some features of word processors that can aid in content analysis, although they were not designed for the purpose. Lewis (2004) examines the major features of NVivo® and Atlas.ti®, two qualitative data analysis software packages.

The use of qualitative data analysis software to aid thematic content analysis: a) speeds up the process; b) enhances the rigor; c) provides more flexible data analysis from different perspectives; d) facilitates the exchange and reproduction of data; and e) allows the researcher to reflect in greater depth by reducing the operational activities (BARDIN, 2011). It should be noted that the software does not replace the researcher in the tasks of creating the codes, deciding the association of a given code to a specific piece of data, and in deciding which codes should be grouped in a certain category.

According to Gibbs (2009), encoding and accessing are the main functions of most qualitative data analysis software, although some also offer a text and code search function, which can be very useful in data analysis. For example, MAXQDA® and NVivo® can be used for coding, accessing text, displaying the completed codes, writing memos and presenting the results in the form of tables and graphs.

The aim of this study is to comparatively analyze the contribution provided by the MAXQDA® and NVivo® packages in thematic content analysis. This research is exploratory, comparatively analyzing the literature review of thematic content analysis, Maxqda®, Nvivo®.

In terms of structure, the remainder of this paper is organized as follows: section 2 contains a review of the literature on thematic content analysis; in sections 3 and 4, the features of the MAXQDA® and NVivo® software packages are described; in section 5 the similarities and differences of the two software packages are discussed; and in section 6, the conclusion is presented together with some ideas for further research.

2 THEMATIC CONTENT ANALYSIS

Content analysis is defined as a set of analytical techniques (syntactic, lexical and thematic), in which systematic and objective procedures are employed to describe the content of messages, using qualitative or quantitative indicators that allow knowledge to be inferred (BARDIN, 2011). Thematic content analysis, as its name states, involves describing content based on themes.

Thematic content analysis consists of three stages: 1) pre-analysis, 2) exploration, and 3) treatment and interpretation (BARDIN, 2011). Pre-analysis involves: defining the objectives of the content analysis, selecting the material according to its relevance in relation to the goal, reading the material to be analyzed, and organizing the material for analysis. The material to be analyzed can be in written or oral form, a monologue or dialogue. At this stage, it is necessary to

know the file formats that can be used with the qualitative data analysis software. For example, files can be formatted in txt, doc, rtf and pdf, among others.

The exploration stage involves defining the unit of analysis, i.e. the smallest part of the content in which an element can be identified, that is, the portion of text to which the code is associated. The unit of analysis can be a word, paragraph or theme. Besides the unit of analysis, the codes must also be defined. The codes may arise from reading the text, which are called *in-vivo* codes, but may also be defined based on the literature, known as constructed code, or a combination of these two types. "Coding is a way of indexing or categorizing the text in order to establish a structure of thematic ideas in relation to it" (GIBBS, 2009 p.60). Codes can be:

a. descriptive – which describe what is in the text, are close to what is said in the text, for example, the code could be "dancing" when the respondent mentions this activity in the text of an interview;
b. analytical – which require reflection on what is expressed in the text, for example, when the respondent mentions in the text that after the accident that he cannot dance with his wife, the code could be "interrupted joint activity" (GIBBS, 2009).

The choice of the type of code to be used depends on the research objectives. The codes should be: comprehensive - permit all the material to be classified; homogeneous - attend a principle; exclusionary - belong to only one code; relevant - be related to the topic under study; productive - allow inferences; and objective - ensure the same result can be obtained by different people (BARDIN, 2011). The codebook should include: all the codes with their definitions, organized hierarchically, if there is more than one level; the rules for their application in the text; and any notes the investigator deems appropriate (GIBBS, 2009).

Thematic content analysis may use quantitative and qualitative procedures. This choice will influence the definition of the coding rules, which may be: the presence or absence, frequency, intensity (use of adjectives, adverbs, etc.), direction (positive, negative neutral); order, or co-occurrence. In quantitative terms, the coding aims to identify the frequency of the topics in the content to be analyzed. While in the qualitative perspective, the focus is on identifying the presence or absence of a particular topic in the content to be analyzed, so as, then, be able to better understand how this is presented in the text and its peculiarities, giving the analysis greater depth.

