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Qualitative Content Analysis: Demarcation, Varieties, Developments

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Abstract: More than 35 years ago I developed the basic procedures of a qualitative content analysis which are still widely used in qualitative oriented social science text analysis. I want to give an overview of the reception and recent developments of this approach.

Three topics are elaborated in this article: First the theoretical background of qualitative content analysis is summarized and compared to other approaches of social science text analysis. This includes a differentiation of quantitative content analysis. In quantitative content analysis the process of categorization is running automatically, following a fixed algorithm, whereas in qualitative content analysis the assignment of categories to text passages always remains an act of interpretation. But this process strictly follows rules of interpretation. Second, the reception of my conception of qualitative content analysis is retraced and some misunderstandings cleared up. Additionally, the approach of qualitative content analysis proposed by Margrit SCHREIER and Udo KUCKARTZ is compared to my concept. This is demonstrated with an example. Third, recent developments are reviewed and free available software especially developed for qualitative content analysis (QCAmap) is introduced.

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1. Introduction

The qualitative content analysis techniques, with which our research group (FENZL & MAYRING, 2017; MAYRING & FENZL, 2019; MAYRING & GLÄSER-ZIKUDA, 2008) is still working with today, were developed at the end of the 1970s. This development began in the context of a research project about the psycho-social effects of unemployment (ULICH et al., 1985). Back then, as part of a longitudinal study, semi-structured interviews were carried out (approximately 600 interviews), and that led to a large amount of transcribed material. A text analysis procedure that could deal with that amount of material was sought-after. The content analysis developed in communications and media for analyzing material in the mass media (e.g., from newspapers) seemed to be relevant because of its adherence to rule-based systematic analytical procedures. The principle idea behind the qualitative content analysis was to build upon the rule-based systematic principles of the quantitative content analysis. Furthermore, to develop and substantiate qualitative procedures that didn't exclude quantitative analyses (category frequencies) for a variety of qualitative text analysis tasks (summarizing, explication, structuring of text material). Such procedures appear to be particularly justified for larger amounts of text to be able to go beyond a purely case-by-case exploratory research strategy (MAYRING, 2010a). The method was first presented in 1983 (MAYRING, 2015) and is referred to as *mixed methods* or as a hybrid approach (HUSSY, SCHREIER & ECHTERHOFF, 2010), which contains both qualitative and quantitative steps. The characterization "a qualitatively orientated category-based content analysis" seems more appropriate from my point of view today. This is because the qualitative step of assigning categories text passages remains central and the analysis of category frequencies is not always required. [1]

The openness for both qualitative and quantitative analysis steps might explain why this social science approach of text analysis is so widely used. Stefan TITSCHER, Michael MEYER, Ruth WODAK, and Eva VETTER (2000) found open content analysis forms at 39 percent (1621 results) as the most frequent text analytical procedure in a systematic bibliometric analysis of the literature and research databases FORIS, SOLIS, Sociofile, Psyndex and MLA. Open content analysis forms were followed by conversation analysis (21%), standardized content analysis (19%), grounded theory (12%), objective hermeneutics (5%), and ethnography (2%). Maria Jesus CARRERA-FERNANDEZ, Joan GUARDIA-OLMOS and Maribel PERO-CEBORELLA (2014) identified that particularly in psychology (based on the Web of Science database) the qualitative content analysis was by far the first choice of analysis procedure, followed by grounded theory, discourse analysis and action research in their qualitative orientated journal article analysis. This should be reason enough to summarize the foundations, receptions, and developments. First, the central theoretical principles of qualitative content analysis are presented. The following section looks at similar concepts as well as the approach's reception, and in doing so, common misunderstandings that have occurred over time are explored. Before outlining further developments in the concluding outlook, I use an example to illustrate the procedure in more depth. [2]

2. Foundations of the Qualitative Content Analysis

I want to outline the most salient points in the characterization of the type of content analysis that we have developed (MAYRING, 2015; MAYRING & FENZL, 2019).

