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Research article

How to plan and perform a qualitative study using content analysis

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ABSTRACT

This paper describes the research process – from planning to presentation, with the emphasis on credibility throughout the whole process – when the methodology of qualitative content analysis is chosen in a qualitative study. The groundwork for the credibility initiates when the planning of the study begins. External and internal resources have to be identified, and the researcher must consider his or her experience of the phenomenon to be studied in order to minimize any bias of his/her own influence. The purpose of content analysis is to organize and elicit meaning from the data collected and to draw realistic conclusions from it. The researcher must choose whether the analysis should be of a broad surface structure (*a manifest analysis*) or of a deep structure (*a latent analysis*). Four distinct main stages are described in this paper: the decontextualisation, the recontextualisation, the categorization, and the compilation. This description of qualitative content analysis offers one approach that shows how the general principles of the method can be used.

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Introduction

Qualitative research contributes to an understanding of the human condition in different contexts and of a perceived situation. However, there is no perfect designed study, and unexpected events will always appear. The main issue is how much financial resources, time and effort the researchers in a study team are able to invest in trying to understand the phenomena under study (Patton, 2002). Nevertheless, a researcher has to create the best study design possible, through accurate and considerate planning based on existing circumstances by identifying available resources. Firstly, there is the mapping of external resources – such as economics, time and potential informants – because some methods for data collection and data analysis are cost and time-consuming, and the choices of methods must be adapted to such restrictions. Second, internal resources of the study team, such as knowledge and ability, have to be known. The researcher's self-reflection is an essential part of qualitative research whatever chosen qualitative method (Burnard, 1995). The researcher must take into consideration his or her "pre-understanding", both in the planning process as well as during the analyzing process, in order to minimize any bias of his/her own influence (Elo et al., 2014; Long & Johnson, 2000). To have preconceived knowledge of the subject and to be familiar with the context can be an advantage as long as it does not affect the informants or the interpretation of the results. The researcher needs to understand both the context and circumstances in order to detect and take into account misrepresentations that may crop up in the data (Catanzaro, 1988). All qualitative research deals with some interpretation. However, the interpretations vary in depth and level of abstraction, depending on the method of analysis and on the researcher's ability to distance him/herself (Patton, 2002; Silverman, 2001). When limits of the study are identified and discussed, the actual planning of the study then begins. An important factor to bear in mind during both the planning and the application is to maintain as high a degree of quality as possible throughout the whole process.

In qualitative research, several analysis methods can be used, for example, phenomenology, hermeneutics, grounded theory, ethnography, phenomenographic and content analysis (Burnard, 1995). In contrast to qualitive research methods, qualitative content analysis is not linked to any particular science, and there are fewer rules to follow. Therefore, the risk of confusion in matters concerning philosophical concepts and discussions is reduced. During the entire process, the researcher must adhere to a qualitative perspective, and the main issue is to achieve the rigor and credibility that make the results as trustworthy as possible. However, in content analysis, different concepts of credibility can be chosen in the discussion of trustworthiness. It is possible for the researcher to use the same concepts as in quantitative studies, an option that is not accepted when performing analysis using other qualitative methods (Long & Johnson, 2000).

No matter what chosen method, the process of analysis reduces the volume of text collected, identifies and groups categories together and seeks some understanding of it. In some way, the researcher attempts to "stay true" to the text and to achieve

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trustworthiness (Downe-Wambolt, 1992; Morse & Richards, 2002; Patton, 2002; Silverman, 2001). This article focuses on content analysis and on several definitions and descriptions of content analysis as a quantitative and/or qualitative method that have been presented over the years. In 1952, Berelson defined content analysis as *"a research technique for the objective, systematic and quantitative description of the manifest content of communication"* (p. 18). By using the concepts *technique* and *objective*, Berelson underlines the process of analysis as a reliable and learnable method that precludes the personal authority of the researcher. However, Berelson's definition does not capture the qualitative and latent perspective of the analysis. In order to make the method applicable both in a quantitative and a qualitative approach, and without specifying the depth of analysis, Krippendorff (2004) defined content analysis as *"a research technique for making replicable and valid inferences from texts (or other meaningful matter) to the contexts of their use "* (p. 18). Downe-Wambolt (1992) underlines that content analysis is more than a counting process, as the goal is to link the results to their context or to the environment in which they were produced: *"Content analysis is a research method that provides a systematic and objective means to make valid inferences from verbal, visual, or written data in order to describe and quantify specific phenomena"* (p. 314).

