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Contextual analysis

A research methodology and research approach

Lennart Svensson

UNIVERSITY OF
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To Solveig without whose love, encouragement and support this book – and much else - would never have been completed.

Abstract

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All scientific knowledge is analytic in a general sense. The knowledge is based on that parts of the world are discerned, investigated, and described, as research objects. Contextual analysis starts from a preliminary delimitation of research objects as wholes, and continues with discerning and delimiting main parts of the objects, and parts within the main parts. It is characteristic of the analysis that the research objects are seen as wholes of related and organized parts. In contextual analysis, information and data are used to clarify the character of main parts of the research objects, and how those can be delimited and described more precisely. There is an interest in what character the relation between main parts has, and what character this gives to the object as a whole.

The analysis is analytic in discerning and delimiting research objects as cases, main parts of the cases, smaller parts within the main parts, and relations between parts. All those delimitations are made through contextual interpretation. Delimitations of all units are made as dependent on their relation to their contexts. The meaning of a unit and its context is interpreted interdependently to delimit the meaning of each. The approach is analytic also concerning the result, which has the form of explicitly described cases, parts and relations.

In contextual analysis, case based investigation is seen as the fundamental scientific form of development of knowledge, both in natural and human sciences. It may perhaps be considered self-evident that research starts from the phenomena and cases to be investigated, but it is not. Often the starting point is taken in theoretical concepts, data materials, and/or in data collection and data treatment methods, rather than in the parts of the world that is to be investigated. The result becomes a compilation of data, where the relation to parts of the world is unclear. In contextual analysis there is an emphasis on clarification of research objects as cases of phenomena.

Contents

Acknowledgement

The thinking about research methodology and research approach summarized in this book has been developed throughout many years of research cooperation with colleagues, co-workers and postgraduate students. Many of those have in different ways inspired and contributed to this thinking at the same time as the book entirely expresses the view and conclusions of the author. I feel a deep gratitude to all the persons with whom I have cooperated through the years. I will not here thank all those persons by mentioning them by name. It would be too many and at the risk of not mentioning some. Instead, I will thank two collectives, and all who have been part of those, and then especially three persons.

My work on contextual analysis started in connection with some research projects at the Department of Education, University of Gothenburg. The projects of most importance were carried out in a growing research group called the INOM-group (INOM was in Swedish short for learning (IN) and conception of the surrounding world (OM)). I thank those who during the years 1970-1986 were part of this group. In particular, I thank Ference Marton who was the leader of the group, who I had a close and very fruitful cooperation with all those years, and who has written a foreword to this book. During a period, 1979-1985, I had a position as senior researcher at the Swedish Council for Research in the Humanities and Social Sciences, which gave me good opportunities to deepen my work on methodology and research approach. I am very grateful for this possibility.

From 1986, my work on contextual analysis was carried out as professor of Education at Lund University. The second collective I thank is all the co-workers and postgraduate students at the Department of Education, Lund University, throughout my time as professor from 1986 to 2009. I thank especially the postgraduate students who have worked with contextual analysis in their dissertation work. In particular, I thank Elsie Anderberg, who after her doctoral work initiated and lead research on language and thought, which I participated in and highly appreciated.

Finally, I thank Åke Ingerman for reading and commenting on this book and as editor making possible the publication in Gothenburg Studies in Educational Science, Acta Universitatis Gothoburgensis. It is for me a great pleasure to publish the book in this series at Gothenburg University, where this work has its origin.

Preface

I, the present author, started my academic studies in 1963, at Gothenburg University, Sweden, to become a psychologist. I thought my main interest was in the psyche of human beings. It turned out that, although I certainly was interested in human beings, my main interest was in their development of knowledge. This interest led to Education as my main field of research, and a focus on how students learn and develop personal knowledge. The interest in development of knowledge also led to an early and persisting interest in research methods. In the late 1960s and the 1970s, there was an intense discussion about research methods in the Swedish human science academic context. The dominance for quasi-experimental and correlational methods was questioned, and alternative qualitative and language-based methods were suggested and introduced. I found that researchers favoring the traditional variable based methods tended to focus on precise definitions of methods, while researchers arguing for new alternative methods tended to focus ontological assumptions (about the nature of reality) and epistemological assumptions (about the nature of knowledge).

In my understanding, questions about research methodology was not given a proper place in the discussion of research methods. What above all was missing was arguments about approaches to the phenomena investigated. Early in my research career, I had opportunity to work full time as researcher, first in some research projects, and then as Senior researcher for six years at the Swedish Council for Research in the Humanities and Social sciences. This gave good opportunities to ponder over the issue of methodology and research approach. I argued for taking the context dependency of phenomena, information, data, methods, and results into consideration. I suggested contextual analysis as an alternative to the existing methodologies and approaches. I have developed contextual analysis in empirical research and described it in reports, conference papers, and articles. I am now content, as professor emeritus, to have the opportunity to give a more comprehensive presentation of contextual analysis.

Preface by Ference Marton

It is a true joy to see Lennart Svensson's Magnum Opus in print. When he, about 50 years ago, came into contact with the world of research he noticed what to him appeared as serious shortcomings in researchers' ways of approaching their research tasks. After many attempts to find better alternatives to carry out research in the field of education, and also beyond this, we can now find some of the main conclusions that he has arrived at.

In connection with the appointment in 1966 of a governmental committee for questions concerning university education, and the making of special funding for research with such an orientation available from the Board of the Swedish Universities, the project Applied Psychology of Learning and Study Skill (TIPS in Swedish) was carried out 1970-74 by Lars Owe Dahlgren, Lennart Svensson, Roger Säljö and myself, at the Department of Education, University of Gothenburg. The aim of the project was to find out what makes some students better than others at appropriating social science content by studying social science texts. The background was our hesitation over all study technique advices that were showered upon students at that time. We could hardly believe that students would be better in learning by slavishly following instructions about how they should behave when reading (how they should increase the fixation width of their eyes, how they should make underlining, how they should sit, breath and so on). On the other hand, we were convinced that it is possible to find features of the way of studying that make some students better in profiting from social science content in their studies. We also assumed that when such features were identified we should be able to contribute to the development of them by students, who needed help to develop them. The shortening of the project title (TIPS) (having the meaning of tip also in Swedish) thus was ironically meant. We were really after something that could function when study technique tips did not function. This something we named study skill. Lennart Svensson and I myself would study the nature of study skill, to find out what it means that some students have better study skill than others. Lars Owe Dahlgren and Roger Säljö planned to carry out one experimental study each aiming at improving the study skill of the participating students.

We worked under what we found to be ideal conditions. During four years, we were occupied only with our research project. Our questions hooked into one another. After daily discussions, we were well up in each other's questions and each other´s material. None the less, each of us four displayed his own line. Certainly, this was true concerning the cooperation between Lennart Svensson and myself. It is true that we had exactly the same research object (''study skill'' or ''What does it mean to be good at learning in social science subjects?''). Our starting point was that we did not know what study skill is and therefore had to find it out. To do this we needed to let students make sense of social science texts they never had seen before. In that way we could compare the meanings the students arrived at with one another. We carried out interviews with one participant at a time. They were first year students of social science, and they were asked to read a text that was judged to be representative of texts they read in the subject they studied. When it comes to the first study that Lennart Svensson and I carried out the subject was education and the text used was about examination and productivity at Swedish universities. Each subject was told that after the reading she was expected to tell the interviewer what she thought that the author of the text wanted to say. From the subjects answers to this question, and their answers to some follow up questions, four different meanings of the text were identified as expressed by the participating students. These meanings by us were taken as expressions of the students' understandings of the message of the text and thereby as a sign of their capability to absorb the text, i.e. to learn from it.

Lennart Svensson and I myself analysed exactly the same material and we both delimited exactly the same four meanings of the text, expressed by the participating students. We ordered the categories, labelling meanings, hierarchically, in the same way, and made the same judgement of which categories were characterising which students. In our analysis, we were both aiming at finding differences in how the participating students sensed, experienced, conceptualised, understood the text they read and their ways to handle the situation in which they found themselves. We both tried to see what our subjects saw, and as Lennart Svensson so precisely expressed it, ''how they approached the task''. The expression catches well what we both tried to catch: the variation in the students' ways of approaching the task they were facing (or more generally: the variation in their ways of approaching their tasks in their studies). In other words, we had the same research object, the same question,

but despite all similarities, we did not have the same answer to the same question.

As mentioned earlier, we carried out several studies where social science students had the opportunity to read, recall and discuss texts with social science content. Lennart stressed especially the reader's discerning of wholes, parts and relations between these. Such texts often contain theses, facts, arguments, and conclusions; to understand such texts presupposes that the reader can grasp the text as a whole, which in turn presupposes that the reader can identify the parts of the text and sees them as parts of a whole. If the text is read without the reader discerning the structure of the text, the whole is lost. The one who tries to find out how the text hangs together, how the parts together make up the whole is approaching the text holistically, according to Lennart Svensson, and makes the meaning of the text her own better than the one who reads focussing on what is mentioned in the text and in what order, i.e. the one who reads piecemeal, or in an atomistic way, as Lennart Svensson says. We both arrived at that the way of approaching the task is decisive of how effective the learning becomes. Further, we agreed on that differences between the students, when it comes to their ways to approach the task, could, with some simplification, be characterised in terms of a distinction. But, the distinction that Lennart Svensson emphasized differed from what I emphasized. So, there were two distinctions, even if they were empirically perfectly correlated. As is clear from what is said above, one distinction concerned the difference between an atomistic and a holistic way of approaching the task. The other distinction, "my" distinction, concerned the difference between the reader's focus on the text as such ("the sign"), on one hand, and the meaning of the text ("the signified") on the other hand, the difference between surface and deep approach, in other words. The specific meaning of both distinctions varies when the object of learning (what the learner is expected/trying to learn) varies. It is clear: to understand that the earth is round is one thing, to realize that 2+7=7+2 is a different thing.

Educational research exists within, and is affected by, a field of dynamic forces of courses of events in society, and what is seen as interesting to research changes probably more and faster than within most other knowledge areas. However one defines high quality basic research, probably most researchers agree that continuity is a critical constituent of that type of research. Further, I want to assert that continuity is problematic when it comes to educational research, and that this is one of the reasons why high quality basic research is

problematic within education. Through his research being characterised by such a high degree of continuity the research-work of Lennart Svensson constitutes an uplifting exception. Above I have tried to indicate his research orientation during the 1970s. Obviously, his work was about learning in the context of higher education. He characterized differences between students in their ways to approach certain types of tasks in their studies. In his preface to this book, that has developed over not less than 50 years, he talks about people's development of knowledge as his main interest, and that questions about research methods and research methodology have been central to him. The search for qualitative differences in students' ways of approaching certain tasks within their studies has been combined with a search for qualitative differences in researchers' ways of approaching certain tasks in their research. In this, there is a clear continuity in the research-work. The reason why I bring forward especially continuity as an aspect of the development of Lennart's research interest is partly that this kind of continuity is relatively rare within the field of educational research and partly that what is continuous in this case is even more rare and of even more central interest. I am thinking of his strong emphasis on the close relation between the "what" and the "how" of the research.

This principle expressed in its simplest form only means that we should chose research method based on what is our research object. But the same principle expressed more pretentiously, and presumably more in line with what Svensson means, says that the research object is the starting point for methodological considerations. The former has to, in one meaning, precede the latter in the same paradoxical way as the whole has to precede the parts in the students' learning, who are most successful according to his earlier research. Decisive is how you approach as well the object of learning as the object of research. In the latter case, it is not taken for given that the research object is known before the research process begins. To come to know it is part of the process. Here we again meet the paradox consisting in that the whole has to precede the part, although the whole is composed of parts. The researcher tries to find out how the research object is constituted, but then she must start just from how the research object is constituted, i.e. from something that is not known. How may this happen? As I read this work, the author is emphasizing the decisive role of—what I would call—the propaedeutic (or explorative) phase of research. It is a matter of trying to discern the research object in its context, put what is taken for given within parentheses, go from openness to precision, from context to analysis.

But how can we start from something we are not acquainted with, that we do not know? Contextual analysis is about, as Lennart Svensson himself says, how the researcher is approaching the research object. Focus is on the early part of the research process: how the research object appears to the researcher. It is discerned by her, is delimited from the context it is included in, through focusing on the line between research object and context. Parts of the research object are delimited continuously and relations between parts are identified. The perception of the research object develops from whole to parts of the whole through discernment and delimitation.

My intention with this preface was to draw the reader's attention to Lennart Svensson's exceptionally authentic research-work within education characterised by continuity as well as profound development. It takes its starting point within educational psychology and gaining inspiration from Gestalt psychology, and is in this way influenced by phenomenological questions. Development of knowledge in a broad sense is the whole within which he delimits his research object, study skill, early in his research-work, within the whole which his interest in peoples' development of knowledge represents. As this book shows, his interest in questions about research methodology becomes more and more prominent, differentiated, and integrated. One may say that Lennart Svensson really practises what he preaches: he goes from whole to parts, discerns the parts and the relations between them. To practise what one preaches is to a great degree worth following, not the least for researchers.

Chapter 1 Introduction

In this book a research methodology and research approach called contextual analysis is presented. The book gives a description of, argumentation for, and exemplification of contextual analysis. In this introductory chapter the focus of contextual analysis on research methodology and research approach, and not on specific research methods, is described and argued for. The general background, the first presentation, and three main characteristics of contextual analysis are briefly described. The chapter ends with a presentation of the outline of the book.

Focus on research methodology and research approach

Contextual analysis is a research methodology and not a specific research method. The reason for focusing on methodology, and not on methods, is the conviction that methods should not come first. Research methods should be based on ontological and epistemological assumptions specified in relation to investigated phenomena. Methods have to be specified in relation to research objects and specific fields of research. The expression research object here is used to refer to entities, parts of the world, investigated, also if they are or include subjects. Generally described standard methods are seen as relevant to the extent that the research objects, and the knowledge of them, can be assumed to have shared characteristics, which justify the use of the same methods. The motivating of methods should be made in connection to, and as dependent on, development of knowledge within specific fields of research. This makes methodology, and a systematic, critical and creative thinking about methods, important.

Contextual analysis is also a research approach. With research approach here is meant a way of nearing to a part of the world, a research object, to investigate it. The issue raised is how the nearing to the research object is made, and should be made. What is a fruitful way to approach parts of the world to develop knowledge of those parts of the world? An approach carried out in a specific investigation involves methods, in the sense of specific ways of collecting and

treating information/data. Such specific methods of data collection and data treatment are not here described as part of the contextual analytic approach, and the methodology. The methods are expected to vary depending on what is investigated, and the specific aim of the investigation. Also, methods are expected to be formed within the approach rather than be defined beforehand. Thus the focus here is on research methodology, and general aspects of a research approach, including the way of dealing with research methods.

Contextual analysis is a general research methodology and research approach assumed to be, to varying extent, relevant to all fields of research, based on some general assumptions and arguments about development of scientific knowledge. One such general assumption is that the way of carrying out research should be considered in terms of research approach, in terms of a nearing to the research object. Methodological arguments about research approach are made dependent on the specifics of research objects, and on methods developed and used within specific fields of research. This position comes close to Kuhn's (1962, 1970, 1974) idea of exemplars as paradigms. As discussed further in the next chapter, research methodologies, approaches, and methods tend to be developed within specific fields of research and generalized to other fields, and it is important to consider limitations connected to origin.

Contextual analysis is a methodology based on epistemological (about the nature of knowledge) and ontological (about the nature of reality) assumptions, as a basis for how we are able to and should develop scientific knowledge. Even if contextual analysis is not a specific method, it implies a special way to carry out research and develop knowledge. Characteristic of the approach is that it is both contextual and analytic in an integrated way. The approach is compatible to all forms of knowledge as the aim of research, if the form fits the character of the research object. The seemingly obvious starting point in contextual analysis is from what is to be investigated, the research object, and from the view of the knowledge of the object, that is to be developed. Even if contextual analysis takes its starting point in the research objects, contextual analysis does not include all methodological considerations and choices that have to be made in a specific investigation, only principles for how these choices can be made. The variation of specific methods and data that can be used is very great, and is not described as part of the methodology and approach. With approach is here not meant a complete carrying through of an investigation, but main characteristics of the way of approaching research objects.