- The qualitative content analysis' approach (as with the quantitative content analysis) is category-based, that is its distinguishing feature. Categories refer to aspects within the text, which put the meaning of those aspects in a nutshell. Text evaluation is, therefore, restricted to the selected category system. Text contents that are not addressed by the categories or holistic impressions are not taken into account or would have to be addressed with other text analysis methods.
- The qualitative content analysis procedure is research question oriented. Text analytical questions (possibly several) are derived from the main aims of the research project. These questions should be answered at the end of the analysis. This clearly distinguishes the qualitative content analysis from other completely open, explorative methods such as grounded theory.
- Qualitative content analysis is characterized by strict rule management and systematic. Process models enable the procedure to be described step-by-step, and this has proven itself in countless research processes. The specific rules for each technique are reviewed in a pilot study and should not be changed after that.
- I have described several specific evaluation options as part of the qualitative content analysis. Recently, I proposed and developed eight techniques (MAYRING, 2015):
  1. Summarizing
  2. Inductive category formation
  3. Narrow context analysis
  4. Broad context analysis
  5. Formal structuring
  6. Content structuring
  7. Type-building content analysis
  8. Scaling structuring.

  Besides the techniques above, there are also mixed variants. In other places (MAYRING, 2014), I have referred to structuring as an ordinal or categorical deductive category application. Further, I have made reference to type building and content structuring among others as mixed techniques. The decision for a specific content-analytical technique depends on the formulation of the research question. It is possible to use individual techniques alone, but also several techniques can be used simultaneously during one of the iterative steps in the content analysis.
- The content-analytical rules for the individual techniques are not arbitrary but have a solid theoretical foundation in the processes of everyday text analysis. In particular, regarding how these processes have been examined in cognitive psychology and psycholinguistics. For summary and inductive category formation, these are reductive operators (omission, generalization, construction, integration, selection, and bundling; MANDL, 1981), on which

the gradual reduction of text segments is based. For explications, it is rather context theories from linguistics. Whereas for deductive category applications, reference is made to the categorization theories from general psychology and language development research (MAYRING, 2014). The result of this was that the exact wording for a human-readable general category requires an explicit definition (definition theory), a cognitive anchoring in typical examples for the category (prototype theory), and rules to demarcate the categories from one another (decision bound theory, MURPHY, 2002). These coding guidelines are the basis for the three-part coding—definitions, anchor examples, and coding rules—applied in the procedure that I recommended (MAYRING, 2015). Thus, when trying to determine content-analytic rules, I try to use strategies that draw on the everyday handling of texts, a method that is common in qualitative research, for example, when linguistic approaches to storytelling in everyday life are employed in the rules for narrative interviews. [3]

3. Receptions and Variations

3.1 Similar conceptions of the qualitative content analysis

In addition to the qualitative content analysis techniques proposed by our group, there are a number of similar methods that should be briefly discussed (see MAYRING, 2010b). The media researcher David L. ALTHEIDE (1996) has developed a procedure called "ethnographic content analysis," in which the material is approached with deductive categories (codes) that are refined in the analysis process, and leads to summaries being created for each category. The procedure is similar to that of qualitative content analysis; however, its design is not as rule-based. [4]

K. Anders ERICSSON and Herbert A. SIMON (1999) developed a protocol analysis to evaluate thinking-aloud protocols (an important research method in cognitive science), according to which explanations, descriptions, justifications, and rationalizations are extracted and then ordered into a sequence. The exact rules guiding interpretation remain relatively unclear. [5]

A codebook analysis developed from the quantitative content analysis is widespread in the American language area (NEUENDORF, 2002). It starts with content analysis procedures; however, categories must be defined and cannot be automatically produced as an integral part of the method. The codebook used for this contains the category names and short definitions, however, without the accuracy found in the coding guide of the qualitative content analysis when applied to similar purposes (tabular compilation of definitions, anchor examples, and coding rules). [6]