An overview of the research process from planning to presentation can be seen in Fig. 1.

The planning

In all research, it is essential to begin by clarifying what the researcher wants to find out, from whom and how. The purpose may be of a descriptive or exploratory nature based on *inductive* or *deductive reasoning*. Inductive reasoning is the process of

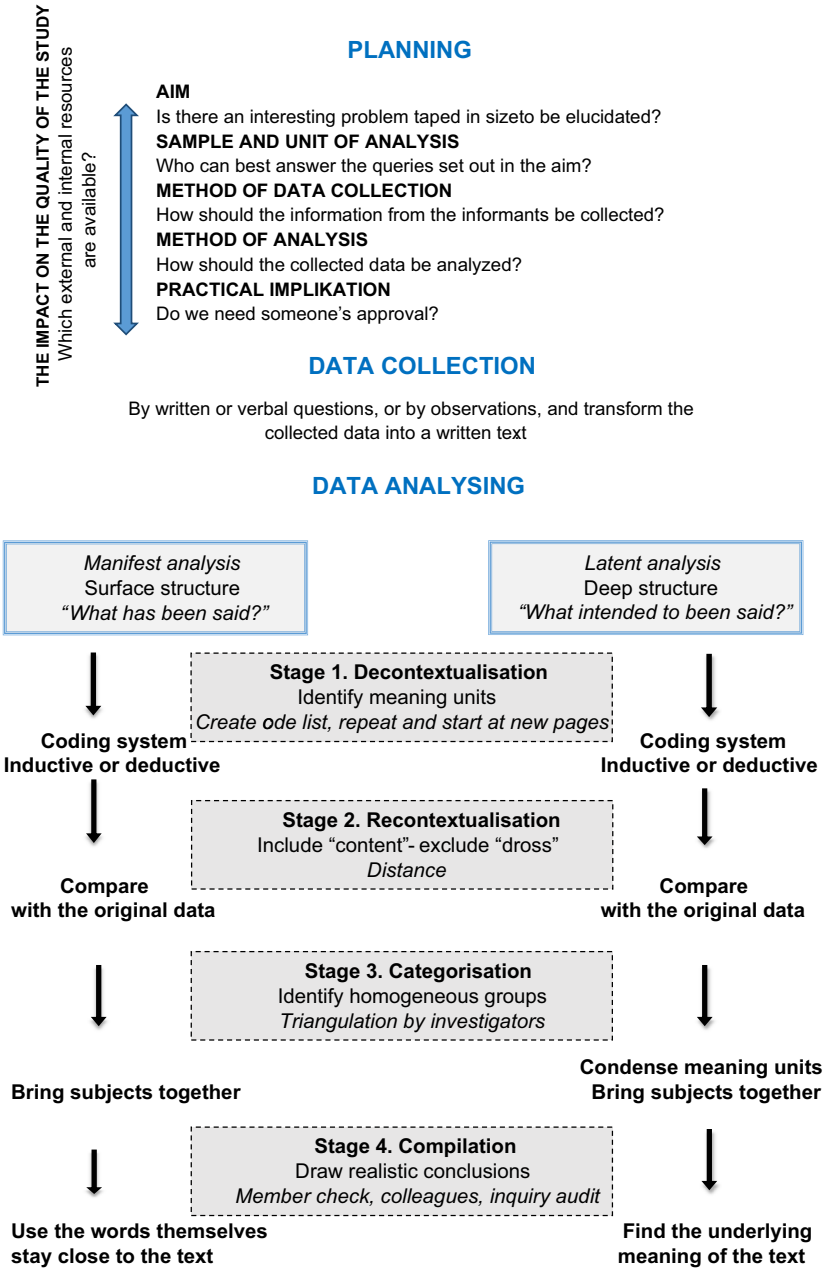

Fig. 1. An overview of the process of a qualitative content analysis from planning to presentation.

