

Abstraction and interpretation during the qualitative content analysis process

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ABSTRACT

Qualitative content analysis and other 'standardised' methods are sometimes considered to be technical tools used for basic, superficial, and simple sorting of text, and their results lack depth, scientific rigour, and evidence. To strengthen the trustworthiness of qualitative content analyses, we focus on abstraction and interpretation during the analytic process. To our knowledge, descriptions of these concepts are sparse; this paper therefore aims to elaborate on and exemplify the distinction and relation between abstraction and interpretation during the different phases of the process of qualitative content analysis. We address the relations between abstraction and interpretation when selecting, condensing, and coding meaning units and creating categories and themes on various levels. The examples used are based on our experiences of teaching and supervising students at various levels. We also highlight the phases of de-contextualisation and re-contextualisation in describing the analytic process. We argue that qualitative content analysis can be both descriptive and interpretative. When the data allow interpretations of the latent content, qualitative content analysis reveals both depth and meaning in participants' utterances.

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What is already known about the topic?

- Qualitative content analysis is a common method used in nursing studies and suitable for various context and data. However, there are multiple challenges performing the analytic process.
- A common criticism of qualitative content analysis is that it is a technical tool used for basic, superficial, and simple sorting of text, and its results lack depth, scientific rigour, and evidence.
- The analytic processes of abstraction and interpretation are often sparsely described in published papers.

What this paper adds

- To enhance trustworthiness, we illustrated and exemplified the distinction and complex relation between abstraction and interpretation during different phases of the analytic process.
- We further explore the phases of de-contextualisation and re-contextualisation and their relations to abstraction and interpretation in the analytic process.

- When the data allow interpretations of the latent content, qualitative content analysis reveals both depth and meaning in participants' utterances.

1. Introduction

Researchers using qualitative methods can choose between a variety of methodological approaches depending on the aim of the study and the quality of data. Different qualitative approaches from other disciplines than nursing, however, have not always met the unique demands of nurse researchers. The methodological rules of a 'theory heavy' methods could be a limitation when exploring concrete clinical research questions (Thorne et al., 1997). Therefore, interpretive description (Thorne et al., 1997) and qualitative description (Sandelowski, 2000) were introduced as alternatives in nursing research. Thorne and colleagues argued that researchers using qualitative methods who look for 'epistemological credibility' (1997, p.170) design their work through for example phenomenology, grounded theory, and ethnography. Sandelowski (2000) further developed this argument by noticing that studies are often called 'narrative' when they include only open-ended interviews, 'phenomenological' when they include reports only of the participants' subjective experiences, or 'ethnographic' when they merely include participants from different ethnic groups.

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Qualitative content analysis is another method frequently used in nursing research (e.g., [Elo and Kyngäs, 2008](#); [Graneheim and Lundman, 2004](#); [Graneheim et al., 2017](#); [Hsieh and Shannon, 2005](#); [Schreier, 2012](#)). The first descriptions of content analysis were developed exclusively as a quantitative approach and thus related to a positivistic paradigm ([Berelson, 1952](#)). Later descriptions indicate that content analysis has undergone comprehensive changes, moving from 'a counting game' to a more interpretative approach within the hermeneutic paradigm ([Schreier, 2012](#); [Graneheim et al., 2017](#)). This paradigm is a value-based process characterised by multiple 'subjective' realities, the mutual creation of data, and the development of individual and multifaceted perceptions of phenomena ([Lincoln and Guba, 1985](#)). Qualitative content analysis is a systematic method to analyse qualitative data. It offers opportunities to analyse manifest and descriptive content, resulting in categories, as well as latent and interpretative content, resulting in themes ([Graneheim and Lundman, 2004](#); [Graneheim et al., 2017](#)). All analytic processes, regardless of analytic approaches, involve descriptions and interpretations of various levels of abstraction and interpretation, and no descriptions are free from interpretation.