Similar approaches are followed in the thematic text analysis (e.g., STONE, 1997), in which topic areas in the material are identified and counted using procedures from the content analysis. During the search, the work on central topics is done either together with theoretical considerations or orientated towards word frequency lists and word combination frequencies. In both cases,

the qualitative content analysis allows for more precise definitions and gets closer to the actual text. However, the term theme analysis also describes very freely interpretive approaches based on phenomenological psychology (MEIER, BOIVINE & MEIER, 2008). [7]

There are also similarities to the qualitative content-analytical approach, particularly in the evaluation technique, which Bruce L. BERG (2004) proposed in his textbook on qualitative social research. BERG refers to the quantitative content analysis and argues that counting text elements can be an intermediate step in text understanding, "a means for identifying, organizing, indexing, and retrieving data" (p.269). Deductive (analytic) or inductive (grounded) categories, which have to be explicitly defined, can be used. Nonetheless, it remains unclear exactly how this can be done. [8]

Hsiu-Fang HSIEH and Sarah E. SHANNON (2005) distinguish three approaches to qualitative content analysis: inductive category development (referred to as "conventional content analysis"), deductive category application (directed content analysis), and summative content analysis, in which central terms (also quantitatively determined by word counts) are interpreted in their respective context. The latter style of analysis remains somewhat unclear. [9]

3.2 Criticism and misunderstandings

There have also been criticisms of the qualitative content analysis as I developed it. The assessments coming from some of the most dedicated representatives of qualitative sociological research, who have attributed the proposed procedures rather to the quantitative domain than qualitative research (e.g., REICHERTZ, 2007), are invalidated by what has been written above (see MAYRING, 2007 for a detailed explanation). On the other hand, the "qualitatively orientated category-based text analysis" (see Section 1) can also be placed in an intermediate position between qualitative and quantitative research. The reasons behind Jo REICHERTZ's labeling of the qualitative content analysis as a non-elaborated ad hoc text analysis strategy remains completely unclear. The theoretical background for the process models was characterized clearly above. [10]

Norbert GROEBEN and Ruth RUSTEMEYER (1995) see content analysis in this intermediate position, as a hinge between the qualitative and quantitative paradigm. They state that an understanding of content analysis as a classic empirical and scientific "observation method" by no means completely excludes aspects of meaning, but that their method of understanding is aimed at constant "representation," less at understanding the "subjective explication of aesthetic or pragmatic potentials of sense" (p.529)[1] in a never-ending reconstructive process. In contrast, I see that research results are always provisional on the one hand, they can be further developed through criticism and replication, and on the other hand, there must always be points during the process when results are fixed. The argument, however, that the qualitative content analysis is only a quantitative

1 Translation of this and further German citations are mine.

content analysis without final quantification steps (similar also LAMNEK, 1989, p.192) is a misunderstanding, since already in the first steps of category assignment to text the focus is on qualitatively oriented interpretation rules, in a way that is usually neglected in quantitative content analysis. [11]

Ulrich OEVERMANN (2004) argues in a similar direction when he criticizes qualitative content-analytical text interpretation as subsumption-logical; implying that text passages would be permanently assigned to categories. The fact that the categories are carefully and gradually adapted to the material in a circular process seems to have been disregarded. Once this adaptation is complete, however, the assessment is entirely correct. Nevertheless, it remains unclear how one could arrive at scientific results without a subsumption logic. [12]

Jochen GLÄSER and Grit LAUDEL (2009) discuss the possibilities of qualitative content analysis in the evaluation of open interview material and criticize the procedure I proposed as "not adequately taking into account methodological principles of social research" (p.9) because the category systems have to be adapted to the empirical material. For that reason, they suggest modifications to some of the procedures. On the other hand, this step of pilot testing the categories and modifying them in feedback loops seems to be central and indispensable as well as economically feasible. GLÄSER and LAUDEL claim that the category system in my approach is only matched to between 30 and 50 percent of the material. However, as described above, this only applies to the rules (category definition, abstraction level) for inductive category formation; new inductive categories can also be added on the last page of the material. This misperception seems to be the basis for the misconstrued opinion "that Mayring's method ultimately analyzes frequencies instead of extracting information" (p.199). Because in the case of inductive category development, the category system obtained may already be a perfectly adequate answer to the research question (which forms of xy are there?) irrespective of the fact that the frequencies of categories are often important pieces of information. [13]

