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## Qualitative Content Analysis

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### What Is Qualitative Content Analysis?

Qualitative content analysis is a method for systematically describing the meaning of qualitative data (Mayring, 2000; Schreier, 2012). This is done by assigning successive parts of the material to the categories of a coding frame. This frame is at the heart of the method, and it contains all those aspects that feature in the description and interpretation (see Willig, [Chapter 10](#), this volume) of the material. Three features characterize the method: qualitative content analysis reduces data, it is systematic, and it is flexible.

Unlike other qualitative methods for data analysis which open up (and sometimes add to) data, qualitative content analysis helps with reducing the amount of material. It requires the researcher to focus on selected aspects of meaning, namely those aspects that relate to the overall research question. There can be many such aspects – some coding frames contain well over 100 categories and subcategories – but ultimately the number of aspects is limited by the number of categories a researcher can handle. Also, when defining the categories, one will usually go beyond the specifics of any particular passage. Instead, the meaning of the passage will be taken to a higher level of abstraction, resulting in categories that apply to a number of concrete, slightly different passages. McDonald et al. (2009), for example, analysed the reports of people who had a spiritual experience in a wilderness setting. One participant wrote about seeing the sun set, a second wrote about the expanse of a glacier, and a third emphasized the sense of calm that she experienced in a fjord. When analysing these descriptions, the authors did not create separate categories for sunsets, glaciers and the calmness of fjords, but they created one overarching category of 'aesthetic experience' that covered all these descriptions and more. On the one hand, abstracting from the specifics of a given passage invariably results in the loss of concrete information. On the other hand, one gains a sense of how different parts of the material compare and relate to each other.

A second key feature of qualitative content analysis is that it is highly systematic. To start with, the method requires the examination of every single part of the material that is in any way relevant to the research question. In this way, the method counteracts the danger of looking at the material only through the lens of one's assumptions and expectations. The method is also systematic in that it requires a certain sequence of steps, regardless of the exact research question and material. As is often the case in qualitative research, this may

be an iterative process, going through some of these steps repeatedly, modifying the coding frame in the process. But the steps and their sequence remain the same. The method is also systematic in that it requires coding (i.e. assigning segments of the material to the categories of the coding frame) to be carried out twice (double coding), at least for parts of the material. This is a test of the quality of the category definitions: they should be so clear and unambiguous that the second coding yields results that are very similar to those of the first coding (see in detail below).

A third key feature of qualitative content analysis – especially by comparison with the quantitative version (Krippendorff, 2004; Neuendorf, 2002) – is its flexibility. Qualitative content analysis typically combines varying portions of concept-driven and data-driven categories within any one coding frame. At the same time, a part of the categories should always be data-driven. This is to make sure that the categories in fact match the data – or, to put it differently, that the coding frame provides a valid description of the material. Qualitative content analysis is therefore flexible in that the coding frame should always be matched to the material.

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## What Are the Origins of Qualitative Content Analysis?

### The Emergence of Qualitative Content Analysis

Qualitative content analysis developed out of the quantitative version of the method (on the history of content analysis, see Krippendorff, 2004: ch. 1; Schreier, 2012: ch. 1). This originated in the first half of the twentieth century, in the context of a broadening media landscape and a concomitant interest in media effects research, as well as the Second World War and the related interest of the US government in the analysis of propaganda issued in Nazi Germany.

In 1941, a conference on mass communication with a focus on content analysis was held in Chicago and was attended by all leading scholars in the field (Waples, 1942). In 1952 Berelson published what was to become the first leading textbook on quantitative content analysis. There he put forward his definition of the method which continues to be cited today: ‘Content analysis is a research technique for the objective, systematic, and quantitative description of the manifest content of communication’ (1952: 18).

With his definition of content analysis as quantitative and limited to the description of manifest communication content, Berelson had firmly established the method within the quantitative research tradition. But in the same

year that Berelson published his textbook, his narrow definition of the method was contested by Kracauer (1952). Kracauer pointed out that meaning is often complex, holistic, context dependent, and that it is not necessarily apparent at first sight. He also argued against the practice prevalent in quantitative content analysis to equate the coding frequency of a given theme with its importance. On these grounds Kracauer advocated a different type of content analysis that does not limit itself to manifest content and frequency counts. Kracauer was therefore the first proponent of qualitative content analysis. His suggestions were later taken up by George (1959), who argued in favour of what he called 'non-frequency content analysis', and by Holsti (1969), who advocated a similar non-quantitative type of content analysis.