Coding involves three stages: open, axial and selective coding. "Open coding is intended to express data and phenomena in the form of concepts" (FLICK, 2004 p. 188). In open coding, reading and reflection on the text facilitate the definition of the codes (GIBBS, 2009). As a result of this phase there may be a large number of codes, which then must be clustered around phenomena that are relevant to the research question. The main result of open coding is the production of a list of codes, grouped into categories, and the definitions and observations generated at the time of creating the codes and categories (FLICK, 2004).

The focus of axial coding is to identify relationships between the codes and categories defined during the open coding, adjusting the categories resulting from the open coding (GIBBS, 2009). During axial coding, the researcher must be alternately inductive, developing the categories from the text, and deductive testing categories in different texts (FLICK, 2004).

During selective coding, the core category is identified and its relationships defined with the other categories are defined (GIBBS, 2009). This stage is a continuance of axial coding, but with a higher level of abstraction (FLICK, 2004). The objective of selective coding is to integrate all the categories (Strauss & Corbin 2008).

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At this stage of thematic content analysis (exploration), in relation to the qualitative data analysis software, it is important to check how the codes are placed in software, the memos associated with the codes (definition of the codes, examples, reminders), and the relationship between the codes and the categories. Another important concern is how changes are made in the codes and their relationships in the qualitative data analysis software during the coding process, given that coding is a dynamic process during which new codes and categories may arise.

In the last step, known as treatment and interpretation, the content is coded, considering the rules defined in the exploration stage, and inferences can be drawn from it. The main problem at this stage of content analysis is the bias of the researcher. In order to mitigate this problem the reliability of the coding is checked. This can be done in three ways: stability - the process is repeated by the same person; reproducibility - the process is repeated for another person; accuracy - the result is compared to a standard (if one exists) (KRIPPENDORFF, 1980; WEBER, 1990). Testing stability is the weakest form of checking reliability, while the accuracy is considered the strongest (KRIPPENDORFF, 1980). Reproducibility, also referred to as intercoder reliability by Kurasaki (2010), is a measure of agreement between two or more researchers of how the codes were applied to the text. For example, Lee and Kim (2001) used three persons to codify the same text. Eisenbeiß and Brodbeck (2014) use the MAXQDA° as a support to content analysis, and an expert repeated the codification.

In the data treatment and interpretation stage it is important to check the way in which the qualitative data analysis software displays the text associated with each of the codes and categories, as well as the tables and figures generated by the software that summarize the coding. Moreover, when testing the reliability of the coding it is useful to be able to compare the coding carried out by other researchers or by the same investigator at different times.

3 MAXQDA° SOFTWARE

The MAXQDA° is a software package for analyzing qualitative data that can be used for content analysis. Its interface offers an experience very similar to that provided by WINDOWS° based software. Its basic structure consists of four windows: one that provides the data from each project, the texts and groups of texts (document system); one that provides the structure of the codes and categories (system code); one for editing and consulting texts (document browser), and another for conducting searches and checks regarding coded material (retrieved segments).

The creation of codes and categories in MAXQDA° is controlled by the user, who can create codes before, during or after the material is analyzed. The codes are presented in a hierarchical, tree-like, structure that allows several levels of codes to be indexed. The whole system of codes can be deleted, edited, and reclassified, without the loss of any content previously examined by the user.

In MAXQDA°, the colors of the codes and categories can be customized. This means that when a color is assigned to a certain category, its codes do not automatically inherit that color, but can be user-defined. The color system is a tool that facilitates visual identification of the coded parts. Reminders, which may vary in form from descriptions of the meaning of the code to specific notes, can also be associated to the codes. Moreover, reminders free can be created within a project, and associate a set of codes chosen by the user.