1.1. The qualitative content analytic process

Qualitative content analysis is suitable for a variety of data. Data can, for example, be drawn from various kinds of interviews, observational protocols, articles subjected to literature reviews, diaries, web sites, and medical records ([Schreier, 2012](#)). These heterogeneous texts raise for the researcher various issues related to abstraction and interpretation. A text derived from an in-depth interview and a text from a medical record is quite different. An interview text is often more rich in words and less condensed, and provides more possibilities to abstract and interpret than a text from a medical record, already condensed and to some extent abstracted by the person who wrote the text. Depending on the aim of the study, the quality of the data, and the researchers' experience and knowledge, qualitative content analysis can be performed various ways, resulting in categories and/or themes. [Morse \(2008\)](#) describes a category as the 'what?' comprising and describing a collection of similar codes sorted into the same place. A category describes the content on a manifest level, with a low degree of interpretation and a varying degree of abstraction. A theme is described as a unifying 'red thread' running through several categories that brings meaning to the phenomenon under study and its various manifestations ([Graneheim et al., 2017](#)). [Morse \(2008\)](#) describes a theme as a meaningful essence that runs through the data, similar to a motif in an opera, sometimes in the background and sometimes in the foreground. If the aim is to describe participants' experiences of ordinary phenomena and the data is concrete and close to the participants' lived experience, it may be wise to limit the analysis to categories at a descriptive level. If the analytic process continues too far, the results can become so abstract and general that they could fit into any context, and thereby say nothing about the participants' unique experience in the situation ([Graneheim et al., 2017](#)). If the aim is to illuminate participants' lived experiences of complex phenomena and the data is rich, the analytic process often continues beyond the descriptive categories. In this case, the next step is to look for the underlying meanings running through these descriptive categories, interpret the latent content, and formulate sub-themes and/or themes ([Graneheim and Lundman, 2004](#)). The development of themes, however, does not always require previous categorisation. When the data are rich and the codes expressive, an alternative way to perform the analysis is to move directly from codes to sub-themes and eventually themes with an increasing degree of abstraction and interpretation ([Graneheim et al., 2017](#)).

1.2. De-contextualisation and re-contextualisation

The process of qualitative content analysis is non-linear and characterised by de-contextualisation and re-contextualisation. De-contextualisation requires breaking the data into pieces; in qualitative content analysis this is done by dividing the original text into meaning units and condensing and coding those units ([Graneheim et al., 2017](#)). De-contextualisation means that data, for example, utterances from individual interviews, separated from their context in the beginning of the analysis will illuminate all participants' experiences of the phenomenon under study ([Friberg et al., 2013](#); [Wihlborg, 2017](#)). Re-contextualisation, means that the separated utterances are combined in new patterns and returned to their context, thereby allowing a deeper understanding of the area of interest ([Friberg et al., 2013](#); [Wihlborg, 2017](#)). In qualitative content analysis this starts with sorting the codes by their similarities and differences and abstracting them into sub-categories and eventually categories ([Graneheim and Lundman, 2004](#)). The re-contextualisation may then proceed by discussing the results in light of current research and relevant theory.

1.3. Abstraction and interpretation

Abstraction is a methodological tool used in various scientific methods including qualitative content analysis. Abstraction can be defined as a process in which different constituents are transferred to a higher logical level, showing a kind of classification ([Downe-Wamboldt, 1992](#)) or pattern ([Patton, 2015](#)). Despite the central place of abstraction in qualitative methods, only a few writers (e.g., [Dahlgren et al., 2019](#) p. 99–101; [Elo and Kyngäs, 2008](#); [Elo et al., 2014](#)) have addressed this aspect of the analysis. All types of data, such as descriptions of physical things, values of things, and people's experiences, perceptions, attitudes, and opinions can be abstracted. The result of such abstraction is an overarching term or concept for all subordinate terms or concepts ([Langer, 1953](#)). In qualitative content analysis, this abstraction is part of reorganisation and re-contextualisation, and it takes the form of a hierarchical structure that moves from closeness to distance as codes are compared and grouped into sub-categories and categories at increasing levels of abstraction ([Graneheim et al., 2017](#)). The higher the abstraction level, the greater the distance from the original text. [Fig. 1](#) illustrates a slightly revised two-dimensional model showing how description, interpretation, and abstraction are related to each other (cf. [Graneheim et al., 2017](#)).