## A Classic Example in Qualitative Content Analysis

A classic example from these early days of the method is Shannon's analysis (1954) of the newspaper cartoon *Little Orphan Annie*. The cartoon was originally intended for children, but soon attracted as much of an adult audience. Shannon was struck by how the editors of the paper used the cartoon as a vehicle for transporting conservative, middle-class American, anti-Roosevelt sentiment and values. Using qualitative content analysis, she examined these values in depth, focusing on five questions which she used for her main categories: (1) Who are Annie's friends and opponents, and who among the opponents is killed or injured? (2) What are the goals that Annie and her friends approve of and (3) how do the characters suggest to reach these goals? (4) Which symbols do Annie and her friends evaluate positively and (5) which symbols do they condemn?

Shannon and another coder answered these questions in writing, examining 104 weekly appearances of the comic strip over a period of two years (April 1948 to July 1950). Shannon then summarized the answers and in this way created her subcategories. The analysis shows that both the very poor (other orphans, for instance) and the very rich (whom Annie solicits to help the orphans) are Annie's most important friends, whereas Russian foreign agents and 'a gang of young hoodlums working the protection racket' (1954: 173) figure among her most notorious enemies. Her life goals include making a lot of money, being charitable, being a law-abiding citizen, making a good marriage, and raising a large family. To get there, making a large amount of money (i.e. money features both as an end and a means), the use of force and hard work are suggested. Orphans, work, honest merchants and smart businessmen figure among the symbols that Annie and her friends evaluate positively, whereas 'lazy mean people who are unwilling to work' (1954: 178), radicals, slave

labour camps, the Soviet Union and Hitler, receive a negative evaluation. These findings are reported mostly in a narrative format, supplemented by coding frequencies and many examples from the cartoon strip.

## Further Developments of Qualitative Content Analysis

Qualitative content analysis continued to be developed on the Continent, especially in Germany. Further developments include Ritsert's (1972) concept of an anti-ideological version of the method (in a similar tradition, Vorderer and Groeben, 1987), Rust's (1980) 'strict and qualitative' qualitative content analysis, and flexible content analysis (Rustemeyer, 1992). A major proponent of the method in Germany has been Mayring (2000; 2010), who developed several distinct versions of the method, notably summarizing and structural qualitative content analysis.

In English-speaking countries, especially in England and the United States, the situation has been different. As quantitative content analysis evolved methodologically, the method was increasingly applied to less manifest types of meaning – although the focus on presenting results in terms of coding frequencies was generally maintained. Because the quantitative had opened up towards qualitative versions of the method, many researchers argued that the distinction between a qualitative and a quantitative type of content analysis was only a matter of degree (Holsti, 1969; Krippendorff, 2004). Quantitative increasingly came to 'embrace' qualitative content analysis.

Because of this development, qualitative content analysis has not been well known as a method in its own right in most English-speaking countries until recently. Some qualitative researchers do not mention it at all in their textbooks (Gibbs, 2007; Mason, 2002), or else they present what is really quantitative content analysis (Berger, 2000; Bernard and Ryan, 2010). Others use the term 'qualitative content analysis' to refer to the full range of qualitative methods for data analysis, equating the method with other qualitative methods such as discourse or conversation analysis (Krippendorff, 2004). Yet other authors call the method by a different name, such as 'thematic coding' (Boyatzis, 1998) or 'qualitative media analysis' (Altheide, 1996). Descriptions of qualitative content analysis as a method in its own right started to appear in the Anglo-American literature only recently (e.g. Hsie and Shannon, 2005; Schreier, 2012).

This overview shows that there exist different versions of qualitative content analysis. The core ideas and steps in the version described here largely correspond to what Mayring (2010) has called structural, Hsie and

Shannon (2005) conventional, Rustemeyer (1992) flexible (qualitative) content analysis, and what Boyatzis describes as thematic coding (1998).

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## How Does Qualitative Content Analysis Relate to Other Methods?