Another possibility is to associate variables to the texts. With this function, texts representing different respondents can be separated according to, for example, gender, profession, nationality, etc. Together with the categorization by variables MAXQDA®, has mixed functions

that allow these variables to be combined with qualitative data such as: quote matrix, which creates a file that separates segments associated with a code determined by selected variables, allowing codes to be associated with the different classes; crosstabs, in which the coded segments associated with variables are created and evaluated, based on the variables; and typology tables, which show an overall composition of the variables associated with the typologies generated by the qualitative data.

MAXQDA® can use different units of meaning in the coding process. The user can assign a code to a unit of meaning that may range from a letter or syllable to entire documents. It should be noted that the program can code not only texts, but also image files. Furthermore, it is possible to associate the same passage of text to more than one code. These two features together allow the user to superimpose codes without them necessarily being totally equal.

Codes can be associated with the selected text in several ways: some part of the text is indexed to an existing code; a new code is created and associated with a part of the text, a theme is sought in a text and the parts pertaining to that theme are automatically coded.

As with the codebook, the coded excerpts may be modified in relation to their content or assigned code. The user can edit and delete the coded excerpts by modifying the code to which the passage was indexed, editing the content of the coding or deleting the coded excerpt. In addition, weights can be assigned to the coded passages.

During or after the work of coding, the user can check the correspondence between a set of codes and texts (segments of texts that have been marked with certain codes) using the window "retrieved segments." The content of this window can be viewed directly, or presented in spreadsheets in the EXCEL® or HTML® formats.

There are many ways to present the content of the coded segments. The "text retrieval" function in MAXQDA® allows different types of searches, such as: combining all the retained segments; retained segments that represent the intersection of codes; sum of the coded segments that include an intersection; delete overlapping coded segments; segments in sequence, or that are close to each other.

In addition to the options mentioned above in this section, MAXQDA® has a set of visual tools to facilitate the analysis of coded segments: code matrix browser, which provides a preview of the number of segments coded for each code and each document; code relations browser, which provides a view of the intersection of codes in a document, a group of documents or all documents, thus facilitating recognition of the interrelationship of the codes; document portrait is a representation of all coded segments in a document; codeline, which generates a matrix that lists the paragraphs of a text with codes that were used in it and the document comparison chart, which compares the codes used in each document.

MAXQDA® has other useful tools for the user, such as basic tools for transcribing documents; map building tools that show the data connections, tools for building dictionaries, and tools to create links between the material that is internal and the that is material external to the project.

4 NVIVO® SOFTWARE

NVivo® is a software package for digitally coding texts or images that allows the user to synchronize evidence and make analytically richer intersections (TEIXEIRA, 2009). By using this software, the researcher is able to manage the empirical material in a single location (text, spreadsheets, audio, video or images), and can add, modify, connect and cross reference data, or even record ideas in the form of memos, in order not to lose any insights generated while viewing the material.

Moreover, the sources can be coded, that is, the material can be gathered into categories or "nodes", where portions of the collected material are indexed and can be classified according to persons, places or organizations. Each category contains a central meaning and is represented by a keyword. Importantly, the categories, created before the coding, are defined by the researcher, in order to identify commonalities in the texts and sort them for later analysis. Collected material can be transcribed directly in the software by inserting the recording directly into system. If the researcher prefers not to transcribe the interview or video, the audio clips can also be coded.

The items available for navigating in the program are (NVivo® 9 Manual):

a. Sources - Space for the importation of collected material;
b. Nodes - containers that allow excerpts from the material to be gathered according to the research categories;
c. Classifications - space for descriptive information about sources, nodes and relationships;
d. Clusters - material grouped according to research requirements;
e. Consultations - allows the researcher to perform searches in the coded material and save them during the analyses;
f. Reports - An item that provides reports and extracts for tracking the progress of the research or providing data for use in other applications;
g. Models - forms and connectors that allow the research data to be visually presented.

