Grounded Theory in Media Research and the Use of the Computer

Abstract
This article offers, from a perspective of Grounded Theory, a comprehensive summary of general procedures for qualitative analysis and the advantages of the use of the computer. The Grounded Theory Approach is one of the most elaborated methods in the field of interpretive analysis within which analytical and methodological strategies are intertwined in a developmental research cycle. We illustrate how computers facilitate these strategies and discuss the problems researchers meet in every phase of the ongoing process of analysis.

The interpretative turn in media research
More than two decades ago scholars around the world announced an interpretive turn in social sciences. This development also affected the field of mass communication and media studies. The appearance of David Morley’s study of the Nationwide audience and James Lull’s analysis of the social uses of television in 1980 are widely considered to be milestones, indicating a paradigm shift in media research. Although some of the early studies in this field are classic examples of qualitative analysis (Blumer, 1933; Wolfenstein & Leites, 1949; Breed, 1955), the bulk of media research has been directed towards the testing of hypotheses and formal theories, or so called ‘administrative’ research, employing quantitative and experimental designs, for which alternatives and additional tools emerged in time.

Scholars like Hall (1997) and Baran and Davis (1995) describe the development of mass communication research in a more general way as taking part in a cultural turn in research interests. This turn offers many opportunities for qualitative research, although the study of culture in media research is not an exclusive privilege for interpretive designs, as examples of cultural indicators and cultivation studies show.

The rise of qualitative or humanistic approaches to audience research and documentary analysis of media material draws from several epistemological and analytical traditions, like phenomenology, literary criticism, symbolic interactionism, ethnography, discourse analysis and semiology, all involving
interpretive scholarship in the analysis of meaning production and the social construction of reality. The cultural studies approach, for instance, has its roots in both textual and social sciences. It reflects a more or less critical research interest in questions of (sub)cultural differences, ethnicity and race, identity politics and the historical-political context of the production of culture and media consumption.

Cultural studies' predilection for previously neglected research interests such as popular culture and everyday practices is aptly demonstrated in a distinctive feminist perspective (Van Zoonen, 1994), which emerged from the beginning of the 80s with analysis of the reading and content of women's magazines (Modleski, 1982, McRobbie, 1983, Radway, 1984; Winship, 1987; Hermes, 1993), and viewing television soap operas (Hobson, 1982; Ang, 1985).

Another long-standing strand of cultural research draws from social science approaches, such as symbolic interactionism (Tuchman, 1978; Goffman, 1979; Gans, 1979; Davis & Baran, 1981; Hijmans, 2000a), or social action research (Anderson & Meyer, 1988).

However much a tradition is developing, the field of cultural media studies is very broad and far from exhausted. Some core issues in the study of culture and meaning are still underdeveloped, for instance the relation between media, culture and religion, a path only recently taken (Hoover & Lundby, 1996; Hijmans, 2000b). Further development of the field could well, at least partly, depend on the clarification of methodological issues, as media researchers employing 'thick description', ethnography of practices and the exegesis of media documents sometimes seem to forget (Hijmans, 1996). The focus on the cultural dimension in media research generally affects the nature of analytical interests and research questions, which call for an approach that enables the (researchers) reflexivity and reconstruction of meaning processes, and the interpretive analytical skills, needed to uncover an understanding of (media) experience that goes beyond superficial description or speculative theorizing.


In addition to this work we want to introduce a procedure, hardly employed in media research, that fits the cultural and interpretive turn in media research. This approach stems from the development of theories grounded in empirical data of cultural description, a strategy for discovering any substantive area of human experience, known as the Grounded Theory Approach (GTA) by Glaser and Strauss (1967). We think this approach meets a much-needed claim for a truly systematic qualitative analysis of media materials and audience reception.

Some general principles of qualitative analysis
The aim of qualitative research is the systematic development of theory by thorough inspection of social reality. Starting with a roughly defined theo-
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retical framework (often in the form of a set of sensitizing concepts), researchers continuously confront their framework with the field under observation in order to specify, define and ground these concepts and to formulate a substantive social theory. The body of literature on qualitative research procedures in social sciences is still growing (Burgess, 1982; Hammersley & Atkinson, 1983; Bryman & Burgess, 1994; Denzin & Lincoln, 1994; Maso & Wester, 1996; Coffey & Atkinson, 1996). One of the most elaborated methods of qualitative analysis is the Grounded Theory Approach (GTA). The GTA is cyclical in nature because the research actions: data collection, analysis and reflection on observation and analysis continuously alternate. Important principles are 'theoretical sampling' and 'constant comparison' (Glaser & Strauss, 1967; Glaser, 1978; Strauss & Corbin, 1990). When the researcher discovers important elements of the developing theory, he collects new data in order to specify, confirm or correct these findings. In this view analysis means a constant comparison of findings in different situations until discovery of new insights for the developing theory is exhausted. This means, in for instance ethnographic media research, comparisons of cases within a particular (sub)cultural group to elaborate what is particular for this group.

As a research group we developed our own variant combining GTA-principles with the insights from the increasing amount of literature on qualitative analysis published since the 1980s and with the use of the computer program Kwalitan as an administrative support tool (Wester, 1984, 1995; Peters, Wester & Richardson, 1989; Peters & Wester, 1994; 1995a, 1995b; Hijmans, 1987, 1994; Peters, 2000a; Kamp, 2000). In this article we present a step-by-step procedure for qualitative analysis and specify how the computer can be used in this process.

Characteristics of qualitative analysis
Data analysis is generally equated with a distinctive phase in the research process, after data collection is completed, in which all kinds of operations on the data are executed. This is not the case in qualitative research, where a more complex course of research activities is followed, in which periods of reflection, observation and analysis alternate in a sequence of distinctive phases. Furthermore, the analysis process in the distinctive phases does not concern identical operations and procedures. So, in qualitative research, one single "phase of analysis" does not exist.