There are also many misunderstandings regarding the comparative analysis of qualitative content-analytical approaches by Margrit SCHREIER (2014). It has been claimed that my approach was not designed with the development of categories in mind, due to its emphasis on the theoretical guiding principles in the process; however, this is not correct (see above). Also, the subsumption strategy of inductive category formation is wrongly assigned to the content-structuring qualitative content analysis (I suggested "summary" here, MAYRING, 2015, p.103). It has been claimed (SCHREIER, 2014) that the boundaries between categories flow into each other for deductive category applications, whereas I myself have explicitly tried to prevent this from happening by using coding rules. SCHREIER also says that the context analysis (explication), as I have defined it, is actually a step in the process of a structuring content analysis; however, the two procedures are completely separate in my proposals. [14]

The evaluation by Christoph STAMANN, Markus JANSSEN and Margrit SCHREIER (2016) that deductive category application is a subordinate procedure

in the research, primarily to explicate the researcher's prior knowledge, cannot be agreed with here. The question of whether and to what extent unemployed people felt burdened in my interview study (MAYRING, 2015) was interpreted in each case in an interpretative but rule-based manner, based on the coding guidelines. The precise meaning of burden was, of course, defined in advance based on theoretical constructs. Here too subsumption has been incorrectly referred to as an inductive strategy. The differences between the individual techniques are all too often overlooked, and the complete set of techniques are all sometimes seen as an undifferentiated uniform qualitative content-analytical whole. [15]

3.3 Qualitative content analysis according to KUCKARTZ

The conceptual design of the qualitative content analysis by Udo KUCKARTZ (2012, 2014) is a similar approach, still, from my point of view, its use of methodological strengths is weak. Due to its rule-based and systematic nature and also because of its origin in the communication sciences, the qualitative content analysis is actually designed for larger amounts of text. An interview study with 30 people can quickly lead to transcripts that contain a thousand pages. Samples with fewer than 30 people do not allow generalizations beyond exploratory, hypothesizing statements (see Section 3.4). As a first step, KUCKARTZ's method begins with an initial processing of the text (2012, pp.49ff.), which is hermeneutically interpretive and involves reading the complete text. While doing so, important points for the research question should be marked, yet this remains relatively vague. This should lead to case summaries and memos about the text. Then a profile matrix (pp.73ff) should be created, consisting of a table that, for example, should contain central topics and selected passages from each interviewee's transcription. Only then does the analysis begin with basic content analysis methods (pp.75ff), again requiring several text processing repetitions. This is only possible with smaller amounts of text and would, according to my calculations, require more than half a year to work on the text alone for an interview study with 30 people. In my opinion, this throws away some of the potentials of content analysis. Besides, the proposal actually represents a mixed form of different text analysis approaches that are not justified, since some steps are very openly interpretative and not very verifiable, and other steps are strictly guided and more verifiable. This could also be a problematic blending of different positions in scientific theory (constructivism with post-positivism). From my point of view, it also poses a contradiction because on the one hand, summaries should be created, which is a rather explorative process, but, on the other hand, a question is set out on which all analyses should be based. Furthermore, it is not clear which role the (very complex) summaries should play. [16]

Finally, basic methods of qualitative content analysis are presented that are based on my work, but only represent a selection of the repertoire and does not offer supporting argumentation for this selection. From the techniques I presented, KUCKARTZ (2012, 2014) selected three (content, type building, and scaling structuring, see Section 2); however it is not clear why these three were preferred to the other techniques that I developed. Furthermore, when discussing

case summaries, he does not refer to the content-analytical procedure described in Section 1 and, for example, in my opinion, fails to take advantage of one of the most important inductive category formation techniques available (Section 2). [17]