First, the nodes or categories that will serve to code the collected material in accordance with the theoretical and research question are created. The researcher then accesses the fonts that were entered into the program and starts the coding process. To insert an excerpt in a node, the user has to simply select it and drag it to the corresponding node which appears on the left side of the program interface. The set of nodes forms an "index tree root", which is a kind of tree in which the branches correspond to the dimensions of the analysis that is organized hierarchically (TEIXEIRA, 2009).

In addition to being able to code audio clips, if there is no need to transcribe the collected material, a common method of coding with NVivo® is to directly read the selected words, phrases or longer excerpts from the sources. The coding of an excerpt in one node does not prevent it from being coded in another, since the program does not work in a destructive way by removing the words from the original selected source (TEIXEIRA, 2009). The program allows the user to make automatic searches for words or lexical patterns during the coding of the texts, images, audios or videos.

Each text or audio passage can be codified in many different nodes. This is possible because the program does not remove the codified part of the original material. The capacity to register and to save repeated codifications allows a richer analysis by using search and exploration tools of the codified material.

When the excerpts are coded, the number of sources and references inserted in each node can be viewed, as well as in how many and in which nodes each excerpt is coded. Upon opening a node, by clicking on its name, coded sections are explored, so identifying the source and the percentage complete source, the text or length of time of video/audio that the excerpt represents.

An advantage of this software is the option to note and save comments and reminders which are often overlooked during the analysis. These texts are recorded in memos. When the coding of the collected material is completed, the process of classifying the sources (people, places, organizations) can begin.

In the item Classification, viewed in the program menu, the classification spreadsheets of the sources and nodes are structured, providing an overview of the specific items. Here, the attributes and their values are established and the nodes and sources are classified according to criteria defined in data collection or even after the preliminary analysis of the sources.

Once the attributes are defined and the sources and/or nodes classified, the coding matrix can be constructed, in which the relations between the coded excerpts and the attributes are established. In addition to these relations, content close to coded excerpts can be combined, thus facilitating the emergence of new insights as the analysis progresses. Further, the program is able to compare coding, i.e. comparisons can e made between the coding of different researchers/ groups by accessing the "coding comparison" resource.

Once the comparison matrices are established, charts and graphs can be created to display or explore the research data, so diversifying the means by which the results can be understood. Besides the graphics, the program can be used to create models showing the connections between the data by linking the forms of the model to the research items.

While the data analysis is being performed, the reports provided by the program allow the user to analyze and review the work in progress; identify the most frequent themes; present the insights noted during the coding and work with the data in other applications (Excel® or Word®).

The NVivo® program helps the researcher's work, enabling greater data organization based on the established categories, especially when the research comprises a large volume of data. In addition, it allows relationships among the data to be determined faster and at greater depth. It is important to emphasize that both during the coding process and the cross referencing between the nodes and cases, the result will depend on factors outside the program, such as: the quality of the material used; the research objectives; and the ability of the researcher to analyze and establish links with the literature. Houghton et al (2013) point out that NVivo is characterized as a management tool and it allows to demonstrate and to describe the decisions made during the research process and data analysis.

5 COMPARATIVE ANALYSES: THE MAXQDA® AND NVIVO® SOFTWARE PACKAGES

The two analyzed software programs have similar features. In other words, all the resources that appear in MAXQDA® are also available in NVivo®.

The main differences were found to lie in interface and the nomenclature, which may lead to a preference for one or the other software, although they do not constitute the bases for preference in relation to their use in thematic content analysis. It should be noted that both software programs include the key features relevant to thematic content analysis: definition of the codes and categories at different times during the analysis; and hierarchical levels (codes and categories). The table 1 shows some of the features of the MAXQDA® and NVivo® qualitative data analysis software packages.

Table 1: Main features of MAXQDA® and NVivo® software packages

Features	MAXQDA®	NVivo®
Import and display texts in various formats	X	X
Create codes (hierarchical levels)	X	X
Delete and alter codes	X	X
View lists of codes and categories	X	X

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Features	MAXQDA®	NVivo®
Write memos	X	X
Code text	X	X
Associate variables to the text	X	X
Search text	X	X
Access coded texts	X	X
View the coded text in various forms.	X	X
Graphs and tables	X	X

Based on the similar advantages and characteristics offered both by MAXQDA® and NVivo®, the researcher can opt to use the software with a more familiar and more adaptable interface.