Within a scientific field, especially in the qualitative tradition, interpretation is often referred to as hermeneutics. Hermeneutics dates back to the interpretation of biblical texts, but it has expanded considerably into humanities such as philosophy, history, literature, the arts, and eventually health sciences. Hermeneutics is a scientific method on its own, but interpretation is part of many research methods. Interpretation can be defined as a process that involves explaining, reframing, making sense of, or otherwise showing an understanding of, for example, narratives about a person's lived experience of chronic illness, recovery from mental ill-health, etc. In qualitative content analysis the researchers strive to make the participants' voices heard. Interpretation is part of the re-contextualising process, moving from descriptions of the manifest content to interpretations of the latent content ([Graneheim et al., 2017](#)) and the creation of sub-themes and themes. Referring to [Schleiermacher \(1998\)](#), [Smith \(2007\)](#) emphasised that interpretation is a dual process of understanding both the text and the informant. Interpretation is a matter not of following mechanical rules, but of performing a thorough and comprehensive analysis while having the courage to search for the underlying meaning of the verbatim text. In qualitative content analysis the aim is to make sense of both the words used and the person who said them.

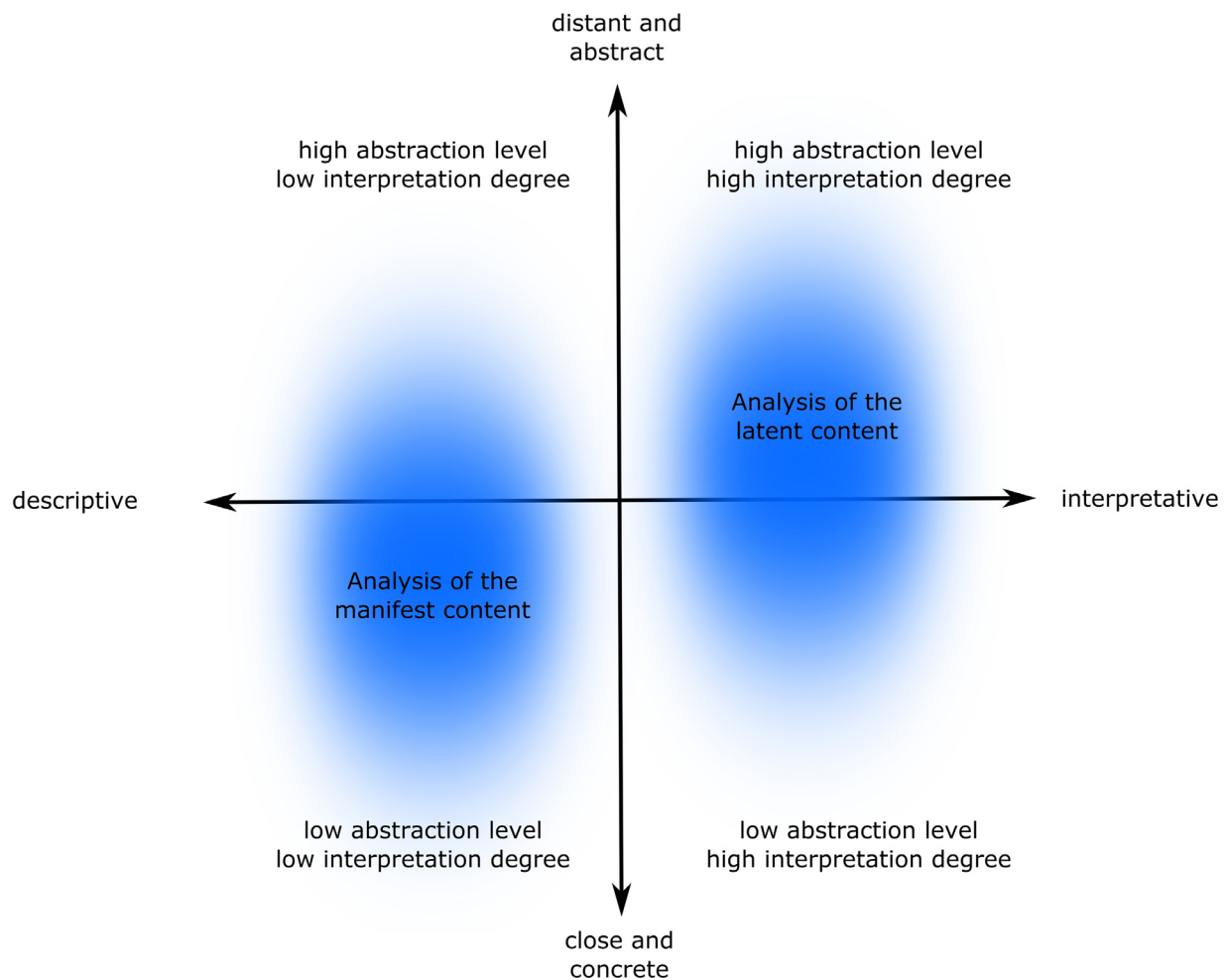


Fig. 1. Abstraction and interpretation in qualitative content analysis.