### Qualitative and Quantitative Content Analysis

There is no sharp dividing line between qualitative and quantitative content analysis (Groeben and Rustemeyer, 1994), and the two methods share many similarities. Both versions of the method are concerned with the systematic description of data through coding. To do so, they follow a predefined series of steps. In both cases this involves making use of a coding frame, generating category definitions, segmenting the material into coding units, and distinguishing between a pilot phase and a main phase of analysis. Quality criteria used in qualitative content analysis, notably consistency (to assess reliability) and validity (see Barbour, [Chapter 34](#), this volume), are derived from the quantitative version of the method, although they are often applied less strictly. As in quantitative content analysis, presenting the findings of qualitative content analysis can involve frequency counts.

But despite these similarities, qualitative content analysis has specific features that set it apart as a method in its own right. Whereas the focus of quantitative content analysis continues to be on manifest meaning, qualitative content analysis is also applied to latent and more context-dependent meaning. Because latent meaning is harder to describe consensually, consistency as a quality criterion is handled less strictly in the qualitative version of the method. Quantitative content analysis is often used to test hypotheses, and, because of this, entire coding frames may be built in a concept-driven way, and the coding frame is always tried out on material that is different from the material used in the main study. The focus of qualitative content analysis is more often on providing a detailed description of the material under analysis. To provide a good fit with the material, the coding frame will at least in part be data-driven, and it should be built and tried out on the same material that is used in the main study. When it comes to presenting the findings, in quantitative content analysis the process of coding is only the starting point for a subsequent statistical analysis of the data. In fact, in the quantitative research tradition content analysis is usually considered a method for data *collection*. In the qualitative tradition, on the other hand, content analysis counts as a method for data *analysis*.

## Qualitative Content Analysis and Other Qualitative Research Methods

Qualitative content analysis shares many features with other qualitative research methods, such as the concern with meaning and interpretation (see Willig, [Chapter 10](#), this volume) of symbolic material, the importance of context in determining meaning, and the data-driven and partly iterative procedure. But the method also incorporates elements from the quantitative research tradition and in these respects it differs from other qualitative methods. Because the process of assigning units of meaning to the categories of the coding frame is termed 'coding' and because a 'coding frame' is at the heart of the method, qualitative content analysis is easily confused with (inductive) coding in particular (on coding, Gibbs, 2007; see also Thornberg and Charmaz, [Chapter 11](#), this volume). But whereas inductive coding allows for assigning any number of codes to a piece of text, qualitative content analysis is more restrictive here (see below on the requirements of unidimensionality and mutual exclusiveness for coding frames). In inductive coding, code development and application go hand in hand, whereas they have to be performed separately and consecutively in qualitative content analysis, and the coding frame can no longer be changed during the main analysis phase. Unlike coding, qualitative content analysis requires a step of segmentation, a pilot coding and a subsequent evaluation of the coding frame in terms of reliability and validity (see Barbour, [Chapter 34](#), this volume).

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### How to Do Qualitative Content Analysis?

#### Data Preparation

Qualitative content analysis is divided into a series of steps which are summarized in [Box 12.1](#). Usually, no special data preparation is necessary. If transcripts are used, there is no need for a detailed description of paralinguistic features, especially if the focus is on the themes mentioned in the material. But because qualitative content analysis is concerned with describing meaning in context, relevant context should always be made available in or with the material. Transcripts should be complete, including the questions asked by the interviewer, not leaving out anything that may seem 'unimportant' while transcribing (see Kowal and O'Connell, [Chapter 5](#), this volume).

### ***Box 12.1 Steps in Qualitative Content Analysis***

1. Deciding on a research question.
2. Selecting material.
3. Building a coding frame.
4. Segmentation.
5. Trial coding.
6. Evaluating and modifying the coding frame.
7. Main analysis.
8. Presenting and interpreting the findings.

### **Building a Coding Frame**

Building a coding frame consists of the following steps: selecting material; structuring and generating categories; defining categories; revising and expanding the frame. Before going through these steps one by one, the idea of a coding frame will be described in more detail. Descriptions of these steps can, for example, be found in Boyatzis (1998), Mayring (2010), Rustemeyer (1992), and Schreier (2012).

### ***The Coding Frame***

The coding frame is at the heart of the method. It consists of at least one main category and at least two subcategories. Main categories are those aspects of the material about which the researcher would like more information, and subcategories specify what is said in the material with respect to these main categories.