Moreover, the equation of analysis with operations on the data displays a rather limited view of what analyzing is about. What is missing here, is the work that has to be done to allow for these kinds of operations. This becomes clear if we examine the meaning of the term "analysis". According to the New Webster's Dictionary (1991: 32) "to analyze" refers to breaking down in constituent parts, to resolve in elements. In this way, during the process of analysis the data material is unfolded into relevant parts or aspects. One may think of the different aspects the researcher wants to take into account.
This interpretation of “analysis” refers to the key role of the researcher’s framework, and thus reflexivity, during analysis. Concepts, indicators, variables, categories and classifications are highly important. In the beginning they allow the researcher to unfold and specify the research problem and, later, to unfold data into components to be separated, defined, ordered and classified.

This may clarify one of the main characteristics of qualitative analysis: the (partially still unelaborated) analytical framework of the researcher. To an important extent “analysis” takes place before any other operation on the data. This means that formulating the (temporary) problem statement is an initial form of analysis with clear consequences for data collection and following operations. It follows that preparations for fieldwork, in terms of, for instance, a topic list for interviewers, is a distinctive analytical step, explicating what one wants to know and which concepts or phenomena one wants to relate. Moreover, one might, as Bogdan and Biklen (1982) do, distinguish between analysis activities during the fieldwork and activities executed after the fieldwork. Although they refer to ethnographic research, this distinction may well be applied to interview studies and document analysis, if one sees every interview or document as an instance of fieldwork, or other kinds of qualitative research.

In our view on analysis, research activities are considered as a search for an answer to research questions. All steps that contribute to the formulation of an answer are, as such, analytical steps. In terms of Spradley (1979, 1980) these activities concern a Question-Answer model to evaluate research activities. In this model ‘questions’ are not interview questions, but research questions related to the problem statement. The ‘answers’ are not answers of respondents, but the researcher’s, at first tentative, answers to research questions by interpreting the collected data on the basis of his framework. In qualitative research, and in media research in particular, data usually consist of text-like material such as observation notes, conversation protocols, interview tapes, media documents, etcetera. This raw material must first be processed in one way or the other in order to be suitable for analysis. The material must be stored in an organized way, it must be easy to access and to manage and it must retain the possibility to (re) organize the material time and again.

As mentioned, the analytical elaboration of the researcher’s perspective is strongly connected with research activities. This is a consequence from the fact that the researcher’s perspective is provisional at the beginning, becoming more focused on the field in question during the course of the study. Hence, in the research process as a whole, analysis cannot be seen as one distinctive phase, separated in time. Instead it is a recurring component in the cycle reflection – observation – analysis – reflection, through which the researcher continually passes and in which tasks are repeated over and over again.

Summarizing, by viewing analysis as a recurrent phase in a developmental cyclical research process, some characteristics of the process of analysis
become clear. First, analysis always arises from questions to which the material is subjected. These questions have emerged from the reflection phase and act as the driving force behind the observations. An answer to these questions is sought in the collected materials and the material is organized and processed accordingly. Secondly, analysis does not focus on the same questions all the time. The cyclical nature of the process of analysis pursues a progression in the sense that, new, more specific questions must be asked on basis of developing insights, which may then initiate a following cycle of observation, analysis and reflection. This ongoing development of questions is closely related to the elaboration of the theoretical framework.

Data collection (the observation phase of the cycle) ensures access to empirical data in which answers to the research questions are to be found. This entails the collection of (new) material. In addition, however, the possibility occurs, mainly in the later stages of analysis, to select specific parts from the previously analyzed materials that appear to be relevant to a certain phase of the research. Selecting informants or documents is thus inspired by theoretical considerations emerging from the previous analyses (this is meant by the term 'theoretical sampling').

Supported by these observation and interpretation activities, concepts, features, characteristics etcetera are gradually derived. These are relevant to the scope of the subject under examination, or to the development or substantiation of concepts, which are already known. The main activities consist of reading the selected material from the viewpoint of certain questions to find an answer. For instance interpreting the contribution of the particular respondent and/or comparing interview or document segment codes. Dependent on the phase of the analysis, this process of reading, interpreting and comparing is internally controlled from within the theoretical framework in development. In this sense we may speak of a cumulative analysis.

Reflection: working with memos. The results of this interpretation are dealt with in a process of reflection, serving two functions: on the one hand, the ability to fill in the conceptual framework based on the findings, while on the other hand, reflection on the material and on the outcomes of analysis may well result in new research questions, which must be examined more closely in a next phase of the research. An important tool in this phase is the use of memos.

Memos represent reflections as a consequence of observations and analysis activities. They usually bear reference to (parts of) the analytical framework and the research problem. Memos actually steer the direction of the analysis and the study as a whole. Memos may fulfill a wide variety of functions in qualitative analysis. To derive the utmost benefit from these functions, we distinguish four different types of memos.

Concept memos. The aim of concept memos is to record the meaning of all significant concepts applied during the course of analysis. During analysis, concept memos enable to deal logically with these meanings and to record any
changes that may occur in the meaning of these concepts. At the beginning of analysis, a description of the ‘sensitizing concepts’ is included in concept memos, while descriptions of codes developed during the first phase (the so called open coding) are added later on. During an even later stage of the analysis, the concept memos contain codes in concrete form, as expressed by indicators, variables and categories of variables. In addition to description of the concept concerned, references to those segments in which this concept is apparently clear (and from which citations can be taken for the research report) as well as references to other concepts to which the concept is related, can also be included in concept memos.