This means that a number of possibilities for qualitative content analysis are forfeited. The concept corresponds to a mixture of completely open, explorative, hermeneutic-interpretative work on text material bundled together with systematic content analysis. It is so complex that the concept is only suitable for smaller amounts of text. [18]

3.4 Qualitative content analysis according to SCHREIER

The concept of qualitative content analysis by Margrit SCHREIER (2012) seems similarly problematic and confusing to me. Here the process is described in such a way that a higher-level category system (coding frame) is developed first, the categories are then defined and pilot-tested, and finally applied to the material in a further step. I think this is far too time-consuming in the case of inductive category development. Instead, I suggest both developing the categories and assigning them to the text in a single pass through the material. In the case of SCHREIER's description of inductive category development, a detailed coding guide (category definition, anchor examples, and coding rules) is not necessary; I only designed it for deductive category applications. Theory-based definitions for each category are not feasible here since categories for the material are developed *ad hoc*. Anchoring examples are not necessary because the text passages were developed with the categories. Thus they are marked already and represent the anchoring example. Only coding rules for setting boundaries were addressed, but that would not have been necessary either, as these would have to be carried out for each inductive category. Usually, those categories are summarized during the analysis or hierarchically structured (main categories). SCHREIER then describes four different approaches for the development of inductive categories (data driven): summary, grounded theory coding, subsumption, and contrasting. This also seems somewhat implausible and of only limited use. Summarizing is usually far too complex for inductive category formation since all the material has to be considered. I only regard summaries to be useful if the material is very homogeneous and the question is open and descriptive. In contrast, once a category definition and a defined level of abstraction have been established, inductive categorization continuously creates new categories on a previously defined topic. Grounded theory coding follows an open, exploratory, theory-building strategy that should be accompanied by further processes, in particular, case contrasting, theoretical sampling and memo writing. That differs from the content-analytical inductive category formation since a category definition is already specified as a selection criterion, and categories are formulated in the sense of a descriptive design (not exploratory, categories still have to be checked). Subsumption, the third inductive strategy according to SCHREIER, and does not in my understanding lead to inductive categories at all, but only assigns further text passages to previously developed inductive categories, if so desired, to reach category frequencies. The structuring of content reported by SCHREIER was described in one of my papers as a mixed

technique (MAYRING, 2014, p.103); however I do not share the view that this is "the central variant of qualitative content analysis" (SCHREIER, 2014, §16). In contrast to the view presented here, SCHREIER (2012) describes deductive category applications (concept-driven coding frame) as relatively unusual in qualitative research, since they are more suitable for hypothesis-testing and not exploratory or descriptive. However, if I want to know whether certain aspects (i.e., precisely those defined in the coding guidelines) are addressed in openly collected text material, this can certainly serve descriptive functions, and the process of assigning categories to text material remains qualitatively interpretative. [19]

SCHREIER's handling of analysis units (KRIPPENDORFF, 2018) that are so important for content analysis is also confusing. First, the units of analysis (synonymous with sampling units or units of enumeration) are formed, e.g., the individual cases in interview studies. On the other hand, I understand analysis units as an umbrella term and recording unit as the first definition to be formed, defined as the portion of text that is compared to a category system (MAYRING, 2015). For inductive category formation, this is always the entire material, since the category system is continuously being expanded. In the case of deductive category application, the recording unit can be the individual case, since one might want a category assignment for each case. The unit is, therefore, a specification in the sense of a definition, depending on the specific question and the evaluation technique chosen. It cannot be used as the first independent segmentation step. The second unit to be formed is the coding unit, SCHREIER (2012) defined this as the parts of the analysis units that can be meaningfully interpreted in relation to the category system used. According to SCHREIER, coding units should be selected so that each coding unit fits exactly to one subcategory. I imagine here the concrete coding process of the material, in which relevant text passages are marked for categorization, and I would rather describe this as a definition of relevant text passages, not as a coding unit. In my opinion, the coding unit, following the content-analytical literature, should be a general definition concerning the sensitivity of the analysis. Is a nuance in the text sufficient for categorization, or must clear meaning units be identifiable or even whole paragraphs (e.g., the complete answer to an interview question)? This can be very different, and it should be determined and justified; furthermore it is crucial for checking intercoder reliability. [20]