In a recent study about prioritizing in health care (Diederich and Schreier, 2009), we conducted interviews where we presented our participants with a number of scenarios. One of these scenarios described the case of Terri Schiavo, a woman who had been in a coma vigil for 15 years, when it was decided in 2005 to discontinue intravenous feeding. Aspects that we wanted to know more about included participants' opinions about turning off the machines that were keeping Terri Schiavo alive and their reasons for considering this course of



action to be justified or not. For the main category *Opinion*, we generated the following subcategories: *morally justified, long overdue, morally wrong, refusal to take any decision, unclear, miscellaneous*. Subcategories for the main category *reasons in favour of turning off the machines* included: *unnecessary prolongation of suffering, high costs, long duration of comatose state, agreement by the relatives*, and several others.

Coding frames can vary in complexity, consisting of any number of main categories and hierarchical levels, with subcategories containing additional sub-subcategories (cf. Schreier, 2012: ch. 4). In practice, however, more than three hierarchical levels can be difficult to handle.

Coding frames should meet a number of requirements. To start with, main categories should cover one aspect of the material only (requirement of *unidimensionality*). This is why we created separate main categories for *opinion* and *reasons* in the above study. But there can of course be many such main categories, that is the requirement of unidimensionality applies to any one main category – which should cover one concept only – but not to the entire coding frame, which can and usually will be multi-dimensional.

Second, subcategories within one main category should be created so that they are mutually exclusive (requirement of *mutual exclusiveness*). The reasons for this are partly conceptual (there would be little point in classifying a participant as considering the decision in the case of Terri Schiavo to have been both justified and unjustified) and partly practical (Schreier, 2012: ch. 4). Again, it is important to see this requirement in the context of the entire coding frame. The requirement does not imply that any one unit can be coded only once – it implies that any unit can be coded *only once under one main category*. In our study, we routinely classified one and the same passage in terms of a participant's opinion about turning off the life support for Terri Schiavo, for example, and a reason for that opinion. The requirement also does not prevent the researcher from coding several subcategories under the same main category for the same person – it only prevents the researcher from doing so for the same unit of coding (units of coding are described in detail below). In other words, the same participant may well argue that it was wrong to turn off the life support for a number of reasons, for example both on moral and on legal grounds. And both reasons can be coded – but not for the same unit. Qualitative content analysis requires that the material is divided up ('segmented') in such a way that one segment is classified as, for example, 'moral grounds' and a second one as 'legal grounds'.

Finally, all relevant aspects of the material must be covered by a category (requirement of *exhaustiveness*).

This is to make sure that all parts of the material are equally accounted for by the coding frame. In practice, the requirement is easy to meet by introducing *residual categories*. But there should not be too many of these and they should not be used too often, else the frame will not be sufficiently valid (see below).

## ***Selecting Material***

Qualitative research often involves large amounts of material. Because of this and to avoid ‘cognitive overload’, typically only a part of the material is used in building the coding frame. Therefore, the first step in building a frame is to select a suitable amount of material. The most important criterion here is to select the material so that it reflects the full diversity of data sources. If the data consist of interviews with different stakeholder groups, at least one interview from each group should be selected. If the material consists of newspaper articles from three different time periods, all three time periods should be represented in the selection.

But even if only part of the material is used, it is best to build the frame not in one step, trying to cover the material all at once. It is better to break the material down into smaller ‘chunks’ and to build the coding frame for one ‘chunk’ after another, for example according to source or (if interviews were used for data collection) according to topic. The two strategies can also be combined, and in fact this is what we did in our study on setting priorities in health care. We started out with the patients and what they had to say on one topic, such as the case of Terri Schiavo. We then moved on to what the physicians had to say about this case, including one group of participants after another. Once we had finalized the coding frame for this one topic, we moved on to another case vignette, again starting with the patients, and so on, until we had finalized a first version of the entire coding frame.

## ***Structuring and Generating***

Structuring and generating are the next steps in building the coding frame, where structuring refers to creating the main categories and generating to creating the subcategories for each main category. These steps can be carried out in a concept- or in a data-driven way. But it is not a good idea to generate all categories in a concept-driven way. A key objective of qualitative content analysis is to provide a good description of the ma-

material. Concept-driven categories alone, however, may leave part of this material unaccounted for. This is why concept-driven categories are usually combined with data-driven categories. One way to do this is to create main categories in a concept-driven way and to add subcategories in a data-driven way.