The research objects are not so clearly the starting point in dominating research traditions. Rather the starting point is taken in theoretical definitions of concepts, in general methods of collection and treatment of data, and in data materials. This is necessary in the use of quantitative methods, but is also the case in some qualitative methods. One fundamental characteristic of contextual analysis is to approach the research object in an open way, and search for its delimitation in context. The same approach is taken in finding out what characterizes the object. It is a searching out of parts of the object and their characteristics in their contexts. This approach involves two sides, the analytic of delimitation of the whole of the object, of its parts, and relations between those, and the contextual of discerning and delimiting the whole, parts and relations in and as dependent on their contexts. Thus the delimitation is analytic and contextual at the same time, and based on approaching research objects rather than defining them beforehand.

Historical origin and first presentation of contextual analysis

The formulation of contextual analysis as a research methodology and research approach, as presented here, toke its beginning in the late 1960s. It was a time in human science research with dominance for variable based quasi-experimental and correlation research as for instance described by Cronbach (1957). The term human science will here be used with a broad meaning also including social and cultural science. The dominant tradition was further developed in ATI-research (Aptitude-Treatment Interaction), as presented among others by Cronbach and Snow (1969) and Cronbach (1975). The present author was at the end of the 1960s, as a young researcher, involved in two variable based and correlation focused investigations. They were an investigation of study activity and study success in studying English as foreign language at Gothenburg University by use of correlational methods and development of those (Svensson 1970), and an investigation of vocational interests by use of semantic differential scales and factor analytic methods and development of those (Svensson 1973).

The work with using and developing statistical methods raised questions concerning the suitability of the methods in investigating phenomena within the human sciences. The present author was inspired by Cronbach's discussions on methodology, in writings referred to above, in oral communication, and later

in a book (Cronbach 1982). Discussions on validity formed a background to the development of contextual analysis, including discussions on construct validity (Cronbach 1955), and of internal and external validity (Campbell & Stanley 1963, Bracht & Glass 1968, and Snow 1974). Discussions on the relation between theory and observation was an important inspiration, as presented by Carnap (1936/37 and 1956), Popper (1959 and 1963), Polanyi (1969), Bunge (1971) and Petrie (1972).

The late 1960s and the 1970s was a time of expansive development of the field of linguistics, especially the development following Chomsky's (1957) presentation of his generative transformative grammar. A special inspiration for the development of contextual analysis was the development of the fields of psycholinguistics and sociolinguistics, especially the writings by Rommetveit (1968, 1972 and 1974). Other sources of inspiration were Gestalt Psychology, especially the writing by Wertheimer (1945), and the writing by Wittgenstein (1974) about language and the formation of knowledge. It is especially interesting to see Wittgenstein's thinking as a development of Gestalt theory, when it comes to the relation between use of language and development and forming of knowledge. This is not the most common reading of Wittgenstein.

During the late 1960s and the 1970s there was an increased interest within the human sciences in philosophy and theory of science. Much inspiration was taken from Kuhn's (1962) book The structure of scientific revolutions. The concept of paradigm was very much in focus as further discussed by Masterman (1970), Kuhn (1970, 1974) and many others. At Gothenburg University, where the present author was active, Håkan Törnebohm was professor of theory of science (1963-1985). He had previously specialized especially in theory of science in relation to physics. Törnebohm (1975, 1977 a, b) in his writings focused a great deal on the concept of paradigm. His interest was what, in principle, is the best understanding of what a paradigm is. He analyzed and described paradigms as complexes of different factors. He found those to make up two main factors in relation to each other: ontology and methodology (strategy).

Much of the interest for and discussion about paradigms concerned differences between traditions of research and groupings of research under paradigms. Radnitzky (1970) presented an extensive description of fundamental differences between traditions of research. He did his work in close cooperation with Törnebohm. Radnitzky did not use the concept of paradigm but discussed differences in terms of schools of meta-science. He distinguished between two

main schools of meta-science, the Anglo-Saxon and the Continental school. The distinction is close to what is more often talked about as a difference between a positivistic, analytic tradition and a dialectic, phenomenological, hermeneutic tradition. Radnitzky's work is a historical description.

Törnebohm in his more logical analysis made a similar grouping in two main kinds of paradigms which he first called 1) taxonomic and compositional paradigms and 2) contextual paradigms (Törnebohm (1977a) and later 1) systemic and 2) contextual paradigms (Törnebohm 1977b). As parts of contextual paradigms he discussed contextual strategies, contextual analysis and contextual synthesis. There are both similarities and differences between what is meant by contextual analysis in the present book and Törnebom's description. The meaning of contextual analysis is quite similar, but Törnebohm's arguments are more directly grounded in the relation of methodology to ontology. The present author used the term before being aware of, and before Törnebom's use of it in print. The similarities and differences will not be further discussed here. At the department of Theory of science at Gothenburg University there was also an inspiring discussion about hermeneutics and a hermeneutic theory of science.

In 1970 Ference Marton and the present author, as project leaders, together started a new research project at Gothenburg University, on university students' studying and learning, where we mainly used interview data and made qualitative analyses. The project was financed by the Office of the Chancellor of the Swedish Universities. Our way of describing students' understanding of subject matter, in terms of qualitatively different conceptions of messages and phenomena, formed the basis for the development of a research orientation that later was called phenomenography (Marton 1981, 2015, Marton and Booth 1997, Svensson 1997). Development of research methods was an aim in the project, and the way of doing the data analyses was new. In the most inclusive report from the project, the approach to analyzing empirical data on students studying and learning was called *contextual analysis* (Svensson 1976). In the concluding chapter about methodology the following quotation was part of what was said about contextual analysis. The expression "a generally delimited relation" refers to the relation between study and learning activity on one hand and learning outcome on the other hand.

> The reason for not using generally defined categorizations of data (variables) is that the use of such categorizations can seldom be defended because of the context dependency of the phenomena. A contextual analysis within the area

> of research dealt with here must first of all consider the individual as the most immediate context as regards interpretations of specific data. Thus the analysis must give descriptions of the relations between specific data within individuals.
>
> The individual and situational context is the starting point for the analysis. The aim is to describe a generally delimited relation. However, neither the full concrete meaning of the relation nor all relevant aspects and categorizations can be assumed to be known. The reasons for this discussed earlier are that the meaning of the specific data is dependent on the context.
>
> The "same" specific data may have totally different meanings in different contexts. The "same" amount of time, study technique and even concrete form of strategy and approach mean very different things depending on the amount and type of learning material. The same is also true about the relation between the aspects of study activity. The meaning of a concrete manifestation of one aspect of study activity will vary depending on the context of the activity.
>
> A contextual analysis, then, must not only mean an aggregation of specific data with generally given interpretations, but a delimitation of specific data related to each other as aspects of the same phenomena.
>
> (p 187)

The concluding description of contextual analysis in the report was a presentation of the methodology, and at the same time the investigation reported was an example of the research approach. The methodology and research approach has later been developed and presented in relation to a great number of investigations, and has also been presented at conferences and in articles and books (see Svensson 2004, 2016, Svensson & Doumas 2013). This development will not be described here. Contextual analysis is here presented and argued for as a general research methodology and research approach. At the same time this methodology and approach stress the need for specific variation in methods, developed and used in relation to and depending on what is investigated.

Contextual analysis has a historical closeness to the phenomenographic research orientation, which developed from the project mentioned above. In addition to the historical closeness in time and context there are mainly two ways in which there is a relation between contextual analysis and phenomenography. There is a shared understanding of knowledge in that conception is seen as a fundamental knowledge concept and phenomenon.

Within phenomenography the view of knowledge concerns personal knowledge of phenomena, what persons understand to be the character or nature of knowledge objects. In contextual analysis the view of knowledge concerns what can be clarified about the character or nature of knowledge objects in a scientific way. The second kind of relation is that phenomenographic investigations to a great extent is using contextual analysis as methodology and research approach. The main difference is that phenomenography is a research orientation defined by its research objects and research area, which is conceptions held by human beings (Marton 1981, Svensson 1997). Contextual analysis on the other hand is a research methodology and research approach for scientific development of knowledge within many different research areas.

Main characteristics of contextual analysis

First a clarification will be given, concerning the use of some words and concepts that will recur throughout the book. It concerns the words object, phenomenon, case and meaning. The word object is not used based on an objectivistic assumption, meaning that knowledge should be based on objectively given parts of the world, for instance physical objects or language. The word object will be used in the meaning of object of research, or object of knowledge, just meaning that which is investigated, and that which is spoken of. The objects investigated in contextual analysis will mostly be called phenomenon and/or case. Knowledge is understood as relational, as existing in a relation between the knower and the part of the knower's world the knowledge is about.

Both phenomenon and case are seen as existing within the relation between knower and world. Phenomenon is seen as more of a conceptual unit, and case as more of an empirical unit, even if both are both conceptually and empirically based. Each case is a unique part of the world and a phenomenon, but a phenomenon usually corresponds to several cases (of the same phenomenon). How relations between descriptions of phenomena and cases are constituted has to be clarified in each investigation. The word and concept meaning is throughout used about the meaning something is experienced to have. The meaning referred to is more delimited and situational than is often the case in using the word meaning. Much of what is said in principle about meaning expresses what is commonly called theory of meaning.

There are three main characteristics of contextual analysis that will be briefly described in this introductory chapter. They will be further described in the following chapters, especially in chapter 4. The main characteristics are that contextual analysis is contextual, is analytic, and is case based. How these characteristics make up an integrated whole will be exemplified in chapters 5 to 8. Here the characteristics are described to give an introduction, and are not argued for. The arguments for the methodology and approach are given in the following chapters.

In contextual analysis the meaning of research objects and their parts, as well as of information and data about the objects and their parts, are considered to be dependent upon the contexts of the units. Meanings are discerned and delimited in context, in difference to defining meaning of units outside the context investigated. Contextual analysis is explorative and interpretive, when it comes to what meaning data has. Meanings are discerned and delimited within research objects as wholes, in relation to other data about the same research object. Contextual analysis does not use predefined categories and variables with given meanings. Categories developed in previous research can be starting points, and part of the frame of interpretation, but are not assumed to be significant with previously given meanings. Meanings are discerned and delimited in the new investigation, for new specific research objects. Comparisons between objects, of parts of the objects, and specific data about the parts, can be made to clarify meanings. However, no compilation across objects is made of specific data about parts of objects. Specific data are not taken out of their context of being about an object as a whole, but are interpreted as being about parts of the object.

In contextual analysis qualities that represent similarities between objects are lifted forward as related to, and against the background of, concomitant differences between the objects. Different groupings and categorizations of research objects represent different ways of dealing with similarities and differences between objects. It is most important not only to focus on similarities but also clarify differences within categories of objects. The differences within categories give the basis for possibly better groupings and categorizations of the research objects. A cumulative development of knowledge is realized through an integrating description of similarities and differences between objects and between investigations.

All scientific knowledge is analytic in a general sense. The knowledge is based on that parts of the world are discerned, investigated, and described, as

research objects. In the investigation and description, characteristics of the objects are identified and described. This is also an analytic activity. Contextual analysis starts from a preliminary delimitation of research objects as wholes, and continues with discerning and delimiting main parts of the objects, and parts within the main parts. It is characteristic of the analysis that the research objects are seen as wholes of related and organized parts. In contextual analysis information and data are used to clarify the character of main parts of the research objects, and how those can be delimited and described more precisely. Above all the analysis is aiming at clarifying the character of the relation between main parts, and what character this gives to the object as a whole.

The analysis of research objects is case based holistic, and both analytic and contextual. It is analytic in discerning and delimiting research objects as cases, main parts of the cases, and smaller parts within the main parts, and relations between parts. All those delimitations are made through contextual interpretation. Delimitations of all units are made as dependent on their relation to their context. The meaning of a unit and its context is interpreted interdependently to delimit the meaning of each. The approach is analytic also concerning the result, which has the form of explicitly described cases, and parts and relations within cases.

In contextual analysis the research objects are seen as cases of phenomena, and the analysis is case based. Contextual analysis is case based in a way that differs from classical case studies, which are also case based. In classical case studies the cases are usually delimited in a very broad perspective, to be very extensively described. In contextual analysis the starting point is taken in a more specific theoretical perspective and conception of a phenomenon. The research object is conceptualized as being a certain kind of phenomenon. The contextual analysis concerns the character of this phenomenon, as it can be found in each specific unique case of an investigated research object. The collection and treatment of information and data are case based. There is an aim to clarify which cases that are investigated, to which the results are confined, and to interpret individual data in the context of each case as a whole. To delimit the cases in collecting and treating data is seen as a main challenge.

In contextual analysis case based investigation is seen as the fundamental scientific form of development of knowledge, both in natural and human sciences. It may perhaps be considered self-evident that research starts from the phenomena and cases to be investigated, but it is not. As said above, often the starting point is taken in theoretical concepts, data materials, and/or in data

collection and data treatment methods, rather than in the parts of the world that is to be investigated. The result becomes a compilation of data, where the relation to parts of the world is unclear. In contextual analysis there is an emphasis on clarification of research objects as cases of phenomena.

Outline of the book

Contextual analysis is not only different compared to what is usually called quantitative methods, but also compared to qualitative approaches and methods, which are also here found to lack in analytic and contextual qualities, although this is not equally apparent as in the case of quantitative methods. Contextual analysis represents a general methodological position, which will be presented and argued for below. In chapters 2, 3, and 4 main characteristics of contextual analysis are presented and argued for in a general principle way in relation to alternative methodologies and approaches. In chapter 9 some main concluding comments are given in relation to the aim of developing scientific knowledge, and in chapter 10 a summary description of contextual analysis is given. Chapters 5, 6, 7, and 8 have a quite different character. In those chapters, contextual analysis is described and discussed in relation to four different kinds of phenomena, which are physical motion, learning, teaching and culture.

In chapter 5 four different ways of analyzing and conceptualizing a case of physical motion is presented to clarify the character of contextual analyses and discuss their role in natural and human sciences. In the three following chapters one example of a contextual analysis is given in each chapter, of one kind of human science phenomenon. In those chapters only one way of analyzing cases of the phenomenon will be presented. This one way will be based on the authors understanding of the phenomenon, in line with that contextual analyses always take their starting point in the researcher's understanding of the phenomenon investigated. Each example gives one of many possible contextual analyses of the kind of phenomenon approached, depending on the pre-understanding of the researcher. In an actual investigation the understanding of the phenomenon has to be argued for and changed throughout the investigation. The main contents of the chapters of the book are as follows.

Chapter 1. Introduction.

In this chapter arguments are given for focusing on research methodology and research approach, and not on research methods. Those arguments are followed by a presentation of the background of contextual analysis in the author's early research, three main characteristics of contextual analysis, and the outline of the book.

Chapter 2. Some main methodological differences.

Before a further description of the basis for and character of contextual analysis is presented in chapter 3, the extensive field of different research methods, and why they are not quite satisfying in the present perspective, is discussed. Three kinds of differences are focused on, the difference between quantitative and qualitative methods, the difference between definition and exploration of meaning, and differences between aimed at forms of knowledge.

Chapter 3. Fundamental arguments for contextual analysis.

In this chapter a general view of research methods is outlined. Research methods are described as to a very large extent lacking in analytic and contextual qualities, and the conclusion is that there is a need for contextual analysis.

Chapter 4. Main characteristics of contextual analysis.

One main characteristic described is that contextual analyses are case based. The analytic and the contextual qualities are further described as main characteristics. The character of the result is discussed as basis for generalization and cumulative development of knowledge.

Chapter 5. Contextual analysis of physical motion

This is the first chapter of four discussing contextual analysis in relation to an example of a certain kind of phenomenon. The example of physical motion is included to demonstrate the generality of the methodology and approach, and discuss the different roles of contextual analyses in natural and human sciences.

Although the main focus in the book is on human sciences it is relevant to other fields as well. This is discussed in the chapter.

Chapter 6. Contextual analysis of learning

Learning is a phenomenon known to all readers of the book. It is also a phenomenon close to research activity in being about development of knowledge, although personal knowledge, rather than new scientific knowledge. The example given in the preceding chapter, physical motion, could be one of many possible contents of learning. Learning is here dealt with as an activity of an individual.

Chapter 7. Contextual analysis of teaching

Teaching is a more complex phenomenon than learning also including, to some and varying extent, learning. Teaching is a social phenomenon involving relations between the activities of different individuals, especially between teacher and student(s). The relation between teacher activity and learning environment on one hand and students´ studying and learning on the other hand is especially focused.