Debate continues around whether qualitative content analysis and other 'standardised' methods can adequately reveal complex multifaceted knowledge of existential phenomena (Dahlberg and Dahlberg, 2019; Thorne et al., 1997; 2004; Sandelowski, 2000; 2010). Such methods are considered to have poorer quality, show less validity, and show less evidence than methods with a philosophical base (Dahlberg and Dahlberg, 2019). Other researchers have previously noticed and discussed the relevance of such opinions about qualitative descriptive studies (Thorne et al., 1997; 2004; Sandelowski, 2000; 2010). Sandelowski (2000) argues that hierarchies that present one method as basic and superficial, easier, less valuable, and less scientific than another are inappropriate. No method is absolutely weak or strong, just more or less useful in relation to a certain aim.

Abstraction and interpretation are core to the analytic process. An overview of research using qualitative content analysis shows that the steps in the analytic process are sparsely described, which may contribute to the above-mentioned criticism. Expressions such as 'the text was divided into meaning units, condensed and coded, and eventually sorted into categories', 'the analysis resulted in six categories', and 'two themes emerged' are common. These descriptions tell nothing about the difficult and often time-consuming work of abstraction and interpretation during the analysis, and they leave the reader unaware of the constant movement back and forth during the process. Therefore, to enhance trustworthiness and increase the quality of qualitative descriptive studies, we elaborate on abstraction and interpretation by exploring the

distinction and relation between them and offering some hands-on guidance.

2. Abstraction and interpretation in relation to various steps in the analytic process

2.1. Selecting meaning units

Selecting meaning units is the starting point of de-contextualisation. Here the researcher handles original data and refrains from abstracting the text. However, interpretation starts already here, for example in decisions about when the text shifts from one type of content and/or context to another, i.e., when the content and meaning of one passage in the text (meaning unit) changes into another content or meaning. A common concern here is the length of a meaning unit, which depends on the phenomenon under study, and the kind(s) of data under analysis. A text tends to be divided into short meaning units when the aim of the study is to describe ordinary, concrete things close to the participants' lived experiences, such as the pros and cons of various kinds of equipment for disabled people (e.g., walking frames, wheelchairs, guide dogs, wearable sensors, etc.). Data such as texts from observational protocols written by the researcher are often by nature more condensed than transcribed interview texts and result in shorter meaning units. The main risk in selecting meaning units that are too short is the possible loss of context and meaning.

A text tends to be divided into longer meaning units with more content when the aim is to illuminate complex phenomena such as peoples' lived experiences of becoming old, living with chronic disease, living with self-harm, and recovering from mental ill-health. Data from interviews on such topics can be very long and rich; if interviewees have deep experience of the topic and an agenda of what they wish to express, their narratives will tend to expand. Longer meaning units combining various experiences can be handled in different ways. A joint code applied to combined experiences probably means that the given code is too abstract, which increases the risk of losing content early in the analytic process. Some researchers may handle such long meaning units by giving them two or several codes to cover the various aspects expressed. Another way is to divide longer meaning units that contains two or more codes into two or more shorter meaning units.

It is not unusual for researchers to describe having divided the parts of the text that answer the aim into meaning units, but not to include the rest of the text in the analysis. This raises the question, 'What kind of text has been left out?' At first sight, it is not easy to judge whether specific parts of a text answer the aim. Therefore, based on our experience we suggest that the entire text should be retained until it is completely coded, and only then can codes that do not fit into any sub-category or sub-theme be deleted if they do not correspond with the aim. In any case, it will strengthen credibility to disclose to readers the nature of the text that is excluded from the analysis.