Thus, it continues to be a somewhat confusing picture. SCHREIER only seems to be concerned with a more descriptive representation of the text through a hierarchical category system with dimensions and subcategories. In my system, on the other hand, this is one of many content-analytical approaches. It is not clear what the next step in SCHREIER's procedure, namely forming a matrix of coding units by coding, should bring exactly especially for larger quantities of material, for which the process is a very complex and sooner or later quite convoluted. [21]

4. An Illustrative Example

Using a fictitious example, I would like to illustrate the procedure for qualitative content analysis in more detail. An evaluation study will assess the quality of university courses that have a certain type. Since standardized instruments (questionnaires) are always subject to a positive bias, especially in the area of satisfaction survey (usually the value for ‘good' on school grading scales), and given that they do not provide any information about specific strengths or weaknesses of the course type, the decision for open interviews with the participants was made. [22]

A sample size plan stipulated a sample of 40 people. A simple example calculation should underline the necessity of this sample size. Assume that a third of the population are dissatisfied. If one converts this into percentages and calculates the confidence interval (with a 5% margin of error and a medium effect size), the power analysis yields the following confidence intervals:

- Sample size 12 people: 4 dissatisfied people would correspond to 14% to 61%,
- Sample size 24 people: 8 dissatisfied people would correspond to 18% to 53%,
- Sample size 36 people: 12 dissatisfied people would correspond to 20% to 50%. [23]

In a sample of 24 people, the confidence interval calculation means that the eight dissatisfied people in the sample (a minority) correspond to as much as 53% of the population, i.e., it could represent the majority. It becomes clear that only with a sample size of more than 36 people can it be concluded from one third of dissatisfied persons in the sample to a minority of dissatisfied persons in the population. With smaller samples, it can only be concluded that there are satisfied and dissatisfied people. There's a good chance that this was known beforehand. It should be pointed out that when calculating the confidence interval, only random samples provide a legitimate result. For non-random samples, the confidence intervals would have to be more robust. That is why it is so important to use larger samples in qualitative research, which in turn generates larger amounts of material that require suitably chosen methods of analysis. Otherwise, the analysis will remain an explorative one. [24]

The transcription of the 40 interviews, in which a guided interview collected the experiences of people who were in the course with respect to satisfaction, strengths, and weaknesses, resulted in approx. 400 pages of text. First, to read through the text entirely adding interpretative comments, interpretative summaries, and case analyzes seems far too complex and lacking enough control. Getting a first impression of the text material is also helpful in any event in my opinion. In the qualitative content analysis, two questions were included in the text material: How satisfied were the people with the course? How would people rate the strengths and weaknesses of the course? For the assessment of satisfaction, a deductive ordinal category application was required (e.g., with five categories: very satisfied, rather satisfied, partly / partly, rather unsatisfied, very

unsatisfied), which also needed a coding guide. Here, definitions, anchor examples and coding rules were found in advance through our searches in the pilot phase. The definition should be theory-based. Here, a satisfaction theory regarding multiple comparisons (MICHALOS, 1985) could be relevant, in which satisfaction is understood as a cognitive process to assess one's situation in relation to points of reference (e.g., my previous experiences, my ideal situation, the average). Determining the point of reference and including it in the coding guide is crucial for the success of coding. For example, the rule for "very dissatisfied" could be that there was no positive feedback about the course anywhere in the entire interview (i.e., recording unit: the whole interview), while at the same time serious criticism was cited and the remarks given in response to the question concerning the overall impression of the course were unequivocally negative. If one of these criteria is not met, another category ("rather unsatisfied" or "no categorization possible/missing") is assigned. Each of the 40 interviews can then be associated with a satisfaction score and category frequencies can be calculated; the first question can be answered. [25]