Chapter 8. Contextual analysis of culture

The last example used to clarify the character of contextual analyses is culture, starting from the anthropological meaning of the concept. The examples in the previous chapters can all be said to in some sense also concern culture. Culture in the anthropological sense is chosen as a most complex phenomenon, difficult to delimit and analyze, and therefore especially relevant in further clarifying the character of contextual analysis.

Chapter 9. Development of scientific knowledge

In this chapter some concluding comments are made on the case based and integrated analytic and contextual character of contextual analyses. The chapter contains a discussion about making the analysis explicit, and reporting the

investigation, as part of achieving credibility and a cumulative development of scientific knowledge.

Chapter 10. Contextual analysis in summary

This last chapter presents the methodology and approach of contextual analysis in 18 points. The chapter is a descriptive summary of conclusions against the background of the preceding argumentative and exemplifying chapters.

Chapter 2 Some main methodological differences

During a long time, from the 1960s up to now, there has been, within the human sciences (including social and cultural sciences), an extensive development of and discussion on research methods. Most extensive is the development of and discussion on methods usually labelled qualitative methods, in difference to methods labeled quantitative methods. Contextual analysis is, in relation to this labeling, a methodology mainly focusing on qualitative methods. Some of the discussion in the book concerns quantitative methods, and crucial similarities and differences between qualitative and quantitative methods. Similarities and differences considered to be fundamental from a methodological point of view are used in the argumentation for contextual analysis. Also, some statements are about methods in natural sciences. This depends on, that the dividing up in natural sciences and human sciences is not the one, that in all aspects represent the most crucial difference, when it comes to methods.

Qualitative and quantitative methods

The backdrop for the comments given here on qualitative and quantitative methods is handbooks on methods and descriptions of methods given in articles, dissertations, and research reports. To a large extent these presentations of methods start from the grouping of methods in qualitative and quantitative methods, even if the methods have varying labels and are presented with somewhat different foci. The characterization of methods as either qualitative or quantitative is, seen in relation to the historical development, understandable, but also problematic. Bryman (1999) and Hammersley (1999) present descriptions and criticisms of the use of this distinction between qualitative and quantitative methods. The distinction may be understood and discussed both in relation to the historical development and in principle. Lately there has been an extensive discussion about mixed methods, starting from the historical distinction between quantitative and qualitative methods.

The use of the distinction between quantitative and qualitative methods has been most extensive in connection with presentations of qualitative methods, especially of what has been called qualitative analysis. Early presentations of and discussions about qualitative methods are presented for instance by Taylor & Bogdan (1984), Lincoln & Guba (1985), Patton (1990), Miles & Huberman (1994), Wolcott (1994), and Denzin & Lincoln (1994). The later developments of and discussions about qualitative methods have seen a great number of publications. The development is well and extensively described in the series of handbooks of qualitative research edited by Denzin & Lincoln with editions from 1994, 2000, 2005 and 2011. There has also been an extensive development of quantitative methods, which is seen in the book by Shadish, Cook and Campbell (2002) focusing on experimental investigations, in The SAGE Handbook of Quantitative Methodology for the Social Sciences edited by D. Kaplan (2004), and the book by Agresti & Finlay (2009) focusing more on statistical methods in general. A discussion about mixed methods, i.e. combinations of qualitative and quantitative methods is presented by Tashakkori & Teddlie (2003 and 2006) and Teddlie & Tashakkori (2011).

In principle the qualitative methods consist in forms of collecting data representing qualities, to a large extent in the form of or transformed to words and language units that are not numerals. These data are treated using words and language, and grouped and/or transformed into descriptions and/or categorizations. Quantitative methods are most easily described as collecting of numerical data, or quantification of data into numbers, and use of these numbers in mathematical and statistical calculations. The use of both qualitative and quantitative methods is based in language and logic, in a way that has to be considered qualitative with quantitative aspects. It is, among other things, this common basis in language and logic that seems to create problems, when using the distinction between qualitative and quantitative methods.

When it comes to treatment of data, there is a very apparent difference between making descriptions, analyses and interpretations by use of words and language, compared to using mathematical and statistical calculations. The learning of these two kinds of methods is very different in character, and poses different challenges. This difference seems more fundamental, even if there are also big differences between different qualitative methods. The difference between qualitative and quantitative methods is less clear, when it comes to collecting of data. Data are always in some sense qualitative as they concern some quality. How many and how much is always of something - a quality.

Quantity is an aspect of qualitative data. Qualitative data are sometimes, and on different bases, ascribed number values. The use of quantitative methods of treatment presupposes quantitative data in a certain form (nominal, ordinal or quotient scale). Quantitative data can form part of qualitative treatments of data. The possibilities of combined use of qualitative and quantitative methods contributes to a lack of clearness in the distinction between qualitative and quantitative methods. This lack of clearness is especially problematic when the distinction is used to refer to the whole of research approaches and research traditions, which include both methods of data collection and data treatment.

One obscurity in the use of the distinction between qualitative and quantitative methods concerns that ontological (about the nature of reality) and epistemological (about the nature of knowledge) assumptions are too lightly included. Often simplified connections are made between the use of qualitative and quantitative methods and ontological and epistemological assumptions behind the use. To clarify the relations between such assumptions and the use of methods is difficult, and it is not the aim to discuss such relations here. Such assumptions may be very different in different cases of use of "the same" methods. Those assumptions are usually not directly included in the methods. For example, an existentialistic understanding of human life situations can be combined with use of quantitative methods in a description of peoples' situations, and a positivistic understanding of knowledge can be combined with use of qualitative methods. It is, of course, important to clarify different assumptions behind the use of methods, and how they are related to the character of the methods. It is also important not to generalize assumptions that are not part of the methods to other uses of "the same" methods.

There are assumptions that form a necessary part of the methods, and it is reasonable to restrict what is included in the distinction between qualitative and quantitative methods to these assumptions, and to discuss other assumptions separately, in relation to the use of the methods in specific cases. What is most relevant to discuss, in addition to the methods as such, is the methodological thinking behind the forming and use of the methods. By method is here meant the way of doing something, collect and treat data. The methodology consists of arguments for doing the research in this way. The arguments may for instance be about why it is reasonable and fruitful to, in an investigation, calculate averages, discern and codify language units, or give a holistic description in a certain way.

From the 1950s and forward there was a strong expansion of empirical research within the human sciences. For a period of time there was a clear dominance for a certain view of research, which included assumptions about scientific knowledge and research methods. There was an idea of a general scientific method, and a strong emphasis on quantitative methods. As an example can be mentioned Kerlinger's well known and much used book Foundations of Behavioral Research (Kerlinger, 1986) published 1964 and with new editions 1973 and 1986. From the 1970s and forward there was a change and diversification in the view of reality, scientific knowledge, and research methods, mainly towards a relativistic and constructive view, with a rapid expansion of the use of qualitative methods. The change to use of qualitative methods was connected to discussions about research paradigms (see for instance Lincoln & Guba, 1985, Denzin & Lincoln, 1994 and 2013). In those discussions, the foundation for the use of quantitative methods was challenged, and the scientific character of the use of qualitative methods was argued for. The development meant a shift from defining approaches with use of quantitative methods, to explorative approaches with use of qualitative methods.

A book by Lincoln & Guba (1985) is especially informative when it comes to the development of qualitative methods in the 1970s and onwards. It has the title Naturalistic Inquiry, and the authors discuss scientific investigations within a broad field. In the book a new paradigm is suggested in opposition to the positivistic paradigm as described. It was typical of the time to focus on an alternative paradigm to positivism. The discussion to a great extent concerned fundamental ontological and epistemological questions more than methods, although discussions on methods were also included. Contextual analysis is in line with the common criticism of positivism, and with many of the paradigmatic assumptions suggested by many of the authors suggesting a new paradigm. Contextual analysis is in line with most of the paradigmatic suggestions presented by Lincoln & Guba (1985), and especially with the emphasis on avoidance of defining research outcomes a priori (beforehand).

We now have a situation with a changed and varying view of science and research. At the same time, quantitative methods and their use, and still more qualitative methods and their use, have undergone an extensive diversification. It may now be time to attend to differences, which do not entirely follow the distinction between qualitative and quantitative methods. Methods are used in relation to situations, to arrive at certain results. In research the aim is to achieve

a development of knowledge. However, there are differences in the view of how to develop knowledge, related to the distinction between qualitative and quantitative methods, but which do not fully coincide with this distinction. One such difference stands out as very critical. It has, together with more apparent differences, especially in treatment of data, contributed to, that the distinction between qualitative and quantitative methods has had such a central and lasting place in the discussion on methods. This is the difference between a defining approach and an exploring, discerning and delimiting approach.

Definition or delimitation of meaning

An important difference between quantitative and qualitative methods is the difference between a defining and an interpretive, delimiting approach. Quantitative methods build on a defining approach. Approaches that are explorative and delimiting of the meaning of data units use qualitative methods. At the same time, there is a great variation in this respect within the general groupings of methods as qualitative and quantitative, especially between different qualitative methods. In all research one has to deal with quality, and quality expressed as meaning in a language. The extensive development of qualitative methods can be understood as an increasing recognition of a need to deal with quality differently than how it is done in quantitative methods.

In defining approaches, meaning/quality is defined as the starting point for collection and treatment of data. Definitions of meaning/quality are a necessary starting point for all quantitative treatments of data, and also form the basis for some forms of treatment of data that are considered qualitative, for instance some forms of content analysis. One has to define the units one wants to count or put number values on. In a defining approach the definitions are made beforehand, that is one defines in advance concepts, categories and variables to be used as a basis for collection and treatment of data. The defining approach means that language meaning comes first, and the relating to characteristics of the research object comes second. It is a deductive approach from language definitions to observations of phenomena.

In a delimiting approach, meanings are not defined beforehand but delimited based on exploration of the research object. The exploration of the research object, by help of data about the object, comes first, and the specification of language meaning, to describe the object, comes in a second step. The delimitation of meaning is based on discerning of characteristics of

the research object. The relation between the language used in describing parts of the phenomenon, and the observation of the phenomenon, is the reverse compared to the defining approach. It is possible to base the use of quantitative methods on delimitation of meanings through exploration of research objects, and then define meanings as a basis for quantification. This is often suggested and used in the favoring of quantitative methods, and the qualitative explorative part is then most often seen as a pilot study. Then one collects, analyses and interprets qualitative data to delimit data units that are defined as general categories and variables. These categories and variables then are used as basis for quantitative treatments of data. One important difference then is between doing the quantitative treatment of the same data the definitions are based on, and using the defined meanings for collecting data by making new observations (measurements) of new cases. When the definitions are used for new cases, an assumption about identity between cases is made, which does not hold within human sciences.

Defined data units, categories and variables are necessary as basis for quantitative treatments of data, and therefore characteristic of all quantitative methods of data treatment. Predefined categories are also used in different ways in some data treatments seen as qualitative, and is therefore not a clear difference between the main distinction between qualitative and quantitative methods. The way to decide the meaning of data units, by general predefined meanings or through delimitation in specific contexts, is a fundamental and critical difference between methods. How the meanings of data units are decided, is closely connected to analytic and contextual characteristics of the methods used. In the use of quantitative methods, the data collection is often seen as a matter of measurement. The predefined categories and variables are used as the basis for collection and analysis of data.

In somewhat more open approaches, compared to a measurement approach, the starting from categories of meaning given beforehand can be combined with an analytical approach to the data material, where units of the material considered to correspond to the predefined categories are identified. Since the starting point is not taken in all data about a research object as a whole, but in categories assumed to correspond to parts of the object, with meanings defined beforehand, the treatment gets the character of an aggregation of these category units. The character of aggregation depends on, that the units are defined in a general way, and do not have a meaning delimited in relation to the research object as context. The units are identified and dealt with in a non-

contextual way, and are aggregated according to general principles, and not on the basis of how they form part of the specific context. At the same time these units are seen as parts of the research object, and are aggregated to investigate the phenomenon, which gives the picture that it is an analysis of the phenomenon. The synthetic character is often limited, in that there is no clear orientation towards aggregating units into descriptions of research objects as wholes. An explorative analytic approach on the other hand means, that one discerns parts of research objects based on their meanings in their contexts, with a focus on the meanings and characters of the investigated objects as wholes.

A critical difference in method concerns the deciding of identity of meaning between data units. In a defining approach one defines meanings of categories and variables as something in themselves. This is accompanied by assumptions about identity of meaning of corresponding data units, of the same category or variable value. This is a necessary assumption in quantitative treatment of data. When one works with data in this way, one also often work with redefinition of concepts and data units in different steps, depending on what results that are achieved. If the results are not satisfactory, one search for new definitions (conjectures), which are hoped to give more illuminating results. A great problem with this way of working is, that the assumption about identity of meaning can hardly be justified. A further problem is, that the information needed to clarify what meanings would be more fruitful is not collected. One is left to new conjectures.

In an explorative approach, identity of meaning between data units is not a prerequisite or an assumption made beforehand, and not a result from interpreting the units in their contexts. An important part of the result concerns difference in meaning between corresponding units from different contexts. A central question is what assumptions that are made in different steps of an investigation. The difference between defining and delimiting approaches is, that in defining approaches is made more far-going assumptions about meanings and identity of meaning of data units, meanings that are decided beforehand. In explorative approaches meanings are discerned and delimited as dependent on their contexts, in relation to the specific object of research and the phenomenon investigated. The analysis aims at, within the specific context, to delimit a unit and its meaning, to give the best possible understanding of the phenomenon. Then, the critical question is how this delimiting is made. The

argumentation in this book is for delimiting meanings, and doing it both analytically and contextually in an integrated way.

Kinds of knowledge

Research methods and their use are related to the kind of knowledge aimed at and developed. The methods have to be discussed in relation to objects investigated, and the fruitfulness of the kind of knowledge developed. Within the defining and variable based quantitative research tradition, the kind of knowledge focused has mainly been knowledge of relations between variables. It has not been possible, within the human sciences, to attain results in the form of mathematical functions as the ideal form of relations between variables. The focus has instead been on statistical relations, correlations established in experimental, or mostly quasi-experimental investigations, and in descriptive investigations, the latter often involving great numbers of variables, and complex statistical calculations. This approach to development of knowledge is based on definitions of meaning, and lacks contextual grounding of meanings of variable values, as discussed in the previous section. Contextual analysis is suggested as a remedy of this lack, through case based qualitative methods, to reach a better grounded kind of knowledge. This grounding is further discussed in chapter 5, in focusing the difference between natural sciences and human sciences. In the present section, the focus in the following is on the varying view of knowledge within qualitative research.

Within qualitative explorative research there has developed a great variation of meaning making approaches, aiming at and developing a great variation of kinds of knowledge. This development is described by Denzin & Lincoln (2013) in the following way. "The indigenous, gendered, narrative turn has been taken. Foundational epistemologies, what Schwant (2007) calls epistemologies with the big E, have been replaced by post-postconstructivist, hermeneutic, feminist, poststructural, pragmatist, critical race and queer theory approaches to social inquiry. Epistemology with a small e has become normative, displaced by discourses on ethics and values, conversations on and about the good, and about the just and moral society." (p. 507). It is not the intention to here discuss this great variation in epistemological positions and research approaches. However, this situation forms the backdrop to the presentation of contextual analysis.

As an example, in clarifying the relation of methods to kinds of knowledge aimed at and attained, in case based explorative qualitative research, we can think of ethnographic methods. Ethnography is a suitable example since it is a well-established methodological approach, which has been developed within empirical research, within a central field of the human sciences, and has used a variation of qualitative methods. (cf. Hammersley & Atkinson, 1987, Hammersley 1992 and 2008, Vidich & Lymann 2000, Erickson 2013). Advocates of ethnographic methods use to emphasize the descriptive character of the knowledge aimed at. In descriptive character is included to be rather exhaustive, rich in details, and close to the people and social contexts that are investigated. That this kind of result is aimed at decides to a large extent what methods that should be used. At the same time there is a variation within ethnographic research in the view of kind of knowledge. In some cases, the knowledge aimed at is more analytic or interpretive, but there is still an emphasis on description (see for instance Wolcott, 1994 and 1995). Erickson (2013) gives a description of the historical development of ethnographic research, and especially arguments about the credibility of the research.