2.2. Condensing and coding

Condensing and coding during the analysis are also parts of de-contextualisation. Condensing shortens the original text by removing repetitions and words that the researcher do not consider meaningful, but keeping the content of the meaning unit intact. Even here the researcher refrains from abstraction; it is rather a question of reducing an immense text. However, deciding how to decrease the number of words in a meaning unit does involve some degree of interpretation. Fig. 2 illustrates the relation between abstraction and interpretation during the analysis. The horizontal line represents a continuum between plain description and various levels of interpretation. The vertical line illustrates a continuum between the concrete and various levels of abstraction, from closeness to distance.

Not all texts need to be condensed; some contain no unnecessary words or repetitions. For example, this text describing experiences of hypoglycaemia is a mix from several interviews created for education purposes:

It starts with heaviness in the legs, and then you become totally feeble, and you get heart palpitations, and you are then somehow out of control. And I become sweaty and I, or I don't know, but I think I speak normally, but in fact I really don't know... But it is a horrible feeling, when you feel it coming on and it comes at improper times and it comes very unpredictably, so you can never feel safe.

This mix of quotations is, in its original form, already condensed, and further condensation may jeopardise the forthcoming analysis.

Coding involves labelling the condensed meaning unit with a descriptive code close to the original text and on a low level of abstraction and interpretation. This will decrease the risk of missing essential content. Coding should be done with the study aim in mind. This part of a text describing experiences of panic attacks was created for educational purposes:

When my attacks come... my heart starts to beat hard and irregularly... my legs and hands are shaking, and my mouth gets all dry. I think I'm going to die... I don't know where to go and what

to do... and I just wish to withdraw from others and manage on my own.

Codes too far from the original text and on too high a level of abstraction can be general terms such as 'physical symptoms', 'existential anxiety', 'insecurity', 'integrity', and 'autonomy'. Because such codes are already at a high level of abstraction, they can become obstacles to the forthcoming sorting and abstracting of codes into sub-categories or sub-themes and naming these groups. Another way to code this passage would be to stay close to the words in the original text and to use, for example, 'irregular heartbeat', 'shaking legs and hands', 'dry mouth', 'think I'm dying', 'unsure what to do', 'withdraw from others', and 'manage on your own'. To facilitate the building of sub-categories/sub-themes, the researcher should strive to keep the codes on the same level of abstraction and interpretation (left lower square of Fig. 2) throughout the analysis. For example, it will be hard to create sub-categories/sub-themes if codes such as 'withdraw from others' and 'integrity' are mixed, because 'withdraw from others' is on a low level of abstraction and interpretation (left lower square in Fig. 2) and 'integrity' is on a high level (right upper square in Fig. 2).

Despite researchers' efforts it can be challenging to keep codes at the same level of abstraction, because in one set of interviews different narratives can be on different levels of abstraction and interpretation. Some people narrate in a straightforward, descriptive way while others use imaginative language full of images and metaphors. Even if the researcher keeps codes close to the text, codes can therefore be on various levels of abstraction and interpretation. In such cases, there may be a code at a higher level that could serve to name a sub-category or sub-theme.

2.3. Creating categories and themes on various levels

Re-contextualisation begins with sorting codes into sub-categories/sub-themes, a core issue in qualitative content analysis. Sorting is about interpreting which groups of codes are interrelated and differ from other groups of codes. If we return to the text about experiences of hypoglycaemia, we find these 10 codes: 'heaviness in the legs', 'totally feeble', 'heart palpitations', 'out of control', 'sweaty', 'unsure if I speak normally', 'horrible feeling', 'it comes at improper times', 'very unpredictable', and 'feels unsafe'. These offer several options for sorting and naming sub-categories. If we select the codes related to symptoms: 'heaviness in the legs', 'totally feeble', 'heart palpitations', and 'sweaty', we can formulate the sub-category 'Physical symptoms', which is general and on a high level of abstraction, but are not really informative about the experiences of having hypoglycaemia. If we add codes related to experience, 'out of control', 'unsure if I speak normally', 'horrible feeling', 'it comes at improper times', 'very unpredictable', and 'feels unsafe', then we can formulate the sub-category 'Unpredictable symptoms', which tells more about the unique experiences of hypoglycaemia.

Krippendorff (2013) recommends that codes should be sorted in a way that the sub-categories or sub-themes are essentially mutually exclusive. However, we do not fully agree, because in people's lived experiences, codes may be intertwined and it can be difficult to decide whether a code should be placed in one or another sub-category/sub-theme. When a solitary code seems to fit in more than one sub-category/sub-theme, we argue that it could be helpful to place it into each (Graneheim and Lundman, 2004).