Profile memos. Profile memos aim to give a characterization of the observation unit. For example, if in an ethnographic study members of a (sub)cultural group are interviewed on their media consumption patterns, each respondent can be treated as a unit to be described in terms of concepts employed in the analysis. Profile memos become particularly important when the focus of analysis shifts away from segments of the text, as in the first part of the analysis, towards cases. In fact, profile memos provide a kind of recap of the material of a respondent or document, in terms of central concepts. Even in the exploratory phase of analysis an overview memo of the interview or document plays a significant role in the analysis, as the coding of segments must be carried out, as far as possible, from a comprehensive idea of the unit as a whole.

Theory memos. Theory memos concern the analytical framework which is partly constructed before starting the actual fieldwork, and gradually elaborated during analysis. In theory memos, distinctive components of the analytical framework are described as well as the relations between those components. Hence this involves interrelationships between several ‘sensitizing concepts’ and substantive or field related concepts developed later, as well as the relationships between the latter. Abstracts of literature studies may also be included in theory memos. Concepts, variables, categories and the like are described in concept memos, while relationships between them are elaborated in theory memos. There are, moreover, specific memos containing a diagrammed outline of the theory-of-the-moment.

Method memos. Method memos contain methodological decisions. Typical subjects are for instance the topics to be addressed in interviews (topic list), how to proceed in selecting new cases, characteristics that are going to play a role in making this selection (compare the principle of ‘theoretical sampling’), questions focusing data analysis, etcetera. Tables and overview memos may also be considered as method memos, but qualitative overviews such as these usually tend to be so large that a wall (on which the overview is displayed) is more likely to be reserved for them than a method memo! Of course, reminders can be written in order to keep up with all the overviews compiled.
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The process of analysis
Viewing analysis as a recurrent phase in the developing research process qualifies qualitative analysis as an iterative process of a tentative nature. The actual phase in the process of development in which the researcher finds himself determines the way in which the material is subsequently examined. The procedure consists roughly of the steps depicted in Figure 1.

| data collection |
| presenting the texts in a readable and manageable form |
| preliminary ordering of the material |
| - division into segments |
| - assignment of a first general code (topic) to the distinguished segments |
| selecting material |
| reading and interpreting a text |
| developing and assigning codes |
| incorporating the findings into the conceptual framework and formulating new research questions |
| further analyses |
| - compiling outlines and matrices |
| - comparing cases |

Figure 1: A rough outline of qualitative analysis

This outline shows that after data collection, the material must first be converted into a readable form. Especially if data consist of taped interviews or videotapes it is necessary to type these out. But even when the material is made up of existing documents, it is often necessary to make copies to work with. The material is subsequently divided into text units or segments, constituting the units of analysis. The exact composition and size of these segments is a decision left to the researcher. One possibility would be to have a new segment start with each main question of the interviewer or with a new topic in the document. A general code is subsequently assigned to each segment in order to achieve a preliminary division of the material. This general code usually gives an indication of the content of a segment and is often taken from the topic list. These activities, undertaken to mould the research materials into a readable and manageable form are referred to as transcription.

After these preliminary activities have been completed, the actual analysis starts. After an optional selection from the material, the process of observation (i.e. reading from a certain viewpoint), interpretation and depiction of the
significance of the text begins. The concepts and/or features found in the segments are coupled to these segments as codes. After incorporating the findings into the initial conceptual framework and formulating new research questions, the process is repeated a number of times, until the conceptual framework has been sufficiently developed and that concepts, features and characteristics are defined with sufficient accuracy. The researcher will then carry out additional analyses. Up to this moment text units (segments) are the main units of analysis, but from now on the focus turns to the case, that is the respondent or the document as a whole. The researcher attempts to transcend the text of the segments and makes statements at the level of individuals or cases. An important tool during this phase is making matrices (see for example Miles & Huberman, 1993) and focusing on the comparison of cases.

Qualitative analysis: phases and tools
The elaboration we present here is based on our experiences with GTA-research (Wester, 1984; 1995; Hijmans, 1987, 1994; Peters & Wester, 1995a, 1995b; Kamp, 2000) and with the development and use of the computer program Kwalitan (Peters, 2000b) developed for qualitative research according to GTA-principles. The aim of this approach is the development and production of a theoretical framework, as described above. It can be applied in mass communication research, if theory development is part of the research objective. In any case, the developmental process of empirically grounded theory is complex, and this constitutes one of the main pitfalls in GTA-research. Especially the lack of an elaborated research problem and/or an articulated analytical framework and/or systematic observation procedures (positively referred to as 'the freedom of the researcher'), may easily get researchers into trouble. For instance when an analyst fails to see the cohesion in research activities, and continuously goes on developing new concepts, categories and research questions, questions the relevance of the data most of the time and in this way gets lost in the process of theory-development.

To cope with these kinds of problems, we suppose every qualitative analyst recognizes, we stress the central role of reflection in the process of theory development (see above) and cut this process into phases with specific subgoals to achieve. In this way we define the following four phases in the process of theory development:

Exploration phase. Definition of the research problem and derivation of as many relevant concepts as possible from the material.

Specification phase. More precise definition, provision of arguments for and construction of relevant variables of the distinguished concepts.

Reduction phase. Formulation of the core of the theory.

Integration phase. Specification by characterization of observation units (for instance respondents) according to the features distinguished, and examination of relationships between all characteristics.
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Before we discuss these research phases, the following should be noted. First, not every researcher will aim at formulating a theory within the framework of the four-phase system described above. Especially in the field of ethnographic media research, which may very well be conducted on documents (Altheide, 1996), researchers may restrict themselves to a comparative description (cf. specification phase) based on common substantive concepts or group/document specific concepts. Others will focus on the description of the key concept (cf. reduction phase) that explains differences. Depending on the aim of the study, answers to questions can be elaborated on basis of the procedural steps outlined below.