At the same time as the kind of knowledge aimed at is decisive for the methods used, the aim is dependent on what is investigated, and the understanding of what is investigated. The carrying out of the development of knowledge is dependent of what the knowledge is about. In the case of ethnographic research, what is investigated is understood as socio-cultural phenomena. These phenomena can be understood in different ways. The kind of knowledge aimed at has to be compatible with the understanding one has and develops about the investigated phenomena. A strong emphasis on a very exhaustive description is connected to, that the socio-cultural phenomenon is understood to have such a character, that an exhaustive description gives the best understanding of it. A more analytic approach means an understanding of the phenomenon to entail some parts and relations that are important to discern and understand. A more interpretive approach means an understanding of the socio-cultural phenomenon, where to understand it as a whole, and understand its parts, one has to transcend description and analysis and see the phenomenon within an interpretative frame. Different qualities of socio-cultural phenomena, that emerge in these different approaches, may be emphasized and combined in different ways. There is an internal relation between what qualities of the phenomena that are focused, and emphasized, and what kind of knowledge is aimed at (descriptive, analytic, interpretive), and what methods that are used.

The variation in the view of and approach to development of scientific knowledge may, when it comes to the socio-cultural field, be further exemplified by comparing ethnography to Grounded theory (Glaser & Strauss 1967, Strauss & Corbin 1990, Glaser 1992, Strauss & Corbin 1994 and 1998). Within Grounded theory, as an approach, there is an orientation to knowledge in the form of a reduced concentrated theoretical description of a socio-cultural phenomenon. In comparison to ethnography, there is in Grounded theory a stronger focus on social development, acting and process, a course of events. The theoretical description is made by help of some central concepts, and relations between those, developed through an explorative treatment of data. Here then is, compared to ethnography, less emphasis on exhaustive description as result, and a clear aiming at a result which has a more abstract analytic character. The difference in what kind of knowledge that is aimed at is very clear. Grounded theory is aiming at a more pronounced analytic form of knowledge than ethnographic research in general is aiming at. Ethnography is aiming at a more descriptive knowledge.

All knowledge development is analytic in a general sense. All creation of knowledge means lifting forward some data and qualities and leaving out other. No result in development of knowledge is totally covering and exhaustive. Against this background the variation mentioned above, as an example, is understandable. Also, the aims of research are entangled in varying contexts of knowledge interests, in relation to previous research and practical uses of the results. Grounded theory is very clearly aiming at a development of theory, in a tradition where theory is understood as equal to a restricted set of concepts that in a reduced form encompass great sets of data (and phenomena), and together give an abstract theoretical description of the phenomena. The ethnographic descriptive tradition aims at an understanding of socio-cultural phenomena as everyday experiences, described so that they as concrete experiences become as recognizable and understandable as possible.

There is a strong tendency to generalize methods. It is therefore important to understand methods in relation to their origin. What kind of knowledge, about what phenomena, have they been formed to develop from the beginning? If they were found to be good in relation to this aim, this may also hold for new contexts, which may be seen as of the same kind. The examples of ethnography and Grounded theory, given above, belong to a field of empirical research about socio-cultural phenomena. Much of the inspiration behind qualitative research methods in human science research comes from philosophy, theology and

literature. When methods have not from the beginning been grounded in a view of knowledge within a specific field of human science it is especially important to consider the importance of the origin to the relevance of the methods. The same can be said about generalizing methods within the field of human sciences, for instance ethnography. It is not uncommon, that researchers say that they are using ethnographic methods, without presenting any clear aim to reach knowledge about a culture or social field, and without considering and discussing if this difference in aim and research object makes a difference, or is a problem.

There is a great set of methods argued for by reference to the philosophical field. There is a risk that differences in aim between philosophy and human science research is not considered enough, when the methods are formed and argued for. Philosophy is dealing with foundational questions. If for example the aim is not to find the fundamental structure of an experienced phenomenon, but critical differences in the meaning of the phenomenon, how suitable are then methods developed from phenomenology to achieve this other aim? When it comes to hermeneutic methods, inspired by theological and literary analyses and interpretations of texts, one may for instance question, if data about specific human science phenomena should be seen as texts, and/or if the phenomena should be seen as texts. Considering the origin of these methods, there is an obvious risk, that one presumes the data to be text, and starts from the in the text given language units. The text (data) risks to be focused rather than the phenomena that should be investigated. In contextual analysis it is argued for, that the methods have to be grounded in the understanding of the phenomena investigated, and the kind of knowledge of those aimed at.

What is generally called qualitative analysis (for instance content analysis and different ways of working with codes, categories, matrices and/or diagrams) is different compared to more descriptive methods (like ethnography) and more interpretive methods. Analysis is also often referring to the form of knowledge aimed at. The results are expected to contain explicitly discerned parts and relations based on the data material. The methods concern discerning of parts of the material, compiling of those parts in a systematic and reducing way, to reach an analytic, i.e. a clearly divided and ordered picture of the material, and what is investigated. Miles and Huberman (1994), for instance, in their presentation of qualitative data analysis, have a strong emphasis on research results, and the presentation of the results, and on an analytic character of the

results, and the presentation of the results. As is further argued in the next chapter, what is called analysis is often rather a compilation and/or synthesis of data units, and not an analysis of the phenomenon investigated. When it comes to the rather great variation in ways of doing qualitative analysis there is a lack of clarity in how the methods are bound to different fields of research. There is a strong tendency to generalize methods. One can also trace closeness to and inspiration from earlier traditions of dominating quantitative methods in ways of doing qualitative analysis (for instance in the methods and examples presented by Miles and Huberman 1994).

Grounded theory mentioned above is analytic and like contextual analysis more interpretive than the methods referred to in the previous section. The research objects that are investigated, are complex socio-cultural phenomena. The approach differs from contextual analysis mainly in being inductively compiling rather than analyzing (starting from the whole in discerning meaning) (se Glaser 1992). Another more interpretive analytic tradition is narrative analysis. The basis for narrative analyses is the assumption that we organize our experiences as narratives. Narrative analyses vary in the view of narratives. Frequent starting points are that the research object is a narrative, that narrative is the basic kind of knowledge of different kinds of research objects, that narrative analysis is mainly a method and/or a way of reporting research results. Narrative analyses vary from a similarity to content analysis to similarity to contextual analysis. (see Chase 2011, Clandinin 2007, Czarniawska 2004, Lieblich et al 1998, Riessman 2008). Another interpretive analytic tradition is discourse analysis. Discourse analyses vary a lot in the view of what a discourse is, what the analysis aims at, and how it is carried out. What is common is, that it is analyses of meaning making by use of language. There is a variation of analyses, from specific linguistic analyses to holistic analyses of social relations, mostly in power perspectives. Also concerning discourse analyses there is a variation from those close to content analysis to those closer to contextual analysis as presented here. (see Fairclough 2010, Howarth 2000, Wodak & Meyer 2009).

The view on what kind of knowledge that should be developed varies within and between traditions and approaches. This variation is expressed in different emphases on description, analysis, reduction, interpretation, explanation, understanding and more qualities of knowledge. The starting point in the following is, that whichever of these qualities of knowledge we chose, the development of knowledge aims, in most cases, to give a conception of

something investigated, the nature of, the character, or meaning of the investigated. That the aim is a conception of the investigated, is here taken to mean, that the knowledge aimed at by necessity is analytic. By analytic then is meant what has been said above, that the knowledge in some way has to be selective as it cannot include everything. The analytic character of the development of knowledge means, that the delimitation of what is included and not included in the knowledge, and on what grounding, is a very crucial aspect of the development of knowledge.

A complementary starting point is, that the development of knowledge, and the knowledge, is contextual. Development of knowledge is contextual in two ways, which are both connected to the analytic character. Development of scientific knowledge has previous and ongoing research as a context for the delimitation of what is investigated. Important ingredients in this context are knowledge interests and research traditions, forming starting points for how investigations are carried out. The investigated also forms part of its own context, of something that is not directly investigated, that due to the analytic character of the knowledge development is left out. In a specific investigation data are selected and/or produced. A set of data is created that is a result of how the scientific context (of the researcher) is related to the investigated context in the specific investigation. This data set is especially critical because it limits what is actually investigated. A contextual quality of the formation of knowledge concerns, how the relation between what is focused in the investigation and its wider context is handled. The contextual character of the investigation also concerns, how different parts of what is investigated, and the knowledge of these parts, are treated in relation to each other and the wider context. The contextual character of the knowledge consists in, that the meanings of phenomena are delimited as dependent on their contexts. The same goes for parts of phenomena, that the meanings of the parts are delimited as depending on each other and their contexts.

The character of the development of knowledge is depending on how analytic and contextual qualities are included in a discerning and ordering of the meaning of data, in relation to investigated phenomena and their parts. A question then is how analytic the developed knowledge about the investigated is, i.e. how clearly different parts are distinguished. That the development of knowledge is analytic means that it involves discerning and ordering of parts of phenomena. That it is contextual means that the discerning, delimiting and ordering of content/qualities is made in a contextually dependent way. The

ordering character of development of knowledge shows in different principles of ordering. Such principles are cause and effect, chains of events, persons in interaction, groups in relation and so on. To identify a principle of ordering or organization is necessary to conceptualize the investigated object as a whole, a phenomenon.

Chapter 3. Fundamental arguments for contextual analysis

Some researchers using qualitative methods avoid the word analysis and talk about description, interpretation, reduction or transformation, and more concepts. These approaches and methods are usually considered more contextual than qualitative analysis. A common meaning of analysis, often reacted against, is to divide a whole into smaller units, without considering the dependence of the units on the bigger whole. Usually in research, there is a concern for bigger wholes than units of data and smaller parts of phenomena, and this is also the starting point in contextual analysis. The issue then is how analytic and contextual qualities are dealt with and interrelated in the research methods used.

By analytic qualities is here meant explicit distinctions, delimitations of units and relations, and explicit discerning and delimitation of parts within a whole. By contextual qualities is here meant that the meaning of units, wholes and parts, are delimited in relation to and as dependent on their context. The wholes referred to are the research objects investigated. Analytic and contextual qualities of research methods are often put against each other. In many presentations of research methods, analytic qualities are emphasized at the expense of, and even in contradiction to, contextual qualities, or vice versa. The standpoint taken in contextual analysis is, that this dividing up in working mainly analytically or contextually is misdirected, and not well grounded. Instead the development of knowledge should be seen as at the same time analytic and contextual, and a good balance and unification of analytic and contextual qualities be sought.

General or context dependent methods

There has historically been a strong tendency to talk about the scientific method or about very general methods, based on a conception of a kind of scientific knowledge, that has the same form and character in all or many knowledge fields. Focus on and work with causal and statistical relations is the clearest

example of this orientation. An opposite position is to reject all generality of methods, and argue that methods has to be formed freely from case to case. Feyerabend (1975) is may be the author that most radically has argued against methods and for freedom and variation in research. The further development has meant an increasing recognition of that methods have to be dependent on the kind of knowledge aimed at, and what field of research and specific phenomena that are approached. This development forms a general background to the increasing use of qualitative methods, and also to the great variation in methods used. However, the tendency to assume generality of methods, based on assumptions about generality of knowledge, and a common character of phenomena, is still strong. The development of epistemologies described by Schwant (2007) and Denzin & Lincoln (2013), referred to in the preceding chapter, is in line with a much more contextual understanding of methods than the previously dominating conception.

One may approach the question of methods in different ways. The approach taken here is that methods should be seen in relation to specific conditions, and intended and achieved results, in the contexts where the methods are used. The first requirement on a method is that it should fit the context. An important question is what the requirements are for methods to be general, i.e. to fit a number of different contexts. Is it suitable to use some standard methods in a lot of contexts, or does one need to create the methods within the frame of every specific context? The answer to this question is decisive for how reasonable it is to describe methods generally, and also for what character descriptions of methods should have. One may for instance give a description of how to carry out an interview by starting with open questions, and then use rather open follow up questions, followed by more focused questions. When it comes to treating language data like questions and answers, one may tell how these may be treated by delimiting meaning units as basis for further treatment, that may consist of grouping and/or transforming those units according to certain principles. Such descriptions of methods tend to be too independent of what is investigated, the knowledge that one is aiming to achieve, and the specific conditions at hand.

If we strongly emphasize the use of standard methods, we will risk to focus the methods themselves. Method then will easily be seen as a matter of technique. The problem with this is, that standard methods do not meet the varying needs in different investigations. If we instead emphasize that the methods have to be unique, and be developed within each context, this easily

leads to an emphasis on the contexts, and a neglect of methods. In both cases, there is a risk, that the need to think about the methods in principle is not payed attention to. If we consider that there are both similarities and differences between contexts, that invite both to similarities in method and require variation in method, methodological questions become central in every investigation. We then cannot rely on standard methods, but not neglect that the context has similarities to previously investigated contexts, which means that we may learn from the methods used previously. At the same time, the differences between contexts mean that we have to form the methods in relation to what is special to the context. Since we neither can fall back on standard methods, nor only start from the specific context, this raises the question about how and in what respects one may start from certain more general qualities of method, and how and in what respects methods should be formed in the context. This question is methodological in character.

The methodological stance taken here is, that one should start from both the possibility of general qualities of method, and that methods should be formed dependent on the specific context. This stance may be compared to the common use of standard methods, and the lack of description of and argumentation for methods in relation to contexts. An aim of the presentation in this chapter is to discuss the lack of analytic and contextual qualities in qualitative methods, in their treatment of data material and phenomena. It may also be pointed out that there is a corresponding lack of analytic and contextual qualities, not unexpectedly, also in how the methods are described and discussed. Descriptions and discussions of methods may, like the methods themselves, be said to lack certain analytic and contextual qualities. To identify characteristics of methods, that can be argued to have generality, takes an analytic approach, where such characteristics are identified, and their meanings in different cases are compared. The lack of argumentation for methods in relation to contexts raises the question of how the dependence of methods on context is dealt with.

The concept method refers to the way of doing something to achieve a wanted result. The concept method is relevant in research and at the same time problematic. The concept does not focus what is most important in research, and in development of knowledge, namely the relation to what is investigated. The concept approach, in its literal sense of nearing, changes the focus to consider what is done, and the whole investigation, as a way to get closer to the investigated. Within contextual analysis research approach is dealt with as a

matter of nearing to investigated phenomena. It is important to consider specific methods as part of, and in relation to, the whole of a research approach, and at the same time evaluate the methods with focus on the nearing to the investigated, and in relation to the knowledge aimed at and developed.

Thus, we should not only see research methods in relation to the knowledge aimed at, but also as parts of a research approach, with focus on the nearing to the investigated. The importance of the whole of the research approach is one reason for the rough division in qualitative and quantitative methods, with the problems this involves, some of which were mentioned in the preceding chapter. At the same time as some problems are connected to simplified characterizations and categorizations of approaches, in for instance qualitative and quantitative, it is important to look at approaches as wholes, and the meaning of methods as parts of the wholes. What is important is to see the methods in relation to the whole nearing to and treatment of the investigated. As has been emphasized above, the most important difference between methods in treatment of data is how meanings and similarity of meaning is delimited. The most critical aspect of this delimitation of meanings is the relation of the meanings delimited to the phenomenon investigated.

The in the preceding chapter discussed difference between defining beforehand and delimiting meaning/quality is connected with contextual qualities of the methods. Delimitation is based on exploration of contextual qualities of data and phenomena, in difference to definition, which means deciding meaning/quality as a basis for observation, measurement and compilation. Explorative methods that search into, discern, and delimit units are contextual. They may be contextual to different extent and in different ways. It has above been said that all scientific knowledge in a fundamental sense is analytic. Still it is a part of some qualitative approaches to avoid analysis of the investigated. They avoid the concept of analysis and emphasize concepts like description, reduction and interpretation. These other forms of treatment of information and data are here called transformation methods, to focus a main common difference to analysis. Transformation is referring to that those methods' focus and stress how information and data can be transformed from data to research results. Those methods are often considered more contextual than methods called analysis.

It is an important difference between approaches, that some privilege analysis, while other privilege transforming of data. There is a problem with using the terms analysis and transformation to refer to the difference between

two categories of methods. Those concepts are used with different meanings and do not exclude each other. The book about research methods by Wolcott (1994) referred to above, for instance, has the main title Transforming Qualitative Data and the subtitle Description, Analysis, and Interpretation. In Wolcott's presentation analysis is discussed as one form of transformation. Transformation is seen as super ordinate and description, analysis and interpretation as forms of transformation. In a corresponding way, analysis is seen as super ordinate in analytic approaches, which include more or less of transformation. The background to this variation in emphasis on analysis and transformation in the treatment of data is, that the development of knowledge in all the cases means both analysis and transformation of data.