Among the benefits found of using these qualitative data analysis software packages, were: the incorporation of new texts in the software, so that coding can begin before all the material has been collected; the organization and storage of the empirical material allowing cross-referencing that would be difficult to perform manually; the creation of memos, permitting insights obtained the coding process to be recorded, which also serve to exchange ideas between different researchers; the use of hierarchical levels, allowing the association of codes into categories.

As disadvantages for the use of the software, it can be cited: the need to learn how to use the software; the softwares have a cost to purchase. Dolan and Ayland (2001) argue that the use of software is only interesting when there is a large volume of data. This conclusion is based on two aspects: cost of software and learning needed to use the software. Nevertheless, currently the softwares are more user friendly, and the costs for the academy are relatively low.

The Table 2 shows some of advantages of using the MAXQDA® and NVivo® (qualitative data analysis software packages), considering the thematic content analysis.

Table 2: Advantages of MAXQDA® and NVivo® software packages

Stages of Thematic Content Analysis	Advantages
Pre-analysis	
a) defining the objectives of the content analysis	
b) selecting the material according to its relevance in relation to the goal	
c) reading the material to be analyzed	
d) organizing the material for analysis	All documents are storage in a same place and they can be easily accessed
Exploration	
a) defining the unit of analysis	
b) code the text	The list of codes and categories is visible and can be altered easily Memos with ideas and explanation about the codes
Treatment and interpretation	
a) reliability of the coding	The organization and storage of the empirical material allowing cross-referencing
b) displays the text associated with each of the codes	Search text Access coded texts View the coded text in various forms
c) elaborate tables and figures	Graphs and tables

Table 2 shows that MAXQDA® and NVIVO® can provide benefits for the three stages of thematic content analysis. The software does not replace the researcher, but the researcher can save time using its features, as well as contributes to greater reliability of results (MOZZATO; GRZYBOVSKI, 2011).

6 CONCLUSIONS

This article has analyzed the use of software for thematic qualitative content analysis. Thus, two software packages that are widely used in this type of analysis: MAXQDA® and NVivo® are compared by highlighting the features and peculiarities, benefits and tools provided by each software package.

Thus, the benefits of using these software packages in thematic content analysis can be highlighted. It should be noted that the potential gain in using these software programs for thematic content analysis depends on the researcher's knowledge of content analysis, since these software packages do not replace the role of the researcher in the coding process. On the other hand, the support provided by such software packages means there is a considerable reduction in execution time as well as in the presentation based on different filters, which indirectly helps the investigator reflect on the process and on the results obtained from the content analysis.

The analyzed software packages are similar in some ways, although they are different in terms of the nomenclature used and the way the content analysis process and results are presented. It is hoped that the results of this research will of use to researchers interested in conducting thematic content analysis with the support of the MAXQDA® or NVivo® software packages, allowing them to identify the one that best meets their needs by pointing out some differences and similarities between them.

Following this study, a comparison of the MAXQDA® and NVivo® software packages in operational terms will be made, by using an example of thematic content analysis conducted with the aid of the two software packages.

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REFERENCES

BARNHAM, C. Qualis? The qualitative understanding of essence. **International Journal of Market Research**, v. 52, n. 6, 2010, p. 757-773.

BARDIN, L. **Análise de conteúdo**. Paris: PUF, 1977.

BARDIN, L. **Análise de conteúdo**. Paris: PUF, 2011.

BULGĂREA, C. N. Qualitative marketing research regarding the multichannel distribution. **Annals of the University of Petroşani**, v. 11, n. 3, 2011, p. 23-34.

DOLAN, A.; AYLAND, C. Analysis on trial. **International Journal of Market Research**, v. 43, n. 4, 2001, p. 377-389.