Another issue is deciding how to handle codes that are left over and do not fit into any sub-category/sub-theme. To find out why these codes do not fit, the researcher usually needs to revisit the aim/research questions/hypothesis, go back to the original text, and explore whether the division into meaning units was appropriate, whether the coding is relevant and on a suitable level of abstraction and interpretation, and whether the sub-categories/sub-

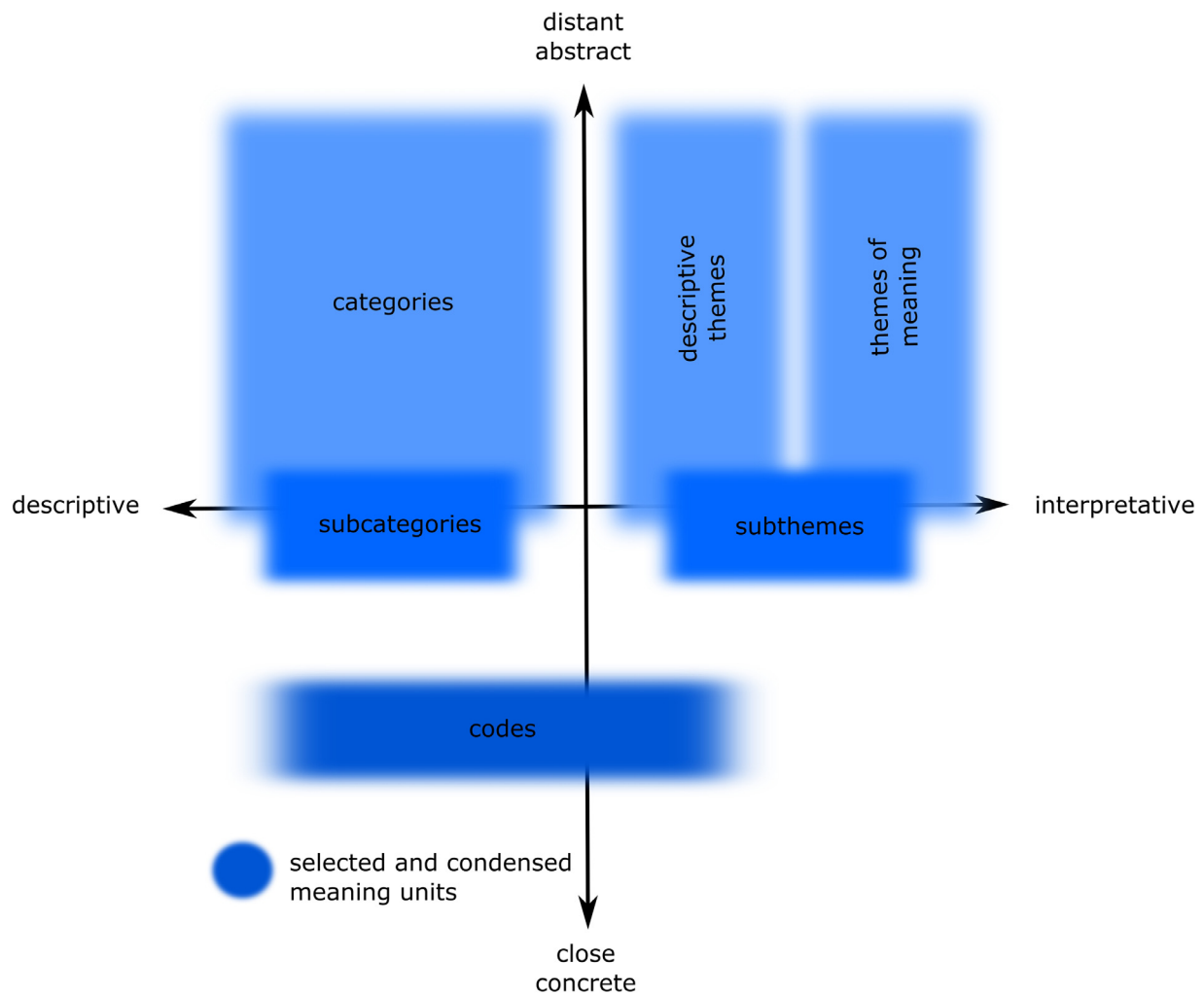


Fig. 2. Abstraction and interpretation during the analysis process.