The meaning here given to analysis, in difference to transformation, is that analysis means a discerning of units and relations in an explicit form, i.e. the units and relations and their meaning are delimited and pointed out. Since the approach is qualitative, and the analysis is carried out by discerning and delimiting units within a context, the analysis can be said to have an intuitive character, leading to an explicitly expressed analytic result. The approaches here called transforming do not aim at a corresponding analytic form of the result. They focus whole qualities of the investigated phenomena in a comprehensive descriptive form, without emphasizing delimiting of parts and relations. The transforming methods are not clearly contextual in relation to the specific research objects. They build more on general principles of transformation of data, and on a general theoretical understanding of the phenomena. Within the approaches here called analytic respectively transforming there is a variation in how analytic and transforming they are, and also in how much of the characteristics of the other approach that they include. The analytic approaches may be more or less transforming, and the transforming may be more or less analytic. Contextual analysis is more analytic and contextual in delimiting meanings of data in relation to the research objects than the transforming methods are.

Lack of and need for analysis

Even if many methods are called qualitative analysis, because they aim at and lead to results that are presented in an analytic form, it is often unclear what is meant by analysis in relation to collection and treatment of data. It is also unclear what, within transforming approaches, one is opposing to as analytic in

so called analytic methods. At a closer scrutiny, from the starting points taken here, most qualitative methods (and even more so all quantitative methods) are not enough analytic. This is connected to that they are also not enough contextual, which will be discussed in the next section.

A common meaning of analysis is partitioning. In this meaning of analysis wholes are partitioned, and not dealt with as wholes. The relation of the parts to the whole is not attended to. This form of analysis is contrary to research called transformative above. In transformative methods one opposes to this form of analysis. However, a discerning and delimiting of constituent parts does not have to mean a taking out of parts as separate units, a separation of the parts from the whole they form part of, and which constitutes their context. It is more fruitful to see the parts in their context, and in their character of being parts, and getting their meaning in relation to other parts and the whole as context. In development of knowledge the aim should be to understand the phenomena that are investigated through discerning and delimiting parts in relation, not to separate parts from each other and the whole. In contextual analysis, analysis is not given the meaning of partitioning. Analysis here means to start from the investigated phenomenon as a whole, and as the basis for discerning and delimiting parts. The aim and result is knowledge in the form of integrated descriptions of wholes. The analysis is also a synthesis, in the sense of preserving the belonging of the parts to the whole.

The methods above called transforming methods are not usually explicitly analytic. However, the transforming methods are often more analytic than is acknowledged. They often mean a discerning of parts and relations within the wholes of objects of research. They are often in this sense more analytic than methods called qualitative analysis. What is called qualitative analysis is often compositional rather than analytic methods, in the sense that they start from generally defined data units and elements, which are not discerned as parts within a whole. Uses of transforming methods vary in how clear they are about phenomena and cases as wholes, but they are usually concerned with such wholes. They are mostly concerned with descriptions of wholes of phenomena in narrative, interpretive, reducing and other transformative ways, which are less analytic than contextual analysis. This non-analytic character of these methods is well acknowledged, in contrast to the non-analytic character of methods labeled qualitative analysis. The analytic character of contextual analysis is here seen as an important contribution compared to transformative methods, which

are less analytic both in the treatment of information/data and in the results of the research.

One opposite of analysis is composition and synthesis, which means to put together elements into bigger wholes. In a non-analytic compositional treatment of data, the starting point is taken in elements identified on general grounds, for instance as language units of a certain kind, or elements based on in previous research developed categories of elements. In transforming methods these units/elements are transformed within the context of a bigger material. In so called analytic methods the units/elements are put together and interpreted as bigger units/wholes, or kept separate with no intention to understand any delimited bigger wholes. These treatments of data are mainly compilations, but are usually called analyses. Through compilation one may arrive at greater wholes, which are compositions. However, it is usually quite unclear, how these compositions relate to the objects/phenomena of the research. The problem is that the starting point is not taken in the phenomena as wholes but in elements. Often the compilations and compositions are made for groups of cases of the phenomena investigated. Group level compilations make the treatment of data even less to an analysis of the research objects.

It may seem surprising, that what is called qualitative analysis is usually lacking in analytic qualities, as much as or more than transformative methods. One important reason for this lack of analysis is, that the starting point is taken in units of data rather than in phenomena. Collection and treatment of data has the character of identification of elements in a context or against a background. Data units corresponding to elements are compared, grouped and ordered in different ways. The work with units/elements, and the ordering of those gives an impression of analysis. However, the character of the units/elements of being parts, and of the composition of them to represent a phenomenon as a whole, is most unclear. The difference between analyzing and compiling treatments of information can be illustrated by describing different ways of dealing with language data.

A first question is, if there is clarity about what is the phenomenon and research object. When language units are dealt with as data, the treatment should illuminate something beyond the language itself. In a compiling treatment of the data, the starting point is taken in some definition of language units. These can be language units like expressions, sentences, paragraphs, sections or whole documents. The compiling then consists in a composition of the content of such units on the basis of their semantic meanings, and according

to some principle of compilation. An alternative is to divide the data according to a category system given beforehand, and then compile the units. One more alternative is a more selective choice of units based on a list of contents of interest to the investigation. In this later case one identifies all instances of these listed contents, and makes a compilation of the presence of these contents. This compiling way of working gives a possibility to make compilations for different language data materials using corresponding units of data (elements). This compiling way of treating data units lack clearness in the units' relations to the investigated phenomena as wholes.

If we talk about analysis as a way of investigating something, it is important what it is that is approached, and within what we discern constituent parts. It is only when the relation to the whole that is analyzed is clear, that one knows what is investigated. The knowledge developed through a compilation and composition can be similar to its form to knowledge developed through an analysis. In both cases the result may consist of some explicitly distinguished and pointed out units and relations. Depending on this similarity in the analytic form of the result, compilation and composition is often taken for analysis, that is, what is compilation and composition is called analysis. What is called qualitative analysis varies in how units are identified and related, and is more or less analysis and to a great extent compilation/synthesis of data.

To exemplify we may think of two ways of investigating a case of management of work. We may think of the case as limited to a manager's attitude and way of working in relation to a group of coworkers during a certain period of time. The more we in the investigation delimits and starts from this case of work management as a whole, and from the whole of information and data about the case, and try to discern which parts that exist and are important in relation to the whole, the more we work analytically. We then may for instance find, that a certain differentiation of the management in main parts, in relation to parts of the work and/or in relation to groups of coworkers, is giving the best understanding of the whole. The more we start from definitions of parts of the case, and parts of the data material, made before-hand, the more synthetic the so called analysis becomes. We may for instance start from a given dividing of work and/or grouping of coworkers, and sets of data corresponding to this dividing, and describe the work management through a compilation of separately described contents of these parts. In a specific case such a compilation can make a small or big difference compared to an analysis. The argument here is that analysis will make possible a more fruitful result.

In an analyzing treatment, a whole data material can be seen as relevant and be used for the investigation of a phenomenon. It may alternatively be so, that only some parts of the available data are seen as relevant, and as related to a specific phenomenon that is going to be investigated. In both cases, there is a starting point in a delimited whole of a phenomenon which will be analyzed. In the analysis no beforehand given way to partition the data in units/elements are used. The treatment (analysis) starts from the whole of the phenomenon, and means a search for main parts and relations between these in the relevant material as a whole. The aim is to reach a good picture of the phenomenon by means of the relevant data material as a whole. Discerned main parts can, in a similar way as the delimited whole, be described as constituted by parts and their relations within the main part as a whole. Since every data material and case tends to be different, the discerned main parts and parts within those will be more or less different from one data material and one case to another. Therefore, one cannot make a compilation across cases (as in synthetic compilation), without analyzing similarities and differences between the data materials and cases as wholes.

The compiling way of treatment may seem natural, since we always experience everything in a context, against a background, at the same time as certain elements often stand out more clearly than the wholes of the phenomena, which we search knowledge about. The combination of starting with elements, and calling this treatment analysis, also explains the criticism of analysis as equal to partitioning (of phenomena). The taking for given of bigger wholes, a background, may be can explain the great dominance of compiling methods in human sciences, as well as that these methods are considered to be analytic, because the elements from the start are considered to be part of a context or a phenomenon. The more the compiled elements are considered clearly to be parts of wholes/phenomena, the closer the composition comes in content and result to an analysis of the phenomena. That the compilation of elements often means the creation of a unit with similar analytic characteristics as is the result of an analysis contributes to the confusion about analysis, that compilation is taken for analysis. An interesting question concerns what similarity can be expected between the result of such a compiled composition and the result of an analysis of a phenomenon. An obvious risk with such a composition is, that one cannot see what is missing in data, and what is left out of the phenomenon.

If we return to the earlier mentioned example with a case of management of work, the risk is that the difference between an analyzing and a compiling treatment of data will be unclear, when it comes to what difference in result they lead to. In a compiled description of attitudes and ways of working in management of work, the starting point is taken in some predefined elements assumed to form part of the management. The elements may concern parts of the work, groupings of coworkers, the character of attitudes and/or ways of working. The elements that are taken for given, as a starting point, may for instance be taken from an organization plan, or from commonly held ideas about what elements that exist, or from descriptions in previous research. In contextual analysis one starts from a preliminary delimited whole of a case of management of work, and tries to explore and discern such parts and their relations that makes the whole most understandable. What delimitations of attitudes and ways of working, in relation to what groupings of coworkers and parts of the work, give the most understandable picture of the work management as a whole? The result of such an analysis can be more or less similar to the result of a compiling treatment of predefined groupings of data. The difference in deciding main parts of the phenomenon and groupings of data will be associated with differences in interpretation of individual data. A problem is, that it is difficult to know, how similar the results from a compiling and analytic treatment of data will be, without doing both and compare. It is here argued, that the analytic treatment of data is the most fruitful in developing knowledge about the investigated phenomenon.

The here given criticism concerns that compiling methods are dominating and called analysis, when the opposite ought to be the case, that analytic methods dominated, since the character of the investigated varies from case to case. At the same time, it can be said that there is a certain need for compiling synthetic methods. It is the case especially when the phenomenon, the whole one wants to investigate, is difficult to delimit, and one has good access to parts. Interdisciplinary research can be a special case of such compiling synthetic work. In interdisciplinary investigations researchers with different perspectives identify different elements within a commonly delimited context. Those elements (that may be very complex units) shall be put together to a new bigger whole. A critical difference in all synthetic work is, if the synthesis is made as a compilation of elements, the meanings of which are determined independent of each other, or if a new delimitation of meanings of the elements is made, as parts in a search for a new whole. This difference concerns if the elements are

given contextual meanings as constituent parts in a phenomenon or not. In the example about management of work, if one has started from a certain partitioning of work and coworkers, according to an existing organization plan, one may through contextual analysis find, that it is more fruitful with another partitioning. From a strive to through a synthesizing compilation get a picture of a case of management as a whole, one may get ideas about that another partitioning, based on analysis, would be more fruitful, and therefore delimit parts of the work management in a new way. This can make what started as a compilation to a contextual analysis.

An important reason for the lack of analysis is that one starts from data and not from phenomena, and that therefore there is no clear whole to analyze. So called qualitative analyses of the compiling character have striking similarities to quantitative methods. Basically there is a defining approach, an orientation towards defining concepts, categories, variables, and units of data. This is a condition for quantitative data and quantitative treatments. It is also a condition for a non-contextual form of compiling qualitative methods. An important further characteristic of method is, if the compiling is made across the research objects investigated. In the example of a case of management of work, a starting point in some generally defined elements means, that these same elements are expected to be possible to identify in different cases of management of work. The approach means a standardization and generalization of meanings of what is assumed to be constituent parts of investigated phenomena, which also is a basis for use of quantitative methods. The crucial difference concerns how the determination of meaning is made, if it is made by predefinition or through exploration, discerning and delimitation, i.e. contextually. We will now turn to the other focused lack of many qualitative methods, the lack of contextual qualities.

Lack of and need for contextual qualities

The lack of analytic qualities is intimately connected to and dependent on lack in contextual qualities, in the sense of discernment of constituent parts of phenomena as wholes, and these as included in a context. The need to start from the phenomena as wholes has been considered to an increasing extent by authors presenting qualitative research methods. For example, in the very different presentations of qualitative research methods by Miles & Huberman (1994) and Wolcott (1994), cases of the phenomena investigated, are taken as

main units for analysis respectively transformation of data. However, it is not enough to have cases of investigated phenomena as main units in presentation of data and results, although this is important. A further important question is if and how parts of the research objects, and data illuminating those parts, are discerned and given their meanings as parts of the whole, and not in a more general and predefined way.

The lack of contextual qualities is the biggest problem with methods in the human sciences. This lack is another side of the previously pointed at orientation towards to define, standardize and generalize meanings of data units. The defining approach is, as mentioned above, a basis for the use of quantitative methods. The meanings given to units of data are based on that these units for their meanings are independent of specific contexts they form part of, and therefore can be generally used. This way of treating units of data means that relations between data are considered to be and are treated as external. This is how data are treated in all quantitative methods. The opposite of external relations is internal relations, and such relations are used in many qualitative methods. In working with internal relations the units of data get their meaning through their relations, and are not given a generalized meaning in themselves. This distinction between work with internal and external relations is more fundamental than the distinction between qualitative and quantitative methods.

The distinction between internal and external relation was introduced by Bradley (1908) and discussed by among others Moore (1922). Their discussions were mainly ontological discussions about the nature of relations. The discussion here does not concern the nature of relations in the ontological sense, and no assumptions about the nature of relations in this ontological sense have to be made to use contextual analysis. It has been common to consider relations described in natural sciences to be external. However, Hesse (1980, p. 172, also referred to by Lincoln and Guba 1985, p. 29) summarizes a post-empiricist account of natural sciences in five main points. One point is: "In natural science the law-like relations asserted of experience are internal, because what we count as facts are constituted by what the theory says about their interrelations with one another" (p. 172). This is an epistemological understanding of natural sciences pointing to the character of internal relations of the knowledge developed. In contextual analysis the distinction between internal and external relation is used to clarify a difference in ways to give meanings to data units and parts of phenomena, and relate such units and parts,

either in a discerning/delimiting way (internal relating) or a predefining/combining way (external relating). It seems fruitful to differ between methods that work with internal relations, and methods that work with external relations. All quantitative methods mean work with external relations, but also presuppose a preceding work with internal relations, if one accepts the thesis that a first determination of meaning always is made in and dependent on a context.

The distinction between internal and external relations is discussed within ontology, epistemology and methodology. It is not necessary to assume an exact correspondence between how we understand and use this distinction within these three fields. How we understand the true nature of relations in an external reality (ontology, if we accept the assumption about an external reality), how relations form part of our knowledge of the world (epistemology), and how relations can be used in methods of knowledge development (methodology), is not the same thing. One can for instance assume the existence of a reality that is independent of humans, and that relations within this reality are internal, and at the same time assume that relations within our knowledge about this reality, at least to some extent, are external, for instance in the use of descriptions of relations subsumed under physical laws applied to new cases of physical phenomena. These assumptions can be connected to different assumptions about fruitful ways to develop knowledge through construction of internal and/or external relations. Thus, one may have varying conceptions of how reality, knowledge and methods are constituted, and can be, and ought to be, related to each other. It is problematic to talk about qualitative and quantitative methods in a general way presuming a whole of ontology, epistemology and methodology, since this tend to hide how these aspects in fact are related in the individual investigation.

Within natural sciences one has to a great extent used quantitative methods, and then constructed external relations, as this is what is done in quantitative methods. The use of external relations has been very successful in the natural sciences. The success builds on similarity in context, and that internal relations delimited in one case of a phenomenon in one context can be identified in new contexts. By defining parts and relations within the phenomenon in a first case, and use these meanings in new cases, and there construct external relations, one may achieve a corresponding whole phenomenon, as in the first case. This is to a great extent achieved in natural sciences, and gives a high degree of generality, and a law-like character of the result. A corresponding situation is not at hand

within human sciences. Phenomena and data do not have the same general meaning across contexts (or do not exist within the same context). Individuals, groups, organizations, societies, and cultures to a large extent constitute their own contexts, when it comes to meanings of data connected to these entities. Therefore, it is crucial to through work with internal relations find the meanings in every context.