developing conclusions from collected data by weaving together new information into theories. The researcher analyses the text with an open mind in order to identify meaningful subjects answering the research question. Deductive reasoning is the opposite. Here, the researcher looks for predetermined, existing subjects by testing hypotheses or principles (Berg, 2001; Catanzaro, 1988; Polit & Beck, 2006). When a study has been initiated, the study design has to be established. Moreover, five main issues must be considered in the planning process: *the aim, the sample and unit of analysis, the choice of data collection method, the choice of analysis method* and *the practical implications.* The researcher has to consider these five issues repeatedly before starting the data collection in order to anticipate unexpected events. To ensure credibility, there must be a chain of logic between the decisions made and how the study will be conducted. In order to recapitulate and report the development of the process, the researcher should write memos during this process (Morse & Richards, 2002).

The aim

The planning discussion begins by establishing the aim, which determines the structure of the study design and sets its boundaries (Downe-Wambolt, 1992). It is important to identify an interesting and unexplored dilemma, and then present it in a concise form. If the aim of the investigation is too broad, the risk of touching upon too many aspects may preclude the researcher reaching the desired depth of the studied phenomenon (Silverman, 2001). Even if the researcher can handle a large amount of data in a content analysis, difficulties do arise when the purpose is too broad.

The sample and units of analysis

In qualitative studies, it is common that data are based on 1 to 30 informants (Fridlund & Hildingh, 2000). However, the sample size should be determined on the basis of informational needs so that the research question can be answered with sufficient confidence (Krippendorff, 2004; Patton, 2002). The concept *unit of analysis* refers to the sample, and the researcher has to determine whether the material is to be analyzed in its entirety or divided into smaller units. The researcher has, for example, to decide whether data collected from women and men or data collected at different times in a person's life should be analyzed separately or not. In this decision, the researcher is guided by the aim to be achieved, and each unit of analysis implies a different focus for the study. The key issue in making this decision is to decide what the researcher is seeking to elucidate by the study (Patton, 2002). There are no established criteria when using content analysis for the size of a unit of analysis, neither the number of informants or objects to study, nor the number of pages based on the informants' own written text or transcribed data.

The choice of data collection method

Content analysis can be used on all types of written texts no matter where the material comes from. Moreover, there are no specific rules that must be followed (Berg, 2001; Burnard, 1991; Catanzaro, 1988; Downe-Wambolt, 1992), for example, deep interviews (Wann-Hansson, Hallberg, Klevsgård & Andersson, 2005), focus group interviews (Golsäter, Sidenvall, Lingfors & Enskär, 2011), one single written question (Bengtsson, Ohlsson & Ulander, 2007), open-ended questions as in a questionnaire (Donath, Winkler, Graessel, & Luttenberger, 2011), or observations of situations (Eastwood, O'Connell & Considine, 2011) as well as from pictures and films (Krippendorff, 2004; Neuendorf, 2002). However, the choice of data collection method affects the depth of the analysis. For example, open-ended, written questions cannot provide the same depth that an interview can provide, as the researcher has the opportunity to deepen the discussion with the informants.

The choice of analysis method

In all data analysis, regardless of whether it is within a positivist or naturalistic research tradition, the purpose is to organize and elicit meaning from the data collected and draw realistic conclusions (Polit & Beck, 2006). As a method, content analysis is unique in that it has both a quantitative (Krippendorff, 2004; Neuendorf, 2002) and a qualitative methodology (Berg, 2001; Burnard, 1991; Catanzaro, 1988; Downe-Wambolt, 1992), and it can be used in an inductive or a deductive way. Quantitative content analysis has its origin in media research, while qualitative content analysis has its roots originally in social research. Despite this, none of the forms of content analysis are linked to any particular science. Consequently, there are no specific conceptions of meaning, and the concepts used are universal. In quantitative content analysis, facts from the text are presented in the form of frequency expressed as a percentage or actual numbers of key categories (Berelson, 1952; Krippendorff, 2004; Neuendorf, 2002). This method summarizes rather than reports all details concerning a message set, and the researcher seeks to answer questions about *how many* (Krippendorff, 2004; Neuendorf, 2002). In qualitative content analysis, data are presented in words and themes, which makes it possible to draw some interpretation of the results. The choice of analysis method depends on how deep within the analysis the researcher attempts to reflect the informants' statements about a subject. In turn, this affects the number of informants needed and in the way in which data are to be collected (Burnard, 1991; Polit & Beck, 2006). The researcher has to choose whether the analysis is to be *a manifest analysis* or *a latent analysis.* In a manifest analysis, the researcher describes *what* the informants actually say, stays very close to the text, uses the words themselves, and describes the visible and obvious in the text. In contrast, latent analysis is extended to an interpretive level in which the researcher seeks to find the underlying meaning of the text: *what the text is talking about* (Berg, 2001; Catanzaro, 1988; Downe-Wambolt, 1992).