EISENBEIß, S.A.; BRODBECK, F. Ethical and unethical leadership: A cross-cultural and cross-sectoral analysis. **Journal of Business Ethics**, v. 122, n. 2, 2014, p. 343-359.

FLICK, U. **Uma introdução à pesquisa qualitativa**. Porto Alegre: Bookman, 2004.

GIBBS, G. **Análise de dados qualitativos**. Porto Alegre: Bookman, 2009.

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pelos softwares MAXQDA® e NVivo?

GORDON, W. Behavioural economics and qualitative research – a marriage made in heaven? **International Journal of Market Research**. v. 53, n. 2, 2011, p. 171-185.

HAIR, J.; BUSH, R.; ORTINAU, D. **Marketing Research within a Changing Information Environment**. New York: McGraw-Hill Irving, 2002, 234p.

HOUGHTON, C.; CASEY, D.; SHAW, D.; MURPHY, K. Rigour in qualitative case-study research. **Nurse Researcher**, v. 20, n. 4, 2013, p. 12-17.

KNEIPP, J. M.; ROSA, L. A. B.; BICHUETI, R. S.; POZZER, R. H. P.; SCHUCH JUNIOR, V. F. Análise bibliométrica da produção científica da Revista de Administração da UFSM: em busca de novas perspectivas e desafios. **Revista de Administração da UFSM**, v. 6, n. 2, 2013, p. 443-458.

KRIPPENDORFF, K. **Content analysis - an introduction to its methodology**. Sage Publications, Thousand Oaks, 1980.

KURASAKI, K. S. Intercoder reliability for validating conclusions drawn from open-ended interview data. **Field Methods**, v. 12, n. 3, 2010, p. 179-194.

LEE, J.-H.; KIM, Y.-G. A stage model of organizational knowledge management: a latent content analysis. **Expert Systems with Applications**, v. 20, n. 4, 2001, p. 299-311.

LEWIS, R. B. NVIVO 2.0 and ATLAS.ti 5.0: a comparative review of two popular qualitative data-analysis programs. **Field Methods**, v. 16, n. 4, 2004, p. 439-469.

Manual do Nvivo 9. Disponível em www.qrsinternational.com. Acesso em 15 de dezembro de 2012.

MINELLO, I. F.; BIRRER, J. A. Da adversidade à reflexão: o comportamento resiliente de multiprofissionais da saúde. **Revista de Administração UFSM**, v. 5, n. 2, 2012, p. 354-372.

MORAIS NETO, S. de; PEREIRA, M. F.; MACCARI, E.A. Classificando ações de sustentabilidade: uma análise de conteúdo de entrevistas de líderes. **Revista de Administração UFSM**, v. 5, n. 1, 2012, p. 110-125.

MOZZATO, A. R.; GRZYBOVSKI, D. Análise de conteúdo como técnica de análise de dados qualitativos no campo da administração: potencial e desafios. **Revista de Administração Contemporânea**, v. 15, n. 4, 2011, p. 731-747.

PELLE, N. L. Simplifying qualitative data analysis using general purpose software tools. **Field Methods**, v. 16, n. 1, 2004, p. 85-108.

SICCAMA, C. J.; PENNA, S. Enhancing Validity of a Qualitative Dissertation Research Study by Using NVIVO. **Qualitative Research Journal**, v. 8, n. 2, 2008, p. 91–103.

SOLTANI, E.; AZADEGAN, A.; LIAO, Y.; PHILLIPS, P. Quality performance in a global supply chain: finding out the weak link. **International Journal of Production Research**, v. 49, n. 1, 2011, p. 269–293.

STRAUSS, A.; CORBIN, J. **Pesquisa qualitativa**. Porto Alegre: Bookman, 2008.

TEIXEIRA, A. N. **A produção televisiva do crime violento na modernidade tardia**. 2009. 242 f. Tese (Doutorado) – Faculdade de Sociologia, Universidade Federal do Rio Grande do Sul, Porto Alegre, 2009.

WEBER, R. P. **Basic content analysis**. Sage Publications, Thousand Oaks, 1990.