What is called qualitative analysis to a great extent is work with internal relations, but also involves a certain lack of relating to context in interpretation of specific data, a lack of construction of internal relations. The extensive use of coding and categorization of elements of what is investigated, and the compilation of data in codes and categories, means to a certain extent a compilation based on external relations, even if the codes and categories have been developed in an explorative way, through work with internal relations. This way of working easily leads to, that what is constructed and described rather is a composition of data than an analysis of phenomena or research objects, investigated in their contexts. Then, wat is the phenomenon becomes unclear, as well as what is the context, and then the contextual delimitation and dependence of the phenomenon becomes unclear. The lack of a clear relation to context in qualitative analysis, leads to, that the meaning of data as meaning of a part of what is investigated becomes unclear. The belonging of single data to the specific context of the investigated phenomenon, and some part of it, is not attended to enough.

Transforming methods are contextual, especially when it comes to treatment of data within the frame of data collections made. However, there are some lacking of contextual qualities from the point of view started from in this argumentation, and they are linked to lack in analysis. The transforming methods replace analysis with different forms of transformation of data about phenomena, or data materials as wholes. The transformations can vary in character, and are to varying extent descriptive, reductive, analytic and interpretive. The transformations go from one whole to another new whole, and it is usually difficult to make explicit and to evaluate the grounding of the transformations, and the knowledge status of this grounding. It is easier to make explicit and evaluate the character and grounding of an analysis. Knowledge about relations is also more both theoretically and practically useful than a transformed holistic description. Our understanding and knowledge of the world has the character of discernment of phenomena, objects of knowledge, through delimitation of these in their contexts, but also through conception of

them as consisting of parts organized in a whole. Even transformations of a whole, for instance a chain of events, build on that this whole is seen as containing some parts, which are related in some way. To make the organization of wholes clear, through making the involved relations clear, seems more important in developing knowledge, than to transform the wholes to new forms of description.

Conclusions

Even if it may seem self-evident that empirical research takes its starting point in identification and delimitation of research objects representing phenomena, which are to be investigated, this expected point of departure seems to be unclear in a great deal of research. The research needs a more clearly analytic orientation towards phenomena as wholes. An emphasis on starting from what is investigated, rather than from data, also means a demand for analytic qualities of the methods. In principle analysis, as understood here, means a discerning of constituent parts by use of internal relations. A criterion in evaluation of research ought to be, how clear it is what is investigated, and how clearly units included form parts of what is investigated.

Treatment of data to a greater extent should be a treatment in relation to the investigated phenomenon, as a ground for relating data to each other, and less ordering of data themselves in a compiling way. The here argued for analytic approach, to go from context to wholes, to parts, is motivated by, that the meanings of phenomena and data are context dependent. The context dependence means, that what at the surface seems to be corresponding entities and phenomena, to a limited extent have the same meaning from one case to another. Fundamentally, according to the here presented understanding, transforming methods also involve analysis. Every description is an analysis if it includes a discerning and organizing of parts, starting from a whole. This is usually the case with transforming descriptions. The delimitation of parts and relations may be more or less explicit. Here there are differences in how important the analytic qualities in treatment and result are considered to be, compared to other qualities of the content of the descriptions.

The critical attitude towards analysis that exists within transforming methodological traditions, is here interpreted to mainly concern a separation of parts from their context, and external compiling of elements (external relations) called analysis. However, one also to a great extent avoids explicit analyses by

use of internal relations, and analytic forms of knowledge in favor of transformation of descriptions. Contextual analysis as methodology argues that analysis to a greater extent should be preferred before transformation.

According to the preceding argumentation, much that is called qualitative analysis is rather compilation of elements by use of external relations. The argument here is, that these compiling ways of working to a great extent should be replaced by analysis. This goes for what is called qualitative methods, and even more for what is called quantitative methods. At the same time a synthetic approach cannot, and ought not, be entirely excluded. In many cases it can be difficult to preliminary delimit the phenomena one wants to approach in an investigation, and then, of course, it is difficult to start from phenomena as wholes. It may also be the case that some part of the phenomenon is very distinctly given at the beginning of an investigation, and that therefore it is fruitful to start from this part. Interdisciplinary investigations are a special case, which is often of this kind.

Even if parts of what is to be investigated are given more distinctly than the whole, their meanings do not have to be taken for given, and the synthesis be given the form of external compilation of given units. Based on the contextual nature of the meanings of parts, meanings can be reconsidered and made more precise through work with internal relations between parts, and in relation to an appearing whole, in a way that brings the synthetic approach nearer to an analysis, even if the starting point at first is taken in parts. One then could bring the result of the synthesis as close as possible to what an analysis would give (starting from context, and from phenomena as wholes, probably gives a different delimitation of what will be included in the investigation, compared to starting from elements).

The most important conclusion is, that the most fundamental difference between methods, partly underlying the grouping in qualitative and quantitative methods, is the difference between working with internal and working with external relations. Explicit work with internal relations is a way of working, that means to start from the analytic character of knowledge, and the context dependent character of what is investigated. Work with internal relations can unite analytic and contextual qualities in a way that is especially needed within the human sciences. The conclusion from the critical review of research methods is, that they usually lack in analytic and/or contextual qualities. This criticism is based on an affirmation of the simultaneous analytic and contextual character of scientific knowledge, and the contextual character of the

investigated phenomena. Work with internal relations, that make explicit the investigated phenomena, in the form of relations between parts within wholes, seems to be the most fruitful possible way to develop knowledge within the human sciences.

Chapter 4 Main characteristics of contextual analysis

In the preceding chapter, criticism was passed on existing research approaches and methods, together with arguments for the need for contextual analysis. The criticism focused on lack of analytic and contextual qualities in dominant research methods, and was based on that research methods should be a nearing to phenomena investigated. Also, the criticism was based on that phenomena as wholes should be focused on in an analytic and contextual way. In this chapter some main characteristics of contextual analysis as an approach to investigated phenomena will be further described.

A case based approach

Case studies is an established research tradition within the human sciences. This tradition is described and discussed by Ragin & Becker (1992) and Stake (1995, 2008). Flyvbjerg (2006 and 2011) is refuting five common misunderstandings about the case study. Contextual analysis is very much in line with this refuting. The intention here is not to discuss case studies but to present contextual analysis. Contextual analysis is case based, as are case studies. Contextual analysis is case based in a special way. Case based studies do not have to be equal to classical case studies, although those also are case based. In classical case studies there is usually an extensive exploration and description of one or very few cases, most often in the ethnographic tradition. There is usually no clear delimitation of investigated phenomena from a theoretical perspective, or based on the formulation of a research problem, which is the starting point in contextual analysis. In this section is described how contextual analysis is case based.

It is fundamental to contextual analysis, as methodological approach, to start with cases equal to the entities that are investigated. Miles & Huberman (1994) see cases as the main units of research and then group ways of collecting and ordering empirical data in two main categories, variable based and case based ways. In contextual analysis this difference in ways of collecting and ordering

data is not a matter of taste but a fundamental one. It is not considered sufficient to recognize cases as the main units of research in a general way. Contextual analysis is a case based collection and treatment of data. The standpoint is that research fundamentally should be case based, and the cases equal to investigated research objects/phenomena. One main reason for this standpoint is the importance of clarity about what is investigated, and what the results are confined to. A second reason is the need to interpret individual data within the context of a case/phenomenon as a whole. One methodological challenge, then, is to delimit investigated cases in collecting and treating empirical data.

The starting point in contextual analysis is, that man experiences different parts of the surrounding world against a general background. Conceptualizations are based on discerning these entities as wholes. This is fundamental to our knowledge about the world. The wholes may differ in extensiveness and complexity. What they share is that they are discerned within a more extensive context, and that they are given a meaning of their own. The wholes discerned vary, but the discerning of them is the basis for more specific knowledge about the world. A conception is an experiencing of the meaning of such a whole. The discerning of a unit/whole may be global in character, meaning that one distinguishes something as different from the surrounding, on the basis of some attended to difference between the unit and the surrounding. Such a general differentiation is not here called a conception of the phenomenon.

Here we use conception to refer to an experienced meaning of a part of the world as an object of knowledge, as a case of a phenomenon. In a conception meanings of parts of the case re discerned, within the case as a whole, i.e. the case is conceived of as consisting of some interrelated parts. With parts is meant both aspects and components of the phenomenon. The conceptualization concerns the meaning of the whole, based on meanings of the parts and their interrelations, seen in relation to the wider context. Because the relations concern the meaning of the whole, the relations are critical, that is the organization of the whole is critical. Differences in the meaning of wholes are related to differences in the organization of the wholes. Conceptions of phenomena, in the sense described above, represent people's subjective knowledge of parts of the world. The existence and character of such conceptions represent an extensive research field (Marton 1981, 2015). The development of everyday conceptions of phenomena has similarities to

contextual analysis. Collectively shared scientific knowledge of phenomena also has the character of conceptions. Contextual analysis, as a methodology and an approach, concerns how to develop scientific conceptions of phenomena through research, in a systematic and well-grounded way.

Contextual analysis is based on a specific understanding of analysis. To use a case based design to collect and order data gives a basis for a case based analysis of data. A case based analysis means, that the data of each case are considered together, in relation to each other within the case as a whole. This does not exclude comparisons between cases during analysis, to identify specific characteristics of each case. Of vital importance is, that the specific information about each case is interpreted and understood as being about a part of the case. This is in agreement with what is here meant by analysis, but which is not commonly a part of what is called analysis, as emphasized in the preceding chapter. Quantitative analyses and also variable based qualitative analyses, as for instance described by Miles & Huberman (1994), are not analyses in the sense argued for here. They build on definitions of elements as separate units with general meanings (assumed to correspond to parts of phenomena) independent of the specific phenomenon as context. This approach means to ascribe generalized units of meaning to cases, and not to discern meanings of parts of the case/phenomenon as a whole. The result becomes a composition of meaning units and not an analysis of cases (as described in chapter 3).

Variable based treatment of data is often combined with compilation across cases. What is here called variable based approach usually starts from definition of and use of specific codes, categories and/or variables. The same defined meanings are used in describing different cases. This builds on, as described in chapter 3, assumptions about identity of meaning across cases/contexts, and external combining of meanings, a work with external relations. What is here argued for in contextual analysis is a clear starting point, not in defined general meanings of units, but in cases of phenomena as wholes, and a discerning of the meaning of parts as internally related parts within the whole. The relation of parts to each other and to the whole is important to understand the meaning of each part. To do contextual analysis means to work with internal relations (see chapter 3). If the relation is internal the meaning of the unit, the part, is dependent on its relation. The part cannot be given a meaning in itself, separately in isolation, which it can if the relation is external. If the relation between a part of a case and the whole case is external, it is justified to deal with the part as self-contained, as a unit in itself. As grounding of using generalized

meanings (predefined codes, categories, variables), one ought to show that different cases have identical parts. This requirement may be met also when the relations are internal, meaning that the cases/phenomena are identical in aspects described. The assumption about identical parts has proven useful in fields of natural science like for instance mechanics, where parts with the same meaning are found to have the same relation to each other from one case to another (see chapter 5).

Within the human sciences it has not been possible to show an identity between cases and their parts, and is not reasonable to expect identity. This means that the use of generalized meanings (predefined categories), which are related using external relations, have a limited value in understanding cases/phenomena. Instead we have to work with internal relations to reach a deeper understanding of the cases investigated. In contextual analysis, working with internal relations means to discern different parts in relation to each other, and as for their meaning dependent on each other. To work with internal relations means to inquire into how the meaning of parts is dependent on the meaning of other parts and the whole, in a mutually interdependent way, that is more or less unique to each case. This has to be done since we cannot assume identity between cases but rather has to assume variation. To deal with this variation means to deal with both similarities and differences, and to understand similarities against the background of differences. This gives generalization a different character compared to generalization based on an assumption about identity between cases and use of external relations.

Analysis of internal relations is a matter of interpretation. In methodological discussions it has been common to see analysis and interpretation as opposite methodological characteristics. This is due to that analysis is given the meaning of partitioning into separate units considered to have generalized meanings. Due mainly to this meaning given to analysis, transforming traditions have been critical to analysis (as discussed in chapter 3). Analysis equal to clarification of internal relations within cases, as argued for here, is a meaning of analysis clearly compatible with the understanding in those traditions of cases/phenomena, when it comes to relations between parts, and parts and wholes, as internal and not external. As mentioned above, these transforming traditions, for different reasons, do not emphasize analysis.

Main parts of the analysis

Contextual analysis is analytic in four main ways. The first and most general way is that phenomena/cases studied are discerned as entities within a broader context. The general delimitation of the phenomena/cases is not seen as unproblematic. The phenomena/cases are not seen as given a priori, and their delimitation is not seen as final but only as preliminary. The delimitation of phenomena/cases is seen as an analytic act, which is fundamental and problematic, and has to be reconsidered throughout the investigation, based on the results of the investigation. The first delimitation of cases in their contexts gives cases as entities/wholes for further analysis. The further analysis of a case is expected to give an improved delimitation of the case/phenomenon. The improvement of the delimitation is to be based on an improved understanding of the case/phenomenon, and thereby also of its relation to its context. The emphasis on the importance of delimitation of phenomena/cases is related to the importance of phenomena/cases as wholes, as what is focused on and investigated. The preliminary delimitation of these research objects forms the basis for the main research effort, that concerns the analysis of the cases delimited.

The second way in which contextual analysis is analytic, is that it is an analysis of cases/phenomena. Thus, first a case/phenomenon is delimited in an analytic way, in relation to its context, and then it is analyzed. The treatment of data on each case/phenomenon is analytic, in the sense that it starts from the case/phenomenon as a whole (and the whole of the data about the case), and discerns main parts within this whole, considered to be main aspects and components of the case/phenomenon. The main parts in turn are analyzed as consisting of smaller parts, and the meanings of the smaller parts are interpreted in relation to their contexts, and are in turn clarifying the meanings of the main parts. The relations between main parts, and between their subparts, are crucial in finding the meaning of a case/phenomenon. This may be compared to that, on the contrary, a quite common way of treating data is to start from smaller units of data, and aggregate those in a synthetic way. Thus contextual analysis is analytic when it comes to the order and way of dealing with wholes and their parts. The question to find an answer to is: What represents wholes of cases/phenomena and what parts constitute these wholes? There is a focus on finding main parts which together are making up the wholes.

The third way in which contextual analysis is analytic concerns the focus on and treatment of whole-characteristics of cases. The analysis means that certain parts and relations are discerned, delimited, and described. By necessity the description is selective. First, available data will always be limited compared to possible data. Second, contextual analyses are also analytic in exploring available data. Some data are found to be more critical in revealing significant characteristics of the case investigated. In the analysis some whole-characteristics are delimited as the figure, against the ground represented by the whole data material and the whole case. This is the most central sense in which contextual analysis is analytic, and it is related to the aim of giving significant descriptions of the case/phenomenon as a whole. The description developed includes main parts and their relations. The character and meaning of the relations is fundamental, and to a great extent decides the whole-characteristics of the cases, and what constitutes significant differences between cases. The analytic character consists in making clear delimitations of parts and of relations between parts. A common main internal relation is for instance a relation between an activity and its outcome. Then the analytic character consists in giving a delimitation of the activity, its outcome, and of the relation between activity and outcome. The nature of the relation between activity and outcome, including the meaning of these, then may be the main whole-characteristic of the case/phenomenon.

The fourth way in which the approach is analytic is closely related to the third sense, and concerns the form of the result. The descriptions developed are rather condensed, seen in relation to the extensive data and the complex cases/phenomena analyzed. The descriptions are focusing fundamental qualities/characteristics of the cases/phenomena. Formalization of the descriptions by use of categories can be used, especially if many cases are investigated together. The categories can be descriptions of main parts, relations between main parts, and types of whole cases. The categories are seen as instruments of thought, as analytic tools in relation to the data and the cases, and in relation to further cases of the kind of phenomenon investigated. One can say that the form of the result is also analytic in a general sense. If used, categories are summarizing main similarities and differences between cases investigated. They are not used to represent identity between cases, but only similarity against a background of contiguous differences between the cases.

When several cases considered to be of the same kind are investigated, comparisons between cases are an important part of the analysis,

complementary to the treatment of each case according to the four analytic ways described above. Comparisons are used to achieve significant delimitations of cases/phenomena, of their whole-characteristics, and of eventual categories developed to describe these whole-characteristics. Comparisons can also be made of smaller parts and units of data. Such comparing is a help in clarifying significant meanings. It is then important, that the clarification of the meaning of a part is made in relation to the case as context. The possibility of making comparisons between cases, within an individual investigation, is dependent on the comprehensiveness of the investigation, the complexity of the cases, how in detail they are investigated, and available resources.