Practical implications

During the planning discussion, the researcher must take ethical aspects into consideration in order to protect the informants. When the design is established, a presentation of these aspects is sent to the appropriate ethics committee where applicable. An information letter to persons involved in the study must be written, and all participants must be informed orally and/or in writing about the study before being included. The participants must be guaranteed confidentiality and informed that participation is voluntary and that they can withdraw their data from the study at any time without it affecting their relationship with the researchers.

Data collection

Verbal and non-verbal interaction between informants and researchers shape the data collected, which in turn affects the results of the study. It is important that the verbal or written questions are appropriately formulated and adapted to the claims of the referenced method so that the researcher is able to find some understanding of the phenomena being studied (Morse & Richards, 2002). All types of questions related to the aim of the study can be utilized when content analysis is used. Therefore, the

researcher can never be certain that the method of data collection provides data that capture the real context of the informants. The words used by the informants may not correspond to the researcher's view of their meaning. Other misrepresentations may arise due to the informants not telling the whole truth, or their being unable to express themselves, or their being affected by what they think the researcher wants to hear (Burnard, 1995). Data collected by interviews, focus groups or other discussions are often recorded by audio or video. These recordings are usually transcribed into a written form, which is an interpretive process. Transcriptions sometimes need to be very detailed to capture speed, tone of voice, emphasis, timing and pauses, but these components can be difficult to write down and also analyze. It is preferable that the researcher performs the transcribing procedure (Bailey, 2008).

Data analyzing

In a review of the literature, different opinions on the use of concepts, procedures and interpretation in content analysis are presented. However, there are similarities in the way the researchers explain the process: either they do it by using different distinguishing stages, (Burnard, 1991; Downe-Wambolt, 1992), or in running text (Berg, 2001; Catanzaro, 1988). The differences lie in the order in which the steps of analysis are taken, as well as in the way the researcher contemplates the data and subsequently conceptualizes. Four main stages have been identified: *the decontextualisation, the recontextualisation, the categorisation,* and *the compilation* (Fig. 1). However, each stage must be performed several times to maintain the quality and trustworthiness of the analysis. There is no need to use different main stages for manifest and latent analysis since the stages of the analyzing process are mainly the same regardless of interpretation (Berg, 2001; Downe-Wambolt, 1992). However, a table where the researcher can make transparent the process from raw data to results is needed to ensure the quality of the analysis. An example is given in Table 1. However, in the analyzing process, human mistakes are always possible; these mistakes can be caused by fatigue, errors interpretation and personal bias. It is the researcher's responsibility to maintain the quality of the process by assuring validity and reliability throughout the entire study, as the results must be as rigorous and trustworthy as possible. In a qualitative study, validity means that the results truthfully reflect the phenomena studied, and reliability requires that the same results would be obtained if the study were replicated (Morse & Richards, 2002). There is always a risk that different researchers draw dissimilar conclusions from the same data. To increase the validity, at least two investigators should perform the analysis separately and then discuss their results and obtain consensus (Burnard, 1991, Graneheim & Lundman, 2004). This procedure is one form of triangulation. To use different sources or methods for data collection are other ways to perform triangulations for the purpose of confirming the results (Catanzaro, 1988; Patton, 2002; Rolfe, 2006).