Second, phases and steps are not intended as a rigid model for doing any qualitative research according to the GTA. We offer a set of guidelines for any researcher in any field, the decision on ‘what to do next’ is always up to the researcher and his creativity. As is also stressed by Strauss and Corbin (1990, p. 58), the possibility exists to mix phases, coding procedures, research actions, etcetera as one pleases. Our model is meant to be a support for any researcher who wants to reflect on his activities to develop theory.

Compared with Strauss’ recent work (Strauss, 1987; Strauss & Corbin, 1990) our four phases approach puts more emphasis on: (a) the elaboration of the process of grounded theory-development in phases with the so called reduction phase as the most central part in theory development; (b) the elaboration of Glaser and Strauss’ coding procedures in concrete analysis steps.

During analysis activities, as described above and elaborated below, the researcher can use of a number of techniques and tools, that enable manipulation of research materials, keeping track of the analysis, and presenting results of the analyses in a compact and orderly way. Important techniques and procedures in the four phases of the qualitative analysis are:

**Memoing.** As was elaborated above, memos register cognitive developments, i.e. of the process of elaboration of an analytical framework. Memos are products of reflections on research questions, theoretical sampling and observation, and the outcomes of the analyses.

**Transcribing.** By transcribing the analyst processes the data in one way or another in order to make them suitable for analysis.

**Coding.** Through coding theoretical components of the analytical framework are linked to parts of the data (segments).

**Summarizing.** Through summarizing the analyst produces reductions of the material according to central concepts in the theoretical framework.

**Displaying.** A display gives an overview (matrix, diagram, table) of relevant passages from the material from one or a few perspective(s) at the same time.

**Computeering.** This role will be elaborated specifically in the next section.

**General functions of the computer**

In the previous part we described steps researchers may take conducting interpretative analysis of qualitative data. In this section we will shed some light on
the way the computer can be used to support these analytical actions. Before we go into detail on the four analytical phases, we will first examine some general functions a computer may fulfill in an interpretative qualitative analysis. In the last decade, several computer programs have been developed as a tool for qualitative research, e.g. The Ethnograph (Seidel, 1988), Nud*ist (Richards & Richards, 1990), Qualpro (Blackman), Hyperqual (Padilla), Atlas/ti (Muhr, 1992), NVivo (Bazely & Richards, 2000), Kwalitan (Peters, 2000b). An overview of applications and features of computer programs for qualitative analysis can be found in Tesch (1990) and Fielding & Lee (1991), Miles & Huberman (1993) and Weizman & Miles (1995), and in a more restricted sense in Coffey & Atkinson (1996).

Although all of these programs have a lot in common in relation to the features and options, Kwalitan distinguishes itself from the other programs, since it is the only program that was developed from the perspective of GTA and that meets the need for support of researchers following the GTA.

Before talking about the functions of a computer for a qualitative analysis, it is necessary to emphasize that the computer cannot perform analyses by itself. This task, consisting primarily of reading and interpreting, remains a privilege of researchers. The computer can, however, fulfill a number of other functions that are classified into eight categories.

1. Entering and filing the material
This function is almost self evident, since most data entry is performed on (personal) computers. However, this is an important step, especially in qualitative analysis, where the research material is not presented in a form that is immediately suited for analysis. Interviews are mostly taped on audio cassette, observations are recorded on video or written out roughly, and even written material is usually not directly suitable for analysis, as the originals may not be used without taking a number of precautions. In interpretative qualitative analysis entering the text is not merely a matter of typing the text, but in fact making a transcription. We will come to this point in section 5.1 on the preparatory activities.

2. Structuring the material
Although qualitative data are generally highly unstructured, this does not mean that it is impossible to introduce a structure of any kind into this material. By applying the principles of so-called relational databases it is possible to save the information available per analysis unit and the information added to this by the researcher in such a way, that an optimal structure of these data is achieved. This amounts, in fact, to splitting up the available information into small units, each with a fixed structure, which gives the possibility of saving these elements in an efficient way and of retrieving them quickly and easily, when necessary.
3. Ordering the material
In qualitative analysis the ordering of the material is obtained by assigning codes to segments of texts. The computer can efficiently keep track of which codes were assigned to each of the segments. In addition, the program can quickly make an overview of the codes already used in the analysis. In addition, the computer can be of great help in establishing the relations between codes.

4. Selecting parts of the material
Storing, structuring and ordering qualitative material is important, but if there is no possibility of retrieving the material, all effort is useless. One of the features of computer applications in qualitative analysis, that not only saves a lot of time but also increases the accuracy of the analysis, is the possibility of selecting segments that match a number of specified criteria. These segments can be displayed on the screen or printed, in order to be used for further analyses.

5. Introducing changes
One of the core characteristics of the interpretative qualitative analysis is the development and corroboration of the conceptual framework during analysis. This implies, that many researcher decisions are tentative and need to be changed as the analysis proceeds and the conceptual framework becomes firmer. This implies, that in qualitative analysis the researcher, for instance, often has to change codes assigned in previous steps. The computer can make these changes faster and more reliable than we, as humans, can.

6. Combining the results of analyses on different levels
In qualitative analysis one can focus on several levels. One level is analysis of the codes that were assigned by the researcher. The bases for this analysis are the interpretations of the researcher. It is also possible to focus on the words that were spoken by the respondent or written in the documents. In this case the level of analysis are the words themselves. The third level is a memo. In this case the source of analysis are the reflections of the researcher about the research materials and the research questions. When the results of these analyses are administered properly, it will be easier to relate different findings to each other.

7. The administration of the analysis
The importance of writing memos is already stressed above. Of course, it is possible to write memos out on index cards and to file these in an index card box, or to use a word processor or a database program on your computer. Most computer programs, however, offer the possibility of creating and editing memos, and of saving the memos in so-called memo files, which are immediately accessible, either for consultation or for editing. In Kwalitan the four
different types of memos that were distinguished in the first part of this article can be handled.