Working in a *concept-driven* way means basing the categories on previous knowledge: a theory, prior research, everyday knowledge, logic, or an interview guide (Schreier, 2012: ch. 5). In our study on setting priorities in health care, for example, we used our interview questions for generating main categories, such as: the participants' *opinion* on terminating Terri Schiavo's life support, their *reasons* why they considered this *justified or unjustified*, or *other information* they would have liked about the case before coming to a decision.

When working in a *data-driven* way, there are again several strategies to choose from (Schreier, 2012: ch. 6). The most important among these are *subsumption* and *progressive summarizing*; these strategies largely correspond to the structural (subsumption) and the summative (progressive summarizing) types of qualitative content analysis developed by Mayring (2010: section 5.2.4). Subsumption is a useful strategy for generating subcategories in a data-driven way once main categories have been decided upon. It involves examining one passage after another, going through the following steps:

1. Reading the material until a relevant concept is encountered.
2. Checking whether a subcategory that covers this concept has already been created.
3. If so, mentally 'subsuming' this under the respective subcategory.
4. If not, creating a new subcategory that covers this concept.
5. Continuing to read until the next relevant concept/ passage is encountered.

This process is continued until a point of *saturation* is reached; that is, until no additional new concepts can be found.

*Successive summarizing* is a suitable strategy for developing entire coding frames in a data-driven way (Mayring, 2010: section 5.5.2). This involves paraphrasing relevant passages, deleting from these passages anything that appears superfluous, and summarizing similar paraphrases which are then turned into categories and subcategories.

*Comparing and contrasting* is another strategy for developing entire coding frames in a data-driven way. This

is especially useful for comparing different sources (Boyatzis, 1998).

## ***Defining***

Once the structure of the coding frame has been developed, the next step is to define the categories. Category definitions consist of four parts: a category name, a description of what is meant by that name, positive examples, and decision rules.

*Category names* should provide concise descriptions of what a category refers to; they should be neither overly long nor overly short and cryptic. These are some examples of names that we used for subcategories referring to reasons why participants believed it was wrong to have turned off the machines that were keeping Terri Schiavo alive: *Reasons against: unethical/unjust procedure; playing God; criminal offence.*

*Descriptions* can consist of two parts: a definition and indicators. The definition is a mandatory part of the category description. It states what is meant by a given category and what features are characteristic of the category. It helps to think of definitions as instructions in a code book, telling the coders when a given category is applicable. A frequent mistake is to make definitions too narrow by limiting them to the instances of the category in the material that is used for building the coding frame. But of course the category should be more comprehensive than those specific instances and be applicable to the entire material. The following is our definition of the category *Reasons against: unethical/unjust procedure* (Winkelhage et al., 2008b: 81; my translation):

This category applies if an interviewee argues that it was wrong on moral grounds to turn off the machines that were keeping Terri Schiavo alive. The category applies whenever an interviewee expresses the view that turning off the machines is unethical and/or constitutes a violation of a moral rule or principle, for instance the principle of justice. It is not relevant which moral principle or rule the interviewee considers to have been violated. The interviewee's exact reasoning why s/ he considers turning off the machines to be in violation of a moral rule or unethical is also not relevant.

Indicators are signs that point to the presence of a phenomenon, something by which to recognize a phenomenon. They can be specific words, or they can be descriptions of the ways in which the presence of a

phenomenon manifests itself in the data. Indicators of the above category might include words such as *unethical, immoral, morally wrong or unfair*.

Because category definitions are by necessity somewhat abstract, it is helpful to illustrate them by providing examples from the material. Ideally, these should be typical examples of the category, but hypothetical examples may also be used. One or two examples are perfectly enough – otherwise, the coding frame quickly becomes too large and therefore difficult to handle. The following is the example we used to illustrate the category *Reasons against: unethical/unjust procedure* (Winkelhage et al., 2008a: 81; my translation):

I would say that it is an ethical thing really. And that a society, like American society which relies on – well, finding one's way in society, acting appropriately, liking sports, being dynamic, all that sort of thing. And being old, fragile, sick, disabled, all this is marginal. ... So it has something to do with ethics, with the ethics of a society. And because of this I would say – Well, I believe that this was a very unfortunate decision. (ID—110: 59)

To make sure that subcategories within one main category are indeed mutually exclusive, decision rules may be needed. Unlike the category name, description and examples which are a necessary part of category definitions, decision rules are optional and are needed only where subcategories may overlap and where coders may therefore be uncertain which category to use. In these cases, decision rules tell the coders which of the two categories to use. They should specify what is not to be included in a category and which category to use instead. We used the following decision rule to differentiate between *Reasons against: unethical/unjust procedure* and the closely related subcategory *Reasons against: manner of death* (Winkelhage et al., 2008b: 81; my translation).