Stage 1 The decontextualisation

The researcher must familiarize him or herself with the data, and he/she has to read through the transcribed text to obtain the sense of the whole, that is, to learn “what is going on?”, before it can be broken down into smaller *meaning units*. A meaning unit is the smallest unit that contains some of the insights the researcher needs, and it is the constellation of sentences or paragraphs containing aspects related to each other, answering the question set out in the aim (Catanzaro, 1988; Graneheim & Lundman, 2004). Each identified meaning unit is labeled with a code, which should be understood in relation to the context. This procedure is recognized as the “open coding process” in the literature (Berg, 2001). In the

Table 1
An example of an analysis schedule. Transcribed interviews with patients' who have inflammatory bowel diseases.

Meaning unit	Condensed meaning unit	Code	Sub-headings Sub-categories Sub-categories	Category Category Generic-category	Theme (Burnard, 1991) Theme (Graneheim & Lundman, 2004) Main-category (Elo & Kyngäs 2007)
Cannot do what other healthy persons do. I lose touch with people. I feel lonely. When I feel bad I do nothing. I can never be really sure that tomorrow will be a good day. I can never make plans. I do not know how I will feel tomorrow or how I will feel next week.	Cannot do what other healthy persons do. Lose touch with people. Cannot make plans. I feel lonely. I will never know how I feel.	Lose touch with people	Lose touch with people	Social isolation	An experience of loneliness related to social isolation
It could have been worse. I am glad to be alive.		Glad to be alive	Glad to be alive	Happy feelings	Perception of gladness
When I need to run to the bath-room 5-6 times in one hour, I do not dare leave home. When I know that there are no toilets I dare not go out.	Do not dare go out if there are no toilets	Needing toilets	Needing toilets	Social isolation	An experience of loneliness related to social isolation

analyzing process, codes facilitate the identification of concepts around which the data can be assembled into blocks and patterns (Catanzaro, 1988). The researcher should use a coding list, including explanations of the codes, to minimize a cognitive change during the process of analysis in order to secure reliability (Catanzaro, 1988; Downe-Wambolt, 1992; Morse & Richards, 2002). Codes can be generated inductively or deductively, depending on the study design. If the study has a deductive reasoning design, the researcher has to create a coding list before starting the analyzing process. Otherwise, the list can be created in the course of the process (Catanzaro, 1988). Codes created inductively may change as the study progresses, as more data become available. Interpretations of the meaning units that seemed clear at the beginning may be obscured during the process. Therefore, the coding process should be performed repeatedly, starting on different pages of the text each time to increase the stability and reliability (Downe-Wambolt, 1992). However, it is much easier to obtain high reliability with code lists generated deductively rather than inductively (Catanzaro, 1988). There are also computer-programs which can be of help. Though their use is not imperative, they may facilitate the process. Although these programs do not analyze the data, they do speed up the process by, for example, locating codes and grouping data together in categories. Nevertheless, the researcher must still decide what constitutes the themes and what conclusions can be drawn from the results (Flick, 2002; Patton, 2002). Since computer-programs are soulless software, and human creativity is of importance and needed, the human being is required.

Stage 2 The recontextualisation

After the meaning units have been identified, the researcher has then to check whether all aspects of the content have been covered in relation to the aim (Burnard, 1991). The original text is re-read alongside the final list of meaning units. Colored pencils are useful to distinguish each meaning unit in the original transcript. After this process has been performed, unmarked text nearly always remains. The researcher must then consider whether or not the unmarked text should be included. If the unmarked text gives some answers to the research question, it should, therefore, be included in the analysis; otherwise this “dross” can be excluded (Burnard, 1991, 1995). When the researcher is deeply involved with the data, everything seems to be of importance. Nevertheless, a process of distancing is necessary, and the researcher must allow him or herself to let go of the unimportant information that does not correspond to the aim of the study.

Stage 3 The categorisation

Before the researcher can begin to create categories, extended meaning units must be condensed. This entails that the number of words is reduced without losing content of the unit (Graneheim & Lundman, 2004). The depth of the meaning units determines the level at which the analysis can be performed. This process of condensation is often needed when data are based on interviews and when latent content analysis is to be carried out. To extract the sense of the data, the coded material can, as a suggestion, be divided into *domains*: broad groups based on different attentions of the study (Catanzaro, 1988; Patton, 2002). Graneheim and Lundman (2004) prefer the concept *content area*, since, in their view, this elucidates a specific, explicit area. For example, the material can be divided on the basis of the questions used when the data were collected or on theoretical assumptions from the literature.