8. Preparing the material for a more structured analysis
At a certain moment in the analysis, the researcher will feel the need to conduct systematic comparisons within and between cultural groups. At that moment there is a need for some type of table or matrix, in which qualitative information from cases ordered per cultural group can be compared. The computer can help to create these matrices from the information that was included in and added to the qualitative material in the previous steps of the analysis.

Phases, techniques and computer use
After this short description of general functions of the computer in qualitative analysis, we will now turn to the process of conducting qualitative analysis. We will follow the four phases we discerned in the previous section (preceded by a preparatory phase), and for each phase we will describe some of the techniques researchers can use. The support computer programs for qualitative analysis may give will at certain points be illustrated by the program Kwalitan.

Preparation
A qualitative study begins with the formulation of a temporary problem statement based on theoretical assumptions, and on what is known about the field of study. These supply the sensitizing concepts that direct observation and analysis activities in the exploratory phase. This exploratory phase is dedicated to finding as many concepts and categories as possible that contribute to offering an overview of what is relevant in the field in view of the problem statement.

Even if it is true that the researcher uses a rough theoretical framework to formulate research questions, and has elaborated these concepts in terms of topics for the interview, this framework is still open and has many gaps. These gaps and uncertainties mainly concern aspects related to the reconstruction of the actor perspectives and the relation of the answers given from that perspective to the sensitizing concepts used to formulate the problem statement.

Preparing qualitative material includes, as indicated above, entering material (the text) into a computer file. But there is more than just typing or scanning the text. The activities we refer to are called transcription of the raw material. The researcher has to determine in what way and how comprehensive the material must be entered into a file. In case of interviews this seems rather simple, but in fact you have to decide whether to include all hesitations, silences and disturbances in the transcription, or to make a smooth story out of it. If the material consists of video taped observations or television programs, decisions are even more complicated, because visual information has to be
transformed into textual information. But even if the raw material consists of existing documents (e.g. episodes of television series, newspaper articles or policy reports) the decision has to be made whether to include all texts in the transcription, or just to confine yourself to those parts you think are important. Besides, in the case of interviews or existing documents, there is a theoretical choice between entering the text literally or to enter a summary.

Whatever decision is made, it will be very hard, and sometimes even impossible, to undo these decisions concerning the transcription afterwards.

Another decision concerns the question whether to pre-structure the raw material during the transcription phase. Some qualitative researchers hold the position that at the start of the analysis you can or may not add any information to the material that implies structure. Structuring the material is an analytical act one should refrain of during the pre-analytical phase. Although we endorse this point of view, our favorite strategy for transcribing data and preparing them for admission in the Kwalitan data base structure is, that preceding the actual analysis the researcher divides the text into segments, that will be the unit of analysis in the exploratory phase. In order to avoid that the researcher goes ahead of the actual analysis, it is advised to divide the text into segments at logical positions in the text, for instance, when the interviewer asks a new question or, in case of an existing document or video/radio transcription, at the start of a new paragraph or section. This division of the text enables the researcher to introduce some preliminary structure in the material that will facilitate the start of the interpretative analysis. In addition, the process of dividing the text into segments offers an extra opportunity for the researcher to check whether the transcription was done correctly. Although this is our favorite strategy, it is not the only way to import data into Kwalitan: when the researcher prefers to import an entire text without segments and to separate segments later, Kwalitan will fully support this decision. Like most programs Kwalitan enables the change of the division of segments afterwards, when the results of the analysis (i.e. the researcher’s increased knowledge of the subject) urge you to do so.

In the case of Kwalitan it is possible to enter material directly into the database structure, but is also possible to create a text file in any word processor, or to cut and paste texts from other computer programs, for instance text on an Internet page.

Kwalitan stores this material to be analyzed in a highly structured way. All data that are needed in a specific research project are stored together in a so-called project. The project is consists out of one or more work files containing one or more documents (i.e. the data of one observational unit, e.g. respondent). Each document is divided into segments.

Like many other programs, Kwalitan contains an option to create an inventory of the words occurring in the text, along with their frequencies. Although this kind of overview plays a role in some quantitative approaches of qualitative analysis, such a list can be very useful in any form of qualita-
tive analysis to get acquainted with the kind of words/jargon the respondents or the actors in the documents use. You can use it, for instance, to look up in what way references to a certain object are cast.

The exploration phase
The main analytical activity in this phase is indicated as open coding. This activity consists of reading the text line-by-line and coding per segment the occurrence of relevant concepts. Now the analyst formulates as many codes as may be relevant in view of the research questions. Open coding is thus focused on the formulation of many substantive concepts, so that the researcher may elaborate a framework that fits the interview data.

One may apply several techniques to discover or formulate substantive concepts (codes). The most important one is focused reading. Here the analyst reviews the concepts and categories that were important during the formulation of the problem statement, the selection of respondents, and the construction of the topic list. With this preliminary framework as a background, the interviews are read in the light of the question: what is said about the topic (concept, category) concerned. Concepts and categories are added to the interview segments where relevant, and more specific codes are formulated and added indicating what is said about the concepts and categories. This way of reading is strongly related to the perspective of the researcher.

A second technique is reading by summarizing. Here the analyst reads each segment on its own and tries to formulate the tenor of the text. He selects the main terms in the segment as codes to be added to the segment. This way of reading is more related to the perspective of the respondent or document.

A third technique is called scanning. Here we explicitly make use of the possibilities of the computer as a word processor to get an overview of the word-use of the respondent or in a document. Most words used are of course not specifically relevant for the research topic, but some are. These words may be selected from an overview or list of words and automatically added as codes to the segments in which they occur. In this way these specific segments may be sorted for a further focused reading.