If it is not primarily turning off the machines as such which the participant considers to be unethical, but Terri Schiavo's manner of death (such as: starving or dying of thirst), the present category does not apply. In this case, the category 'manner of death' should be used.

Extensive definitions, including a name, description, example, and decision rules if needed, should be generated for all subcategories in the coding frame. With main categories, a brief description of the scope of the category is usually enough.

## ***Revising and Expanding***

Once all categories have been generated and defined, it is time to take a step back, look at the structure of the coding frame once again, and 'tidy up' any loose ends. If subcategories are very similar, it might be best to collapse them. Some subcategories may be much more comprehensive than others and might be better conceptualized as main categories. These and other considerations may lead to a revision of the structure of the frame.

If the coding frame has so far been based on part of the data only, the frame should in a next step be expanded to include the next part. Each expansion involves going through all the previous steps once again, checking whether any additional main categories (structuring) and any new subcategories (generating) are required and defining any new subcategories. These steps are repeated as many times as there are different sources or parts of the material that have not yet been covered.

## ***Segmentation***

Coding consistency, that is applying categories to the entire material in a consistent manner, is an important quality criterion in qualitative content analysis. It is assessed by comparing two rounds of coding that are carried out either by two independent coders or by one coder at two points in time. But comparing two rounds of coding only makes sense if the codes are applied to identical parts of the material each time. Because of this, the material has to be segmented into units before any coding is done.

Segmentation involves dividing the material into units in such a way that each unit fits into exactly one (sub)category of the coding frame. These coding units are those parts of the material that can be interpreted in a meaningful way with respect to the subcategories, and their size can vary from an entire book to a single word. This definition shows that segmentation is in fact closely related to developing the coding frame and meeting the requirement of mutual exclusiveness. The size of segments or units should be chosen so as to match the definition of the categories.

Dividing the material into units of coding requires a criterion that specifies where one unit ends and another

one begins. There are two such types of criteria: formal and thematic (Rustemeyer, 1992). Formal criteria draw on the inherent structure of the material. They are formal units such as words, sentences or paragraphs in a legal text. Formal units make segmentation easy because they are usually very obvious. However, unless the category definitions match the internal structure of the material, formal criteria may not result in meaningful units. Especially in qualitative research, a thematic criterion will often be more useful. This involves looking for topic changes, and one unit essentially corresponds to a theme. What constitutes a theme will vary with the coding frame and main categories. Thematic criteria are much less clear cut than formal criteria, but they often provide a better fit with the coding frame.

In our study on prioritizing in health care, we used a thematic criterion for segmentation (Winkelhage et al., 2008a), as in the following example where the focus is on reasons and considerations raised by the interviewee concerning the case of Terri Schiavo:

[Of course this is – it's a complete borderline issue, and of course you can never tell whether someone might not wake up again after 20 years or so.] [This is not, it is not just about the costs, but, well] ... [You have to, and this always applies where medical issues are concerned: Have another very close look at the medical parameters. This is a very decisive factor.]

When dividing the material into segments, units of coding should be numbered consecutively per source. If a formal criterion is used, segmentation can be done in parallel with the coding. If a thematic criterion is used, segmentation should precede coding. This can be done by one person, but if two coders will be working on the material, it is useful to do part of the segmentation process together.

## The Pilot Phase

In the pilot phase, the coding frame is tried out on part of the material. This is crucial for recognizing and modifying any shortcomings in the frame before the main analysis is carried out. The pilot phase consists of the following steps: selecting material; the trial coding; evaluating and modifying the coding frame.

## ***Selecting and Preparing Material***

Material for the pilot phase should again be selected so as to cover all types of data and data sources in the material. In addition, the material should also be selected so that the majority of categories in the coding frame can be applied during the trial coding. In our study on prioritizing in health care, for example, we included interviews with participants who approved and who did not approve of turning off the machines that were keeping Terri Schiavo alive. This material is then segmented into coding units, as described above.