In the categorization process, themes and categories are identified. However, in the literature there is no consensus for which headings or concepts are to be used in a content analysis. Sub-categories, which Burnard (1991) terms *sub-headings*, are the smallest units based on meaning units. In a manifest analysis, sometimes these are the same as the codes of the meaning units. Sub-categories can be sorted into broader categories. The concept *sub-theme* can be used in a latent analysis instead of the concept categories (Graneheim & Lundman, 2004). Identified themes and categories should be internally homogeneous and externally heterogeneous, which means that no data should fall between two groups nor fit into more than one group (Krippendorff, 2004; Patton, 2002). *Theme* is an overall concept of an underlying meaning on an interpretative latent level, and it answers the question “How?” (Graneheim & Lundman, 2004). There are no informal ways to describe specific strategies when categorization is performed. However, all categories must be rooted in the data from which they arise. Moving meaning units back and forth between categories provide progressive development of the category outcome, and Post-it notes may be of help in this process. Initially, several categories are often generated, but the number is later reduced (Burnard, 1991). How the researcher knows when the categorization is good enough depends on the aim of the study, and the categorization is finished when a reasonable explanation has been reached.

Stage 4 The compilation

Once the categories are established, the analysis and writing up process begins. One difference between the various qualitative analyzing methods is how the researcher relates to the analyzing process itself and adapts to the results. In phenomenological and hermeneutical- based studies, the researcher focuses on exploring how the informants make sense of experience and transform experiences into consciousness. The researcher must then attempt to find the essence of the studied phenomenon. The researcher has the opportunity to reach a deeper understanding even if it is on a descriptive level (Patton, 2002). When performing a qualitative content analysis, the investigator must consider the data collected from a neutral perspective and consider their objectivity. However, the researcher has a choice between the manifest and the latent level, and the depth of the analysis will depend on how the data are collected. In a manifest analysis, the researcher works this way gradually through each identified category and through the themes in a latent analysis. In a manifest analysis, the researcher often uses the informants' words, and he/she remains aware of the need to refer back to the original text. In this way, it is possible to stay closer to the original meanings and contexts (Burnard, 1991). In contrast, a latent analysis invites the researcher to immerse him/herself to some extent in the data in order to identify hidden meanings in the text. For each category or theme, the researcher chooses appropriate meaning units presented in the running text as quotations. Regardless of the form of the analysis, the researcher can present a summary of themes, categories/sub-themes and sub-categories/sub-headings as a table to allow the reader to get a quick overview of the results. In addition, it is appropriate to present one example of the analysis process. There is also the possibility to add information by performing some quantification in which sub-categories and categories are counted. This is not normally done in other qualitative research methods. However, nearly everything can be counted in written messages – such as words, characters, paragraphs and concepts – depending on the focus of the study. By combining the quantification with a qualitative approach, the magnitude of the individual phenomena studied appears more clearly (Berg, 2001; Morgan, 1993). However, the variables cannot be ranked, since not all informants have had the opportunity to discuss all the phenomena that the researcher finally counts.

As a final check, the researcher must consider how the new findings correspond to the literature and whether or not the result is reasonable and logical (Burnard, 1991; Morse & Richards, 2002).

To validate the outcome and to strengthen the validity of the study, the investigator can perform a respondent validation, a member check, which means that the investigator goes back to the informants and presents the results in order to achieve agreement (Burnard, 1991; Catanzaro, 1988) However, there is a time-delay between the data collection and the analysis. This approach, therefore, constitutes a risk for various reasons, one of which might be the possible unreliability of the informants' memory. Another risk is that informants have a tendency to deny less attractive aspects of their behavior (Long & Johnson, 2000). In addition, as the researcher often creates a deeper holistic understanding of the studied phenomenon, the informants may not recognize how the data is presented (Downe-Wambolt, 1992). Keeping this in mind, it is better for the researcher to obtain some confirmation on the content from the informants in connection with the data collection (Catanzaro, 1988). Another way to increase validity is for a colleague not involved in the study, or an inquiry auditor, to read the original text and the results and then judge whether they are reasonable or not (Burnard, 1991; Catanzaro, 1988; Downe-Wambolt, 1992). However, it is obviously difficult for an independent person to familiarize him/herself with another's coding (Morse & Richards, 2002).