themes are appropriately labelled. Deviant or disconfirming cases that serve as examples that do not fit emergent patterns (Patton, 2015) also generate codes that do not seem to relate to any sub-category/sub-theme. When using qualitative content analysis, the researchers' intention is to describe variations in data. For example, when interviewing about what facilitates 'good nursing care' in a specific context the interviewee sometimes describes what hinders 'good nursing care'. These narratives can be seen as part of the variation and result in categories and/or themes which contribute with valuable insights on what is needed to be done to enhance 'good nursing care'. Sometimes, it also becomes apparent that the codes are not related to the phenomenon under study.

A frequently asked question is whether a category/theme can be relevant without sub-categories/sub-themes. Sometimes a few codes that answer the aim are important for highlighting the variability in the results, but cannot be sorted into existing sub-categories/sub-themes because they are unique. Instead of assigning these codes to already existing sub-categories/sub-themes or deleting them, thereby losing important information, researchers can instead abstract/interpret them as categories/themes with just one or no sub-category/sub-theme. In Buetow's (2010) description of saliency analysis, he recommends assessing the degree to which each code is recurrent, important, or both, to allow the inclusion of unique, non-recurrent codes that are nonetheless potentially important to the aims of the study.

As mentioned earlier, there are different ways to continue and deepen the analysis from codes: (1) to abstract, interpret manifest content, and formulate sub-categories/categories, and sometimes continue towards themes, or (2) to abstract, interpret latent content, and formulate sub-themes/themes. Regardless of the chosen procedure, the challenge of interpreting and creating themes requires the researcher to dare to go beyond the exact words of text and be open to the emotions and the underlying meanings that are conveyed. The level of abstraction and degree of interpretation should increase through the analysis and be consistent within and between sub-categories/sub-themes and categories/themes (Graneheim et al., 2017). For example, in a study aimed to describe relatives' experiences of living with a person with dementia, the analysis could result in several sub-themes such as: 'living with constant strain', 'feeling trapped', and 'having no hope for the future'. An example of an overarching theme is 'My relative who suffers from dementia is always on my mind'. One reader may argue that this theme covers only the first two sub-themes and that the degree of abstraction and interpretation from the sub-themes to the theme is low. Another reader may argue that the theme includes too much information from the aim ('my relative suffering from dementia') and that 'is always on my mind' is too abstract and thus so general that it can fit in any context. A solution here is to rephrase the theme by excluding the aim and including the underlying message uniting all

three sub-themes, for example 'being caught in a never-ending hopelessness'.

A related consideration, therefore, is that the names of categories and themes should answer the aim but not incorporate too much of the wording of the aim. For example, if the aim is to describe the experiences and beliefs of parents with severely ill children, it is not informative to label the categories 'experiences' and 'beliefs', which the reader may argue shows a very shallow level of analysis. Instead, the categories in this example should say something about the nature of the experiences and beliefs, for example, as 'exhausting experiences' and 'unrealistic beliefs'.

Another issue is whether the category/theme is a mere summary of the sub-categories/sub-themes. For example, aiming to describe nurses' experiences of implementing person-centred care, the result can be presented in the sub-categories 'lack of information', 'poor support', and 'unclear organisation' under the category of 'lack of information and support in an unclear organisation'. Here it is obvious that the category is a summary and that no abstraction and interpretation from sub-categories to categories has been done. The analysis is not yet ready.

3. Conclusion

In order to strengthen the trustworthiness of qualitative content analysis we have elaborated the phases of de-contextualisation and re-contextualisation as well as the distinction and complex relation between abstraction and interpretation during the analytic process. We hope this contributes to researchers' increased awareness of the need to describe more thoroughly the demanding work required by the analytic process. We also argue that qualitative content analysis can be both descriptive and interpretative. When data allow the interpretation of latent content, qualitative content analysis can reveal both the depth and meaning in participants' utterances.

Contribution

All authors have contributed equally with ideas and preparation of the manuscript.

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Conflict of Interest

The authors report no conflict of interest. The authors alone are responsible for the content and writing of the paper.

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