The second question is divided into two inductive category formation steps for strengths and weaknesses but should be worked on in parallel (also together with the first question) in one pass through the material. Here we need a category definition, which—again based on theory—specifies exactly what is meant by the strength or weakness of the course. Furthermore, the level of abstraction has to be determined to be able to create a list of strengths and weaknesses that is uniform, manageable, interpretable, and can be communicated in the research findings. Here, as SCHREIER (2012) shows in her own example study on decision criteria for people in the health sector (435 subcategories, 89 main categories), too many or too few categories can be obtained. Instead, the procedure could aim to set a medium level of abstraction, for example, a category like "Mr. Müller has given no literature references in the last two weeks" would be too specific, and a category formulation such as "Inadequate course material" would be too general, which would lead to phrasing it more carefully like "Not enough literature references in the course." The level of abstraction should also be set in the pilot study. You can now collect either inductively formulated categories only, compiling them into a list, or allow multiple categorizations via subsumption in order to arrive at a frequency distribution. The latter would make sense in this evaluation study to answer the question: What are the main perceived strengths and weaknesses of that type of university course? [26]

The entire evaluation process is economically feasible, and so precisely defined by the theory-based rules that it can be validated. A high coding agreement is desired for deductive category applications, which can also be checked with randomly corrected agreement probabilities (e.g., Cohen's kappa). In the case of inductive category developments, the agreement would be assessed "manually" according to similarity, since the exact category formulations can vary linguistically. The goal of the qualitative content analysis has thus become clear: the systematic, question- and theory-based evaluation of text material from, for example, open interviews, open questionnaires, observations, or documents for empirical studies with larger samples. [27]

5. Outlook and New Developments

The major developments for the qualitative content analysis by our working group in recent years (FENZL & MAYRING, 2017; MAYRING & FENZL, 2019) have been in the following areas: the systematization of individual techniques, the theoretical foundation of the content-analytical rules, and the development of software designed especially for qualitative content analysis. Further efforts are now particularly focused on the latter of these areas. In addition to existing approaches in computer-assisted qualitative analysis software (see e.g., KUCKARTZ, GUNENBERG & DRESING, 2007), a purpose-made software was necessary. This was because the separate processing steps involved in qualitative content analysis are difficult to implement in conventional and commercial programs. For example, it is not easy to keep the central content-analytical rules (category definitions, levels of abstraction, coding guidelines) constantly visible alongside the analysis. This only works to a limited extent using the memo function in MAXQDA, and that actually belongs to the grounded theory methodology. A table notation, central for summary and coding guidelines, can only be achieved partially. For these reasons, we have developed our own software program QCAmap (FENZL & MAYRING, 2017; MAYRING, 2014), which offers the following advantages:

- free use;
- interactively guiding users through the steps of content analysis;
- templates for the individual techniques such as summary, inductive category development, and deductive category application
- templates for the individual analysis units that should be defined as well as content analysis rules;
- ongoing maintenance and further development of the program as a web application;
- interactive possibilities for raters, also for intercoder comparisons;
- a manual (MAYRING, 2014) that can be downloaded free of charge. [28]

The interactive nature of the program ensures that the essential steps of the qualitative content analysis are actually carried out. The program has been used in more than twenty thousand projects since 2013. A new version with brand new features is planned for 2020. In future versions, we plan to integrate video analysis into the program. [29]

Precisely because of its intermediate position between qualitative and quantitative analysis, qualitative content analysis appears to be an important methodical starting point. On the one hand, it is used for including measurements and numerical data from standardized interviews, questionnaires, observation systems, or test instruments in research projects. On the other hand, it also takes into account data from open surveys and observations in such a way that the resulting texts are analyzed as systematically as possible in an analysis that is

guided by the research question as well as being both theory-based and rule-based in its approach. [30]

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