The choice between investigating few cases in detail, and investigating more cases less in detail, has to be based on practical possibilities, as well as theoretical considerations. One theoretical consideration concerns the expected outcome of the one and the other choice, when it comes to contribution to the development of knowledge. One cannot say in general, that one or the other choice is the better. More elaborate investigations of cases of course are better. More comparisons are also better. The choice between possibilities to go into details in individual cases, and to make more comparisons between cases, has to be made based on an assessment of the possibilities in each research situation.

Contextual qualities of the analysis

What has been said about the analytic nature of the approach has to be complemented by what it means that the analysis is contextual. To some extent the contextual character has already been described, in describing how the approach is analytic, since these two aspects, the analytic and the contextual, constitute a whole, and determine each other and the whole. The analysis is not only analytic, but contextually analytic, and the treatment of data and the cases is not only contextual, but analytically contextual. The most fundamental meaning of research methods being contextual concerns, as described in chapter 3, the use of internal relations. That the analysis is contextual means, that the relations involved are delimited as internal relations, and that the different entities and units delimited are given a meaning, which is dependent on their internal relations.

The first analytic relation to deal with, as described above, is the relation of the case to its context. The expressions discerning and delimiting are used to refer to, that the relation is identified as an internal relation. It means that the delimitation of the cases is made dependent on their contexts, and their relation to their context. The case is considered a case/phenomenon of a certain kind, among other things because it has a certain kind of relation to its context. There have to be certain characteristics distinguishing the case/phenomenon from the context, and making it to a unit within the context. Such characteristics are only a general basis for conceptualizing the nature of the case/phenomenon. It is important that this first delimitation of a case is well chosen, at the same time as it should be open to reconsideration on the basis of further description of the nature of the case/phenomenon. It is a matter of what should be included or not in the case/phenomenon, and what should be considered to belong to the context. The contextual character of the delimitation, and the treating of the relation to context as internal, consists in that the meaning of the relation is considered to be depend on both the meaning of the context and the meaning of the case. When the knowledge of the case is developed, the meaning of its relation to the context is also developed, as well as what constitutes its most immediate context.

The second way in which the analysis is analytic, described above, concerns the delimitation of parts of cases. The analysis of the cases, like the delimitation of the cases in relation to their contexts, is made by use of internal relations. Main parts of the cases are discerned, delimited, and given meaning, dependent on their relation to the case as a whole, including their relation to other parts. The delimitation of the meaning of main parts is made through interpretation of the character of the parts, based on the meanings of their subparts in relation to each other, and the meaning of the whole case. Thus, the delimitation of the meaning of main parts involves discernment and delimiting of smaller parts, as the basis for developing the delimitation of the main parts, which they form part of. The contextual character of the delimitation of parts consists in the interpretive use of internal relations to other parts and the whole, and the meaning of those, to find and decide the meaning of each part.

The third analytic way described above concerned whole-characteristics of cases. The whole-characteristics delimited through the analysis to a great extent have the character of internal relations between main parts of the case/phenomenon. It is through focusing those relations that whole-characteristics can be discerned and delimited. This feature of the analysis of

individual cases/phenomena is a central part of contextual analysis as a research approach, since the aim is to understand cases/phenomena as wholes. A common internal relation, mentioned above, is a relation between activity and outcome. The phenomenon/case as a whole is then delimited as an activity leading to an outcome. The research question concerns how this whole of activity and outcome can best be delimited, and how the relation between activity and outcome can best be understood. The treatment of the relation between activity and outcome, as an internal relation, means that the meaning of the activity is delimited in relation to and as dependent on its outcome, and the meaning of the outcome is delimited in relation to and as dependent on the activity leading to the outcome. If the meaning of the activity was different the meaning of the outcome would also be different, and if the meaning of the outcome was different the meaning of the activity would also be different. The challenge is to discern and delimit the meaning of both activity and outcome in relation in the most fruitful way. How this is made will also influence the delimitation of the whole case in relation to a wider context. To discern internal relations amount to finding organized meanings of cases/phenomena as wholes. Phenomena are delimited as wholes based on their internal organization. The organization gives meaning to parts, and parts give meaning to the organized whole.

The fourth analytic way pointed out concerned the form of the result. How then is the form of the result contextual? The description of wholes of cases/phenomena is an interpretation of the meanings/characters of the cases/phenomena. Even if this interpretation has the form of explicit delimitations of parts, and of relations between parts, and is given as condensed descriptions of parts and relations, may be in the form of categories, it is still an interpretation by use of internal relations. The description does not build on definition of parts as separate units, and construction of external relations between parts. The description of parts and relations is made, and has to be seen, within the whole of each case, and as dependent for their meaning of the whole case. When categories are used to describe the results, they are used to describe context-dependent results. There is something more to what is described, that is not included in the abstract description. What is left out as of less significance may later turn out to be important in further deepening of the understanding of the case, and in comparison to other cases. It is therefore important to be aware of what is included and what is excluded in the description of the cases.

A basis for making significant delimitations is comparisons between cases. Also, an aim in comparing cases is to group cases based on whole-characteristics and type of relation to context. This is achieved by comparing similarities and differences between cases of whole-characteristics and relations to contexts. In making the delimitations of different groups of phenomena, according to their whole-characteristics and relations to their contexts, we are constructing internal relations also between these groupings. However, these relations are not relations between phenomena but only similarities and differences between phenomena. The delimitations and groupings of phenomena made early in an investigation are seen as preliminary, and the investigation aims at, in the further analysis, to improve the delimitation of the meaning/character of the cases, and the grouping of cases.

The approach character of contextual analysis

Throughout the previous presentation it has been emphasized that contextual analysis is a research approach. The literal sense of approach has been used to emphasize the character of nearing to the research object. The approach character of exploration, discernment and delimitation of the phenomenon/case, and of its parts, and its internal relations, has been stressed. The analytic and contextual qualities described above form main parts of the approach. They mean an exploration and search for the meaning/character of the phenomena. The search is manifested in discernment and delimitations that are interpretations open to revision. Data are considered and treated as referring to parts of cases/phenomena. The understanding of the relation of data to cases/phenomena is the basis for valuing the relevance and sufficiency of the data, seen in relation to the outcome of the analysis. The here emphasized meaning of approach, as nearing to a case and phenomenon as research object, has not been the commonly emphasized meaning of research approach. The meaning of research approach has more concerned other aspects of ways of doing research. The main difference to previously dominant approaches are briefly described in this section.

It has been a strong tradition in research, that one should start with defined scientific concepts and methods (or define new), and observations and facts, and formulate research questions by use of those definitions (cf. chapter 3). This starting point has been favored in both deductive and inductive traditions, with an ideal to formulate precise units of meaning as a basis for development

of knowledge. Inductive traditions have to a great extent been based in the philosophical tradition called positivism, further developed into neo-positivism and logical positivism. From a general focus on language and definitions, there was in empirical research a focus on definition both of abstract concepts and of data units or facts (operational definitions), giving predefined standardized meanings to data units (a measurement approach). Variable based research has this character. The demand made by logical positivism that descriptive terms used within the theory must be defined in an "observational language", and the demand for verification, were abandoned rather early by its adherents. Carnap (1936/1937, 1956) replaced a by definition relation between theory and observation with reduction sentences and rules of correspondence between theoretical language and observational language. The demand for verification was replaced by a demand for confirmation.

Popper (1959, 1963) criticized the inductive approach (along with reductionism and physicalism). Some of his criticism was based on Carnap's writings. In the preface to "Conjectures and Refutations" Popper states "The way which knowledge progresses and especially our scientific knowledge, is by unjustified (and unjustifiable) anticipations, by guesses, by tentative solutions to our problems, by conjectures. These conjectures are controlled by criticism, that is by attempted refutations which include severely critical tests." (Popper, 1963, p VII) Popper's criticism of the inductive approach is combined with suggestion of a deductive approach. The dominance for inductive approaches was broken and was to a great extent replaced by a hypothetical deductive approach. The research was expected to start from theory, definition of concepts and formulation of hypotheses as basis for carrying out empirical investigations.

Bunge (1971) was critical towards the use of explicit inductive and explicit deductive inference models. "Inductivism and refutationism are then inadequate for both neglect the theoretical model that must be adjoined to a general theory in order to deduce testable consequences and both accept the tenets that (a) only empirical tests matter and (b) the outcome of such tests is always clear-cut." (p 36) and "To summarize: theory and experience never meet head-on. They meet on an intermediate level, once further theoretical and empirical elements, in particular theoretical models of both the thing concerned and the empirical arrangement, have been added." (loc. cit.)

Polanyi (1969) rejected all attempts to "gain complete control of thought by explicit rules" and claimed: "The pursuit of formalization will find its true place

in a tacit framework" (p 156). He introduced the idea that "tacit knowledge" is the basis for all knowledge. "Let us recognize that tacit knowing is the fundamental power of the mind, which creates explicit knowing." (loc. cit.) He delimited the concept of "tacit knowing" in the following way: "The essential feature throughout is the fact that particulars can be noticed in two different ways. We can be aware of them uncomprehendingly, i.e., in themselves, or understandingly in their participation in a comprehensive entity. In the first case we focus our attention on the isolated particulars; in the second, our attention is directed beyond them to the entity to which they contribute. In the first case therefore we may say that we notice them subsidiarily in terms of their participation in a whole." (op. cit., p 128) and "Knowing is a process in two stages, the subsidiary and the focal, and these two can be defined only within the tacit act which relies on the first for attending to the second." (op. cit., p 179)

One main problem with the defining inductive and deductive approaches is, that they are not really approaches to the phenomena and research objects. They are based on rather precise assumptions, which are not directly related to the research objects. The assumptions have the character of definitions of concepts in a theory, and/or meanings of individual observations and data units, and a general understanding of scientific method. This means that an abstract theory developed in advance, or observations of individual facts (which are not considered in their dependence of their contexts), are assumed to form the basis for understanding phenomena. The alternative is to approach the phenomena, through delimiting meanings based on discerning parts within phenomena. This approach means a different way of dealing with the relation between theory and data about phenomena. It is not deductive, nor inductive, in the traditional sense. There is an emphasis on the nearing to phenomena and objects as the starting point for development of knowledge. The contextually analytic approach presupposes both a theoretical and an empirical context. Both empirical data and research results are considered to exist in between the theory about the world and the world. However, the main focus is on empirical data as part of and related to the world. This implies that the referring of data to parts of the world is the starting point in deciding the meaning of data.

The explorative nearing character of contextual analysis does not exclude that the research can have a theoretical starting point. It can even be explicitly steered by theory. Contextual analysis can be used to test hypotheses, and also in carrying out experiments. The difference compared to hypothetical deductive

approaches concerns how the experiment is carried out. Within the experimental tradition controlled variation of an independent variable is stressed as basis for interpretation of data and development of knowledge. The value of controlled variation is not denied in contextual analysis, on the contrary. However, the value of controlled variation is completely dependent on the possibility to observe and interpret the effects of the variation. This should be done by contextual analysis. The cases involved in the variation have to be analyzed based on data, to find parts and relations in an explorative, discerning and delimiting way, to then compare with formulated hypotheses. The testing of hypotheses is not made by describing the cases in terms of predefined data units (categories and variables), and external relating of those, to see if the relations fit the hypotheses. The testing becomes a comparison of the meanings of data units and relations delimited through contextual analysis and the meanings hypothesized.

In discussions of the validity of experiments in terms of internal and external validity, the need to control a large number of threats to validity is stressed. Within the human sciences one has, within the experimental tradition, to a large extent leaned on a statistical rationale with two main elements 1) aggregation of individuals' specific data into group values (measures of central location and variation) and comparisons of such group values 2) control of differences between groups that might supply rival explanations of differences in a dependent variable. The problem is that this rationale does not give a sufficient basis for interpretations in terms of work with internal relations, on the contrary it presupposes work with external relations. In contextual analysis, the analysis has to be explorative, as described above, and not by use of predefined concepts and meaning units, even if such are used in formulating hypotheses. Also, the analysis has to be made case based (which is fully compatible with making experiments), and not variable based across groups of cases. The testing of hypotheses is done by comparing the hypotheses and the outcome of the contextual analysis. If it is fruitful to formulate hypotheses depends on what is considered to be already known about the phenomena, and the assessed possibility to predict the outcome of the experiment for the investigated cases.

In contextual analysis the nearing to the phenomena/cases is emphasized, in difference to much research, that starts from definitions of concepts, methods and data, and presupposes predefined meanings of those, and do not search for meanings as a central part of the investigation. Generalizations based on exploration of meanings and comparison of cases, and not based on

predefined meanings of data and in theory, are argued for. The aim is to reach scientific contextual analytic knowledge, which is seen as the central form of scientific knowledge. The knowledge sought and developed has the character of conceptualizations of cases/phenomena, grounded in a nearing to parts of the world investigated, through exploring their meaning by discerning, delimiting, and describing internal relations in a contextual analytical way.

Scientific contextual analytic knowledge

A contextual analytic approach is relevant, and called for, when there is an interest to understand investigated phenomena as wholes, consisting of parts and relations between parts making up the whole. This interest is relevant in development of knowledge of most natural science and human science phenomena. It is especially relevant when phenomena are delimited from a more precise perspective, and/or investigated based on the formulation of a problem. Such a starting point implies that the object of research is delimited within a wider context, and usually also that it is seen as consisting of some main parts constituting the phenomenon. Objects of research have increasingly been focused as wholes, and as contexts, in theoretical and methodological approaches within the human sciences. Much remains to do to improve the analyses of wholes/cases through being more clearly contextual and analytic in the treatment of data (as argued in chapter 3). It may seem a self-evident argument that phenomena, cases, research objects, should be thoroughly analyzed, but this is surprisingly not a starting point in most approaches and methods used.

Both the deductive and inductive approaches, discussed in the preceding section, have been connected to a nomothetic ideal concerning the kind of knowledge to be developed. Both the inductive and deductive models of thinking about development of knowledge, as well as abduction as an alternative (Peirce 1990), are based on development of knowledge logically within a language system. In the inductive approach we are left to formalized rule-governed inductive compilation of observations of predefined facts. In the deductive approach (and to some extent also in abduction) we are left to formulating hypothesis about the phenomena, which are tested empirically based on formalized deduction. The knowledge get the character of logic based language statements with a limited relation to the world investigated, based on limited individual isolated observations taken to be critical and sufficient. These

ways of developing knowledge are non-contextual. Compared to those traditions using definitions of concepts and meaning units, and formalized treatment of data (and sometimes testing of hypotheses), contextual analysis is different and alternative in the view of and development of scientific knowledge.

Phenomena should be analyzed within and as dependent on their contexts, to overcome the limitations and problems of most research methods. The aim of contextual analysis is to describe phenomena analytically, and to clarify their most significant whole-characteristics. The aim is to describe the phenomena in one of many possible ways, and to focus on some main characteristics and meanings rather than others. At the same time, it is the aim to develop the most significant possible description. This aim involves both validity and generality. To be valid a description has to be thoroughly grounded in available data, clearly related to the investigated case/phenomenon. To be significant the description has to be selectively focused on characteristics which constitute the most fundamental similarities and differences compared to other cases. Significance is achieved through a combination of a holistic description of each case, comparison between cases, and a cumulative development of description and conception of cases and phenomena.

How to be analytic in describing phenomena depends on the conception of the nature of the phenomena, and of significant parts of the phenomena (ontology). How the analysis should be done also depends on the conception of the nature of the knowledge (epistemology). One aspect, which is important, is the relation between content and form. In much research the main concern is with general forms or structures of phenomena, seen as their fundamental and interesting characteristics, and with concepts referring to those forms and structures. In other research the concern is mainly with the specific content of phenomena. In most research both these aspects of the phenomena are attended to, but with an emphasis on the one or the other. In describing the phenomena this difference in emphasis may make a big difference. The interest in structural characteristics of phenomena has been connected to a strong tendency to design data collections and analyses to directly focus on the structural qualities, and neglect the content. The interest in the content of individual phenomena has been connected to focus on the specific content and neglect of the structural characteristics of the phenomena.