In this way, the exploratory phase yields a huge amount of codes, some of which are related to the temporary framework the researcher applies in the analysis. This phase of field exploration may be concluded if renewed reading (or new data) doesn't bring up new lines of analysis (c.f. saturation).

Figure 2 displays an example of a segment and the codes assigned to this segment. The example is from an analysis of Desmond Tutu's preaching (in Pieterse, 1995).
We, too, like the disciples of Jesus have been stunned by the death of another young man in his thirties. A young man completely dedicated to the pursuit of justice and righteousness, of peace and reconciliation. A young man completely committed to radical change in our beloved land. Even his own worst enemies and detractors knew him as a person of utmost integrity and principle. And those who knew him better, loved him as a warm hearted man with a huge sense of fun and yet with a massive intellect. God called Steve to be His servant in South Africa, to speak up on behalf of God, declaring what the will of this God must be in a situation such as ours, a situation of evil and injustice, oppression and exploitation. God called him to be the founder father of the Black Consciousness Movement against which we have had tirades and fulminations. It is a Movement by which God, through Steve, sought to awaken in the Black person a sense of his intrinsic value and worth as a child of God, not needing to apologise for his existential condition as a Black person, calling on Blacks to glorify and praise God that He had created them Black.

Figure 2: Display of a segment from a document

After assigning the codes and entering them into the work file, the researcher will feel the need to examine the codes he has made up so far. The computer may provide an alphabetically ordered list of the codes assigned to any of the segments in the work file. This list enables a check for typing errors and a possibility to see if you have created and assigned synonyms for the same phenomenon. After checking this list, errors may be corrected or other changes may be introduced.

The importance of describing your activities and decisions in memos was already stressed above. In the exploration phase you will mainly create concept memos, in which you define the meaning of the (most significant) codes you have assigned. In addition theoretical memos have to be written, which elaborate the theoretical framework and formulate hypotheses for further investigation. To this rough description of the analytical procedures in the exploratory phase we want to add some notes on problems researchers may face.

1. ‘Loss of time’ because of the transcription work
Transcribing interviews often requires more time than planned and results in a huge amount of paperwork that almost inevitably frustrates analysis. This raises the question if there is some way to economize on this work. This is possible, later in the integration phase, but not in the initial phases of analysis. A first rough transcription from tape to floppy may be executed by an assistant, but the analyst himself should review the tape to make corrections to the basic transcript. Transcribing is not ‘lost time’, it is a first step into becoming acquainted with the interviews or documents. Moreover, transcribing facilitates the researcher to add some explicating remarks if the texts is incomprehensible or confusing. After transcribing and correcting the analyst feels at home again in the interview and
may start to create a profile card that provides a rough sketch of what the respondent thinks about central topics.

2. The time-consuming exploratory reading
Analysis according to the above-mentioned techniques takes a lot of time. If you planned some fifty interviews and all of them should be read in the ways described above, you can easily imagine that your time-budget is not large enough. Besides, it would yield such a large quantity of coded transcripts that the specification phase, too, would require a lot of time. The solution for this problem is that the exploratory analysis is executed on a small, strategically chosen set of interviews. This means that after interviewing some 15 respondents in the exploratory phase, about 5 interviews are selected for exploratory reading, on the basis of profile cards written immediately after the interview, so that a wide variation is included regarding data pertinent to the central topics. After all, the objective in the exploratory phase is the development of as many substantive codes as possible, and you will not need all documents for that.

3. The danger of fragmentation
Line-by-line analysis, the reading and coding of segments, and the option to compare segments across the interviews may lead to the danger that the texts are read out of their context: the interview with a specific respondent. The solution here is, that one regularly consults the respondent’s profile card and that this profile card is amended in each phase of analysis as to the view of the respondent on central topics.

4. Directing the analysis
The main problem in the exploratory phase is that the analyst reads and reads and executes more and more interviews with interesting cases, interviews that may lead to still more new codes and that old codes are specified continuously, in short that the process is never ending. Glaser and Strauss’ saturation principle (1967: 111), that is to keep interviewing and analyzing until no new codes arise, does not work as a practical principle. The analyst must direct the process and that is done by taking ample time for reflections on the findings, in addition to interviewing and exploratory reading. Reflection is stimulated by an overview of codes and the writing of memos on the relations between categories within the analytic framework. The main clue is Strauss’ adage ‘think theoretical’, which allows for recognition of relationships within the framework.

The exploratory phase can be concluded if the analyst is able to formulate a preliminary and rough answer to the research questions, and from that moment on can formulate which topics, concepts and categories are most important in the study.

The specification phase
The specification phase is directed at specifying the concepts and categories formulated in relation to central topics. The analysis should lead to the
ordering and elaboration of the codes formulated in the exploratory phase in such a way that the analyst gets a framework to describe the aspects that are important in the field in view of the problem statement.

Analytical activities are denoted as constant comparison. Based on the results of the exploration phase and of the reflections on these results (memos), the researcher chooses a limited number of codes that seem to be important and have the potential of becoming a key concept. For each key concept, all segments to which the key concept was assigned have to be put together in order to look for similarities and differences between the segments; based on these comparisons, the researcher can elaborate a key concept. Selection of segments and comparison of these segments have to be repeated several times for each of the central concepts.

The central topics, assigned in terms of main codes to the interview segments, are the points of departure. The computer can select all segments with a specific main code and present all the additional codes that accompany the main codes in the segments. Reflection on the overview of additional codes belonging to the field of a main code should lead to the formulation of the diverse dimensions of the topic the additional codes are referring to. Next, these dimensions are used to formulate variables that describe differences and similarities between respondents as to the central topics of the study.