A discussion about concepts of trustworthiness

All research must be open to criticism and evaluation. Further, in the report the study process and the results should be discussed in relation to concepts linked to trustworthiness. The purpose of this discussion is to allow the reader to look for alternative interpretations. There is no consensus on which concepts should be used nor on how to best judge the quality of research based on content analysis. The scientists can be divided into two groups: those who debate the use of the same criteria and concepts as for quantitative research – *validity, reliability* and *generalizability* (Downe-Wambolt, 1992; Long & Johnson, 2000) – and those who believe that a different set of criteria and concepts is needed (Catanzaro, 1988; Graneheim & Lundman, 2004), for example, the concepts *credibility, dependability, transferability* and *confirmability* created by Lincoln and Guba (1985). *Credibility* refers to the study process, that is, to establish how the data and the analysis procedures are carried out and to ensure that no relevant data have been excluded. Ways in which credibility can be increased are through getting agreement from co-investigators, from colleagues, from an expert panel or from the informants (Graneheim & Lundman, 2004). Catanzaro (1988) also suggests "negative case analysis", which means that the researcher also asks questions to account for unanticipated answers; however, this can be difficult and should not be recommended to a novice researcher. That said, this method is common in self-rated questionnaires to catch the informants' perspective on health-related issues. The second concept, *dependability*, refers to stability, that is, the extent to which data change over time and the alterations made in the researcher's decisions during the analyzing procedure. The key here is to keep track of coding decisions, and the researcher must use memos to track changes in the development because recoding and relabeling are often necessary during the process. *Transferability* refers to the degree to which the results may be applicable to other settings or groups and to the number of informants or study objects. How representative the sample is will determine how generalizable the results will be (Krippendorff, 2004). The researcher has often to choose between the breadth and the depth of the subject being studied. Qualitative studies often make very limited claims since they mostly focus in depth on smaller samples, even single cases, which makes a generalization problematic (Morse & Richards, 2002; Patton 2002; Polit & Beck, 2006). *Confirmability* is largely an issue of presentation and refers to the objectivity or neutrality of the data (Polit & Beck, 2006). In general, one can say that *credibility* corresponds to *validity*, *dependability* to *reliability* and *transferability* to *generalization*. In any case, the key is not the choice of concept but how the concepts are discussed in relation to "truth" and "trustworthiness", since in qualitative studies there is no definite "truth". In general, the researchers are more interested in depth understanding of a specific issue and in showing different perspectives rather than aiming at singular truth and generalization (Patton, 2002; Rolfe, 2006). Consequently, qualitative studies are also sometimes impossible and always difficult to replicate because the data arise from a specific context (Morse & Richards, 2002).

How the researcher handles self-reflection plays a key role in all qualitative research. For example, in studies based on phenomenological or hermeneutical methodology, the concepts "bracketing" and "epoche" are used to explain how the investigator should behave in relation to the analyzing procedure. This approach affects the researcher's interpretation of the informants' story and the conclusions given in the result (Morse & Richards, 2002; Patton, 2002). In content analysis, the researcher must know the context, but he/she must also be aware of this knowledge so that it does not affect neither process nor outcome. Certain activities in the field remain hidden from the view of the researcher if he/she is a stranger to the context (Flick, 2002).

Conclusion

Qualitative data – derived from for example, interviews, written open questions and pictures – are expressed in words. Consequently, the researcher cannot use statistical analysis to give meaning to the data and, therefore, needs other methods of analysis. Content analysis is one such method. This description shows how the general principles of the method can be used and how the validity and reliability of the whole process can be increased. Although there are both advantages and disadvantages to performing a content analysis, it is an easily understood analyzing process that can be emulated even by those new to the area. Hopefully, this paper can help others both to give meaning to textual data and maintain the quality of the analysis.

Coflict of Interest

The author declares that she has no competing interests in relation to this manuscript and that there are no financial or financially competing interests to declare.

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