## ***The Trial Coding***

The next step, the trial coding, is at the heart of the pilot phase. The categories from the coding frame are applied to the material during two rounds of coding, following the same procedure that will be used during the main coding. This can be done by two coders working independently of each other or else by one person coding and recoding the material within approximately 10 to 14 days.

Frames that consist of more than 40 categories should be divided into parts that are applied consecutively, else coders are likely to make mistakes. An obvious way to do this is to divide the frame by main categories, that is to start out by applying all subcategories for this one main category, then move on to the next main category, and so on. All codings should be entered into a coding sheet, where the coding units are the rows and the main categories are the columns. The subcategory to which each unit of coding is assigned is entered into the cells.

## ***Evaluating and Modifying the Coding Frame***

Evaluating the coding frame involves examining the results of the trial coding in terms of consistency and validity (see Barbour, [Chapter 34](#), this volume).

If the definitions of subcategories are clear and straightforward and if the subcategories are mutually exclusive, units of coding will usually be assigned to the same subcategories during both rounds of coding. In oth-



er words, the higher the consistency between the two rounds of coding, the higher the quality of the coding frame. This is why it is important to identify those units of coding that were assigned to different subcategories during the two rounds. If the coding was done by two coders, it is helpful to have them sit down together and discuss their reasons for assigning a coding unit to different subcategories. It can also be helpful to quantify the degree of coding consistency by calculating a coefficient of agreement (Neuendorf, 2002: ch. 2; Schreier, 2012: ch. 9). Usually this examination of inconsistencies will show which subcategories were difficult to use and which subcategories were used interchangeably, pointing to overlaps between categories. The definitions of such subcategories should be revised, and decision rules should be added where needed.

The second criterion for evaluating coding frames is validity, that is the extent to which the categories adequately describe the material and the concepts that are part of the research question. For all data-driven parts of the frame, the distribution of coding frequencies across the subcategories for a main category is indicative of validity. In particular, the coding frame does not adequately describe the material wherever coding frequencies are high for residual categories. In this case, additional subcategories to capture these aspects should be created. For all concept-driven parts of the coding frame, ideally an expert on the research topic should assess the frame.

If only few changes are made to the frame following the trial coding, the frame can now be used for the main analysis. Otherwise, it may be best to run a second trial coding before moving on to the next step.

## The Main Analysis Phase

The main analysis phase is where *all* material is coded. It is important to keep in mind that the coding frame can no longer be modified at this stage. Therefore it is crucial that the frame is sufficiently reliable and valid before entering this phase.

A first step in the main analysis is to divide the remaining part of the material into coding units. In a next step, the material is coded by assigning these units to the categories in the coding frame. Because the frame has already been evaluated and revised, it is now no longer necessary to double-code each unit. The exact amount of material to be double-coded at this stage depends on the results of the pilot phase. The lower the

coding consistency and the validity of the first version of the frame, and the more changes were made as a result of the pilot coding, the more the material should be double-coded during the main analysis phase. If only few changes were made following the pilot coding, double-coding approximately one-third of the material during the main analysis is sufficient. This, however, is only a rule of thumb.

The results of the main coding should again be entered into a coding sheet. The final meaning of a unit is obvious for those parts of the material that were coded only once and for those that were double-coded and where the two rounds of coding agree. Any coding inconsistencies need to be discussed and resolved. Researchers who are working on their own should try to keep track of their reasons for interpreting the unit differently each time and arrive at a final meaning in this way. If an inconsistency cannot be resolved, it can be useful to bring in a third person who is also familiar with the research.

In a final step of the main analysis phase, the results of coding should be prepared so that they are suitable for answering the research question. This is necessary whenever the units of coding are smaller than the cases specified in the research question. In this case, the coding has to be transformed from the level of the unit of coding to the level of the case. This is done by creating a new data matrix where the columns continue to correspond to categories, but the rows now represent cases. In our study about prioritizing in health care, one of our concerns was with comparing the reasons why members of different stakeholder groups (patients, physicians, politicians, etc.) believed that it was or was not a good decision to turn off the machines that were keeping Terri Schiavo alive. We therefore had to create a new data matrix where each row no longer corresponded to a unit of coding, but to an interviewee.