When these kinds of variables are elaborated for all central topics, the specification phase is finished. The analytical framework has been elaborated sufficiently to give a descriptive overview of the most central topics in the study.

In this analysis phase the computer may be used to specify criteria for selecting the segments, i.e. to create a filter. As you can see in the example of a filter in Figure 3, the filter allows for specification of several types of criteria.

Figure 3: Creating a filter
The most important search criterion is a list of one or more codes. The computer will display (or print) only those segments that match the specified criterion. If you specify two or more codes in a filter, you can combine the codes by any of the logical operators 'or', 'and' and 'not'. Other specifications you can make in a filter concern strings of text (words), that have to occur in the text of the segment, and the segment number or the document number. In addition you can make a selection on the basis of additional information, which is included in the description of a document (this identifier may contain, for instance age or sex of the interviewee). In the example of Figure 3, only those segments are requested, to which both 'god cares' and 'justice' are assigned; the other types of criteria are not specified. Selecting segments enables concentration on the similarities and differences between segments, and, doing so, retrieving more information about the code in question.

Another important task in this phase is to see if it is possible to order the codes according to a dimension and to ascribe them to one of the poles of that dimension. One of the ways this can be accomplished is by making categories that represent concepts at a more abstract level than the codes; next, the single codes are assigned to one of the categories. These categories can be created 'top down', based on a theory or literature, or they can be generated 'bottom up', that is based upon the codes that are in the project. In Kwalitan the categories are defined in such a way, that a code can be assigned to only one category, in other words the categories are mutually exclusive. Figure 4 shows an example of the categories.

![Figure 4: Categories of codes](image-url)
Another way to order the codes is to generate a hierarchical scheme of the codes. For this purpose you can use a list of codes that is generated by the computer program. This list looks the same as the list that was mentioned in the previous section, but this time the list only consists of the codes that are assigned to the segments the central concept was assigned to. In other words, the list displays the codes that co-occur with a specified code, in this case one of the central concepts. This list enables you to look for dimensions and to distribute the codes over the poles of these dimensions. A second tool for this task offers an opportunity for creating a tree in which the hierarchical structure of the codes is displayed. This hierarchical structure is included in the work file. This option not only provides a visual representation of the hierarchical structure, it also facilitates the creation of filters, because there is no need to fill in all the codes that are part of one of the branches of the tree, but it will suffice to enter only the ‘parent’ code. An example of the tree is displayed in Figure 5.

Figure 5: The hierarchical structure of codes

As always reflections, ideas, decisions, etcetera, have to be put down in memos.

The technique of constant comparison deals with comparison of segments within cases resulting in case or group specific codes. What the analyst needs now are summaries of the ‘score’ of each case on the dimension for comparison.
In addition to this rough description of the method of analysis in the specification phase we want to make the following notes concerning the problems the analyst may meet.

1. **Incomplete interviews**
   At the end of the specification phase one defines which topics should be discussed in the following interviews and which concepts and categories are linked to the topic. This gives the researcher an opportunity to give precise instructions to the interviewers so that a part of the rest of the interviews may be contracted out. A second implication is that now finally understands some of the gaps in the interviews carried out so far, in view of the elaborated analytical framework. That is a consequence of the start of the study: the more open the start, the more gaps in the provisional framework, the greater the chance that topics have not been thoroughly pursued in view of the final analysis. Some of the respondents therefore need to be interviewed again on these topics later in the integration phase.

2. **The necessity to work free from codes**
   The aim of the specification phase is elaborating the perspective of the researcher. This means that codes from the exploratory phase are not all equally important. What is more, the codes are not important in themselves, they are just tools in elaborating the analyst's perspective. At the end of the specification phase the analytic framework contains terms (concepts, variables, categories) that only partly coincide with codes used earlier. Moreover, some of the codes used in the exploratory phase will not return, because they do not refer to what have later become the central topics of the study. So, one should release and surpass the codes used in one phase in order to prevent that the analysis becomes a merely bureaucratic completion of loose ends related to all codes.

3. **Substantive literature**
   In elaborating the analytic framework one needs a wider perspective than the observations alone. At the start of the study a problem statement is formulated on the basis of a rough overview of the field under study, extracted from literature surveying the field. In the specification phase the researcher needs specific literature related to that field, providing the possibility of investigating the relevance of discovered substantive concepts outside one's own observations. Secondly, literature study may solve problems with concept definitions. Moreover, literature may suggest concepts that help to formulate relevant distinctions found in the data.

4. **Taking time for reflection**
   In the specification phase the analyst experiences all the advantages of analyzing with the help of the computer. In comparative analysis one uses selections
from the data for comparisons in view of the formulated categories (cf. Strauss' axial coding). While reading the interview segments, not summarizing but interpretation of the text is the central issue. This means that all kinds of analytic work are alternated with cognitive work, in which insights and creativity play a substantial part. Reflections on the analytic framework and the documentation of the developing insights in memos constitute the main cognitive activities during analysis in the specification phase.

The reduction phase
In the reduction phase the core of the developing theory is defined to structure the elaborated variables and their interpretations. In the specification phase the analytical framework was developed ‘vertically’, in the sense that for every research topic the structure of the relevant concept and related dimensions, variables and categories has been elaborated. In the reduction phase theory is developed ‘horizontally’, that is the relationships between topics, and the relationships between concepts and between variables is formulated.

The core of the theory may consist of one of the central concepts, or a typology that has many interrelations with other variables. Or the core may be a process that describes changes and developments in a central topic, ordering the rest of the developed variables.

Although the reduction phase is defined here as a separate phase, it is often the case that the core of the theory has already emerged in the previous phases. In that case analysis in the reduction phase is dedicated to testing whether the core concept indeed brings order into the data.