## Presenting the Findings

With qualitative content analysis, the coding frame itself can be the main result (this was the case with our study on setting priorities in health care, see Winkelhage et al., 2008b; for another example, see Heil, 2011). In this case, presenting the findings involves presenting the frame and illustrating it through quotes. This can be done through continuous text or through text matrices, that is tables that contain text instead of or in addition to numbers. Text matrices are very flexible and especially useful for contrasting different sources or illustrating selected cases (Miles and Huberman, 1994). The findings can also serve as a starting point for further data exploration, examining the results of qualitative content analysis for patterns and cooccurrences

of selected categories. This involves moving beyond the individual units of coding and categories to the *relations* between the categories (Gibbs, 2007; Miles and Huberman, 1994).

All the above are essentially qualitative ways of presenting the findings of qualitative content analysis. Alternatively, findings can also be presented in quantitative style. This typically involves reporting coding frequencies, percentages or inferential statistics such as chi-square analysis. Inferential statistics are especially useful for comparing different sources, provided that there are enough cases (for an example see Odag, 2008; see also Denzin, [Chapter 39](#), and Morse and Maddox, [Chapter 36](#), this volume).

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## Applications and Perspectives

### Applications

Qualitative content analysis is suitable for a wide range of materials, visual or verbal, self-generated (by conducting interviews or focus groups etc.) or sampled from available sources (websites, newspapers, magazines, blogs, letters, etc.). Because of this inherent flexibility, the method has been applied across a wide range of disciplines, branching out from its early usage in communication studies. These include, but are not limited to, research in education (Kapustka et al., 2009), psychology (McDonald et al., 2009), sociology (Finn et al., 2011), political science (Heil, 2011), the empirical study of literature (Odag, 2008), and research in health-related fields (Diederich and Schreier, 2009).

But of course there are limits to the applicability of qualitative content analysis. The focus of this method is on description. This implies that the material is taken 'for granted'; the method is, so to speak, ontologically and epistemologically 'naive'. Therefore, if a researcher is concerned with doing a critical analysis, discourse analysis (see Willig, [Chapter 23](#), this volume) would be a better method to use (Van Dijk, 1997a; 1997b). With its focus on description, qualitative content analysis is also not suitable for theory building (here grounded theory would be the better choice: Corbin and Strauss, 2008; see Thornberg and Charmaz, [Chapter 11](#), this volume). Furthermore, qualitative content analysis is a method that *reduces* data, making use of categories that abstract from individual passages. If the data are to be opened up instead, some type of coding would again be a better option (Gibbs, 2007). Qualitative content analysis also reduces data by forcing the researcher to

assign each coding unit to one subcategory only (within one main category; of course one coding unit can be classified under several main categories). Where the researcher is concerned with exploring multiplicity of meaning and how different meanings relate to each other, a method like semiotics would be the better choice (Chandler, 2007).

## Perspectives

On the one hand qualitative content analysis is flexible, concerning the material to which it is applied, but on the other hand the idea of the coding unit works best when applied to textual material. It is much more difficult to segment visual material (see Banks, [Chapter 27](#), this volume) or online material (see Marotzki et al., [Chapter 31](#), this volume) with a hypertext structure where units may range across different websites. This difficulty is unfortunate in a time and age where multimodality is ever increasing in importance (Kress and Van Leeuwen, 2002). It is therefore crucial to develop the method so as to facilitate its application to material other than texts.

Today, qualitative data analysis increasingly makes use of software (Lewins and Silver, 2007). However, the majority of the programs currently on the market do not seamlessly fit the requirements of qualitative content analysis (Schreier, 2012: ch. 12). Several programs have been developed for conducting content analysis – but this refers to *quantitative* content analysis, and the programs are not suitable for the qualitative version of the method. Qualitative software (see Gibbs, [Chapter 19](#), this volume), on the other hand, was often developed with grounded theory (see Thornberg and Charmaz, [Chapter 11](#), this volume) in mind. And while it can easily be adapted to qualitative content analysis, this type of software does not equally support all steps of the method. Software that supports qualitative content analysis in particular is still under development. Bringing computer-aided qualitative data analysis and qualitative content analysis together by developing flexible software that supports all steps of the method is the next step ahead.

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