In the reduction phase analysis mainly consists of reflections on the basis of specific selections from the data, overviews and tables. There are several strategies that can be used to track the core of the theory. Besides the scanning of memos and of literature, one may study the profile cards of each respondent individually to examine how, in each case, topics are related. Another strategy is to select from all interviews those segments that show a relationship between topics. Or one may produce overviews of the ‘scores’ of the respondents on several topics to search for interrelationships. The reduction phase uses the tools that were described above. Making printouts, entering codes, creating filters and selecting segments make up time consuming activities, which can be taken over by a computer program.

The purpose of these analytical activities is to search for the core of a new theory by establishing the relations between the main variables. A handy tool in this phase is a graphical environment, in which you can draw and manipulate a schematic representation of the relations between the variables. Some of the computer programs mentioned above (e.g. Atlas/ti) have an option to create and manipulate graphical representations of the relations between concepts. You can also use a separate computer program for drawing schemes, but this has the disadvantage that the information is not linked to
your work file. And for those who are not familiar with graphical computer programs: a piece of paper and a pencil will also do.

Looking for important variables and their relations implies the creation of all sorts of matrices and tables. When referring to matrices, one should not think of the well known matrices the quantitative researcher is so fond of, but of qualitative matrices, in which the cells are made up out of qualitative descriptions. Miles and Huberman (1993) give a large number of examples of this kind of matrices and of the way you can treat them. In compiling qualitative matrices the computer can be a great help, since you can select rather precisely those text segments that give the desired information.

Another important analytical activity in this phase consists of a systematic and thorough study of the memos written during the process of the analysis. These contain ideas that have to be recapitulated and summarized. If you would like to analyze your own memos you may transform your memos into a work file that can be analyzed in the usual way.

The reduction phase is concluded when core concept(s) or a core process is formulated and when relationships with other topics is clarified. In addition to this rough overview of the analysis in the reduction phase, the following notes should be made.

1. Change in the level of analysis
In the previous phases the analyst has been occupied by coding and comparing segments, on the level of the data (except for theory memos and profile cards). In the reduction phase the situation is different: now the analysis focuses on the case level (respondent, document). Summarizing the interviews in terms of the framework and to check out whether all relevant information has been recorded can test the relevance of the elaborated framework.

2. The relevance of theoretical literature
In the reduction phase one needs an overview of relevant theoretical perspectives on the subject under study to possibly borrow the core concept from accepted theories. Besides this, the analyst is focused on the definition of this core concept and the relationships of the core with other concepts, and here too, theoretical literature may provide workable suggestions.

The integration phase
The integration phase is dedicated to defining the theory precisely, testing the relationships between the core concept and other concepts in the theory through new data, and formulating an answer to the problem statement, illustrating it with observations from the data. The analysis has the characteristics of a systematic research on the basis of a stable and complete analytic framework.

The final analysis takes place on the profile card of each case, which contains summaries of the central topics in terms of the framework. Now, it can be tested for every case whether the core concept is capable of reflecting the
core of the respondent's perspective, and the relationships of core and central concepts for the research group as a whole. The last step is the description of the theory in a research report, which is basically grounded in the many methodical and theoretical memos written during the whole process of analysis.

This phase entails specifying the theory, in the sense that the observation units (respondents) are described and characterized according to the variables and relationships that make up the (new) theory. Matrices, tables, summaries and all sorts of overviews are the tools the researcher will need in this phase. In addition to the possibilities described above, the computer may also help to create quasi-quantitative matrices, in which is indicated, for instance, whether a code was encountered in the material of a respondent, or in which a count is kept of how many times a specific code occurred. These matrices are written in such a format, that rather sophisticated analyses, like homogeneity analysis (Homals) or analysis of correspondence, may subsequently be executed. These analyses are meant to reach a better understanding of the relations between the variables and to be able to divide the units (respondents) into categories.

Concerning the process of analysis in the integration phase the following notes are of importance.

1. Interviewing 'former' respondents again
Because the analytical framework is completed and made definitive at this moment in the research process, it now becomes clear what the restrictions and gaps are in the interviews from the initial phases. As a consequence, these respondents should be interviewed again which may provide important insights. On the one hand it may turn out that the respondents do not speak about the interview topics in exactly the same words, which may be a good test for the analytic framework to go beyond this 'everyday variation'. On the other hand it may turn out that some respondents' answers have changed in regard to the topics studied. Then the question is whether the theory can explain why such a change has occurred.

2. Analyzing is writing
Most steps in the analysis are recorded in some way or another as a written product. While writing the research report, the researcher may derive illustrations from these products, like several of the many theoretical and methodical memos, the coded interview segments and the profile cards of respondents. The writing of the final report demands precise formulations, justification of research design decisions and grounded interpretations of the interview data, which should be consistent with each other. In this way the writing of the research report in fact is the final step in the process of qualitative analysis.

Epilogue
Qualitative analysis is a laborious process. We have presented a stepwise procedure to organize this complex process that may also be applied in media
studies and mass communications research. The computer can be of great help in manipulating the data in a systematic way, contributing to the reliability of the analysis. These days one can hardly imagine a situation in which a researcher conducts this kind of analyses without the support of a computer. We foresee a further elaboration of the methodology of qualitative analysis; the developments in the area of computer software will enable refinement of the methodology for qualitative analysis and will stimulate the development of new techniques for qualitative analysis, thereby giving way to the substantive development of the field of inquiry, i.e. interpretive media research.

Notes
1 We are aware of the fact that many researchers are female, but for the sake of the readability of the text we speak of he and him when we refer to the researcher.
2 An up-to-date overview of the available software for qualitative research can be found on the web site of the networking project for Computer Assisted Qualitative Data Analysis Software of the University of Surrey http://caqdas.soc.surrey.ac.uk/.

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