Irrespective of the main interest in a specific investigation, conceptions of phenomena consist of organized content, and include both content and form

of organization of this content (structure). Descriptions of phenomena therefore should include content and form of organization (structure) in relation to each other, as a basis for understanding both the general form and the specific content. Such descriptions would also provide a ground for comparing different descriptions, and solve part of the problem of incommensurability of descriptions. The argument for making such descriptions of wholes of form and content is that they make conclusions about both form and content more valid. In contextual analysis the aim is to both consider the specific content of phenomena in the description, and to focus on some more formal characteristics (structure). The characteristics searched for are those representing whole-characteristics of the phenomena. The aim is to describe the phenomena in terms of their significant meaning. The aim is not to describe the organization or structure of the phenomenon per se, but to describe the phenomenon as organized content.

According to the view presented here, generalizations cannot be arrived at on the level of observation of specific parts of phenomena. The use of generally defined categorizations of data (variables) represents built-in generalizations at the level of data, that cannot be justified in the field of human science. Such categorizations should not be generalized from one context to another. It is different within parts of natural science (see chapter 5). The use of the same categorizations presupposes either the same relation to the same context or a variation in meaning within the categories. Generalization may be achieved by analogy within theory and should not be assumed at the level of observation of specific elements/parts of phenomena.

The result from an investigation carried out through contextual analysis can be generalized or applied to the extent that the conditions can be shown or assumed to be the same in new cases as regards significant aspects. The most important question about generalization seems to concern to what extent the same described characteristic and made categorization is significant in different contexts. This is in part the same question as on what level of abstraction significant similarities can be fruitfully described, against the background of concomitant differences connected to the similarities. If one can tell which relevant similarities and differences that exist between contexts this constitutes a proper basis for generalization.

The most well-grounded and fruitful knowledge is understood to be a contextual analytic knowledge. It is a knowledge where the discerning and delimitation of research objects, phenomena and cases, is progressively

developed and made as clear as possible. Discerning and delimitation of main parts of cases/phenomena and their interrelations is the central and most extensive part of the analysis. The knowledge sought and achieved has the character of knowledge of phenomena as organized wholes. The whole-characteristics concern the organized content of the phenomena. The knowledge arrived at is conceptions of phenomena, based on thorough analysis and description of contextually delimited parts and their internal relations.

Conclusions

In this chapter the main characteristics of contextual analysis have been described and argued for as a continuation of the previous chapters. The case based approach is described as an approach to, and as based on focusing, objects of research, that which is investigated and made conclusions about. This starting point is seen as fundamental to research within all fields, and as especially important in human sciences, due to the context dependent character of the phenomena, which makes it crucial to clarify what is the phenomenon, and what is the context, and how they are related. The analytic character concerns the delimitation of cases in relation to context, and even more the discerning and delimitation of parts of cases, and relations between those parts within cases, as a basis for developing the conceptualization of the cases, and their relation to the context, and for comparing cases.

Chapter 5 Contextual analysis of physical motion

The main aim of this book is to present contextual analysis as a methodology and research approach within human sciences (including psychology, social and cultural sciences). However, contextual analysis is also to varying extent relevant in natural sciences, and to all fields of knowledge. The field of classical mechanics has to a great extent been seen as historically foundational to the development of science and scientific knowledge. It therefore can be especially motivated to discuss contextual analysis in relation to this field of knowledge, to clarify the relation of contextual analysis to the development of scientific knowledge in general. The claim here is that contextual analysis historically has had a place in the development of all scientific knowledge, and then also of knowledge within the field of mechanics. However, the contextual analytic foundation is not paid very much attention to. The focus has been and is on what follows the contextual analysis in terms of definitions, measurements, and quantitative relations between variables. As Popper (1963) illustratively has expressed, the phase of a first analysis of the objects of knowledge has tended to be seen as an intuitive preliminary phase of the scientific work, a phase of conjecture. This view has concealed the foundational character of the not recognized contextual analyses made. In this chapter is described what contextual analysis of a case of physical motion is.

In the description of the outline of the book in chapter 1 it was mentioned, that there is a difference in the use of the example of physical motion compared to the following examples of learning, teaching and culture. In this chapter some different ways of conceptualizing physical motion are described, as different contextual analyses of the same case, against the background of the historical development of the understanding of physical motion. The ways to conceptualize are described as different contextual analyses of the same example of physical motion. The historical development of the conceptualization of physical motion has been towards a more comprehensive contextual analysis. The example is used to describe the character of contextual analysis in a clearly delimited case, through a variation in analyses and

understandings of the phenomenon. The example is also used to discuss the difference between natural and human sciences, when it comes to the place and role of contextual analysis. In the three following chapters, the focus is not on variation and development in analyzing a phenomenon as in this chapter. Instead the focus is on how a phenomenon can be analyzed based on one conceptualization, the author's/researcher's understanding of the phenomenon investigated.

The description of contextual analysis in relation to historical conceptions of a case of physical motion is very simplified. It is not a description of how these conceptions/explanations have been developed in their contexts, but only a description of some characteristics of the resulting conceptions/explanations. The characteristics focused mainly concern how the parts of the case have been delimited, and how they have been conceptualized as cause and effect. The aim is not to give a full description of the historical development. The aim is to point to the presence of contextual analysis, as an element in the historical development, and the general character of this analysis. The focus is on how the contextual analysis appears in conceptions/explanations of the case as a result of the analysis. Also, the intention with presenting this clearly delimited example is to clarify the aim of contextual analysis.

Work with internal relations

In the preceding chapters the difference between methods working with internal relations and methods working with external relations has been emphasized. Contextual analysis is distinguished by its work with internal relations. In this chapter a case of physical motion is used as an example, to illuminate the character of contextual analysis, and work with delimitation of internal relations. Against the background of the example presented, similarities and differences between natural and human sciences in using internal and external relations are also discussed. This discussion is limited, and the aim is to give arguments for the importance of working with and delimit internal relations within the human sciences. The description of the phenomenon does not include the use of external relations that has been involved in the development of knowledge about the phenomenon. The historical development of the knowledge field of mechanics is an example of use of mixed methods. The use of mathematics in developing the conception of cases of physical motion increased in importance in the development. Especially

Newton's integrating work with developing a comprehensive theory of mechanics was depending on the use of mathematics. From the perspective of contextual analysis, the work with internal relations are foundational, also when supported and confirmed by work with external relations.

Some different conceptions of physical motion are presented as examples of analyses, and delimitations of internal relations. The analyses discussed represent contextual analyses to varying extent. The presentation made has not the pretension to give a thorough description of the historical development of knowledge about physical motion. In the description interesting qualitative differences are excluded, as well as the role and importance of quantification. The description has the character of "idealization" of some selected conceptions in the historical development within physics. The aim is to present contextual analysis, not to give a description of the historical development. The aim with the examples is also to illuminate the basis for using qualitative and quantitative research methods within different fields of research.

The conceptualization of cases of physical motion is a classical problem within physics, and the development of the conceptualization of such cases can be traced historically. This conceptualization is also today a challenge to students all over the world, as is well documented in research on student learning. The claim here is that each conception, and change in conception, of a case of physical motion, is the result of a contextual analysis, if the conception is based on a systematic discerning of parts of the motion and their interrelations, delimited in relation to a wider context. The examples will be presented in line with the description in the previous chapter, that contextual analyses are case based, and concern the development of a scientific conception of the case as a research and knowledge object. The examples are about a parable motion, which is a classical part of mechanics. The aim is not to give detailed empirical descriptions of conceptualizations of the case, but to point to some characteristics that clarify the contextual analytic character of the development of knowledge about this kind of case. The example and case chosen is the motion of a stone through the air after the stone has left the hand of a person throwing it upwards and forwards in the air. This is a case of a physical event known to all of us. How do we reach scientific knowledge about this kind of event?

Discerning of phenomena/cases

When we deal with the development of knowledge of a specific case through contextual analysis, we have to consider the wider context within which we approach the case. In this context is included the rest of the physical world and the experience of it. There are different parts of the physical world, and the experience of it, that are especially relevant to our case in that they are seen as related to our case. Of special relevance are, we can assume, experiences of what is understood as the same phenomenon. If we narrow this part of the context to experiences of our own throwing of or seeing others throwing stones, it seems apparent that this experience may be relevant. It may even be so that similarities and differences between different throws is what has made us interested in knowing more about the phenomenon. This can be said generally about development of knowledge, that differences between cases against the background of a similarity is crucial to development of knowledge. In natural sciences the repeated experience of similarity as basis for development of knowledge has been quite successful. Now we will continue to discuss contextual analysis of one specific case of throwing a stone.

If we follow the approach presented in previous chapters and apply it to the present example, we have first to say that the identification of the motion of the stone in the air presupposes that this motion is discerned as an entity within its context. This discerning may be global in character, which here means that the motion for instance is discerned as a continuous motion of a body in difference to other bodies and their motion (or rest). Characteristics of importance to this discerning may for instance be the form or the color of the stone, and/or the form of its motion. The very discerning of the motion as an event and case is critical in making a contextual analysis. In addition to characteristics that contribute to the discerning of the motion, the motion has to be delimited as an event with a beginning and an end.

The motion is here delimited to a motion in the air. This means that it starts when the stone leaves the hand and ends when it hits the ground. This is not a so obvious delimitation as one may think. The motion of the stone does not start when it is leaving the hand, but when the thrower starts moving his arm. The whole event, from the person starts the throw to the stone is resting on the ground, may spontaneously be experienced as one event, and a throw with some aim. So, what is the basis for delimiting the event in the air as a physical event? There has to be a basis for the delimitation suggested. Also, the basis should be

connected to a knowledge interest. The person holding the stone can make many different moves with the stone. When the stone is still in the hand, the motion of the stone is experienced to depend on the movement of the person. What happens with the stone after hitting the ground apparently depends on characteristics of the ground. On this basis, the motion in the air can be experienced as a special event taking its own explanation.

The very discerning of the motion is not what here is meant by a contextual analysis leading to a conception of the event but only a first step. A contextual analysis of the event concerns the meanings discerned of parts of the event, within the frame of them together constituting the whole event. The parts may be aspects or components of the event. Aspects may in this case be different characteristics of the physical body (the stone), connected to the motion, like for instance shape and weight, or it may be characteristics of the motion such as direction and speed (velocity). Components of the motion may for instance be partitioning of the motion in sequences, such as an up- and forward-going and a down- and forward-going part of the motion. A partitioning of the phenomenon into components presupposes a starting point in some aspect (for instance direction). Thus, by a contextual analysis is not only meant the discerning of a case of a phenomenon. Discerning of aspects and components decisive to the delimitation of the event is not enough either. The meaning of the phenomenon and case as a whole is focused. In line with this character of contextual analysis, focus is on the meaning of main parts of the phenomenon/case and their interrelations as what is to be described. This character of contextual analysis will be exemplified through a description of four different analyses of the motion of the stone in the air. Only the fourth example represents a full contextual analysis, although all exemplify work with internal relations.

Discerning main parts

First we may think of a conception of the motion of the stone as having two phases as main parts, one up- and forward-going phase, and one down- and forward-going phase. The discerning and meanings of the two phases are based on the direction and form of the motion. Those two main parts are easily experienced and have been historically significant. This thought of conception does not include a meaning of the relation between the two phases, except that the one follows the other, and that they form a unity by being related to the

same physical body. Characteristic of this analysis is that the relation between main discerned parts (the two phases) has no meaning in addition to being connected to the same body and its place in space and time. This analysis does not represent a contextual analysis of the case, although it has some ingredients of discerning that are also fundamental in contextual analysis. A contextual analysis is not only a spontaneous conceptualization of a phenomenon, but a systematic analysis to reveal the nature of the phenomenon, in terms of main parts and their interrelation as dependent of each other. The discerning leads to a systematic explicit delimitation of parts and relations within the phenomenon, and of their meaning, as a scientific conception of the phenomenon.

It is common, that the meanings of entities are not developed through a systematic analysis of parts and their interrelations within the whole of the entity, within a wider context. Even in a contextual analysis it may of course be difficult to find a fruitful meaning of the phenomenon as a whole based on the relations between parts. Critical is, if it is the aim to understand cases as wholes, and if there is an effort to meet this aim. The aim can be said to be to find a principle that can be said to organize the main parts and decide the relation between them. The organizing principle, and the meaning of relations between main parts, may vary, and this variation is the basis for talking about different conceptions, different understandings, and different knowledge of the cases. In research generally, these differences are talked about as different results, descriptions, explanations, and interpretations. Within natural sciences the principal of organization is often understood to have the character of relations between conditions and consequences, often thought of as causal relations, as has historically been the case for our example. In difference to our first example of a conception of the motion of the stone, a contextual analysis leading to scientific knowledge about the motion includes an explanation of the motion by clarifying the character of main relations within the motion.

The analysis of the motion mentioned above can be said to only be descriptive of what comes first and then follows, the two phases. It includes no answer to why, no explanation. It is this lack of explanation that does not make it to a contextual analysis and scientific conception of the motion. The three analyses and conceptions presented below include causal explanations. Causality is a difficult concept extensively discussed in the scientific literature. There is a main difference between those arguing for cause having a meaning, in addition to that the cause is a necessary and sufficient condition for the effect, and those who argue against such an additional meaning. The arguments for

contextual analysis here are methodological, and concern how we can develop knowledge about causal relations, and the role of contextual analysis. The differences in contextual analysis of causal relations described here are valid irrespective of assumptions about the fundamental ontological character of causality.

Delimitation of two main components

Now we go to an example of an analysis of the motion of the stone in the air, that includes that the relation between the two phases of the event is given a causal meaning exceeding a mere spatial and chronological relation between the phases. This is mainly a historical example. It is a simplified description of Aristotle's conception of the motion of the stone in the air. As has been stressed above, the starting point of contextual analysis is the delimitation of the case in its context. Then what was the context for Aristotle. He saw this kind of motion in the context of other cases of motion. Aristotle looked at motions as either natural or forced. Natural motion was of two kinds: celestial motion, which was uniformly circular and perpetual, and terrestrial motion, which was rectilinear, up and down and finite. All other motions were forced motions. When it came to forced motion, Aristotle thought that objects will come to rest when the force is removed. For instance, a cart will come to rest when the horse stops pulling it. Also, Aristotle saw a world where there was always a resistance to motion. The motion of a projectile was a clearly delimited entity to Aristotle, and presented him with a really difficult problem.

In Aristotle's analysis the projectile motion is seen as consisting of two phases, an up- and forward-going and a down-going motion (not a down- and forward-going motion). The most important difference compared to the first conception, mentioned above, is that in this second conception the relation between the two phases is given a special interpretation and meaning. The relation is given the meaning that one kind of motion is followed and replaced by another kind of motion, and that this is dependent on the nature of the two kinds of motion. The first up- and forward-going motion is not natural but forced, and demands a special explanation. The second down-going motion is natural and is explained by the fact that all physical objects have their natural place on the ground, and not in the air, and therefore will move towards the ground. The great problem to Aristotle was the forced up- and forward-going motion. What force keeps the stone in motion after the contact with the

thrower? He thought that the air, as a medium, somehow provided the necessary force to move the stone forward. The air behind the stone moves it forward, while the air in front of the stone forms a resistance, so that this motion ultimately ceases. The great problem was the paradox that the medium both sustained and resisted the motion. When the forced motion ceased the natural motion entered and the stone dropped to the ground.

The analysis described roughly corresponds to Aristotle's analysis and explanation of this case of physical motion. This was the dominant scientific conception for many centuries. We can see how much of interpretation and meaning making, work with internal relations, that this analysis involves. We can see how the delimitation of the case was dependent on how it differed from other cases. The understanding of other cases contributed to the conception of the projectile motion, as a special case of motion, and to the interpretation of this case. This context contributed to the understanding of the motion as consisting of two different kinds of motion, a forced and a natural motion, with two different explanations. The analysis did not result in a delimitation of whole-characteristics of the case, but rather in dividing it into two cases. Aristotle's analysis was mainly by use of internal relations. The dividing in and relation between forced and natural motion was based on their opposite mutually dependent meanings. If their meanings were changed, their relation would also change, and the reverse, if the meaning of the relation was changed the meaning of the motions would be changed. The delimitation of relations between cause and effect is also internal. When it comes to the natural motion in the down-going motion it is not analyzed into cause and effect. When it comes to the forced motion, the meaning of the cause (force) is based on the meaning of the effect of being motion. Aristotle used rough and qualitative ratios connecting gross measures of distance and time. The use of measures was to construct external relations based on the contextual analysis done.

Main parts in internal relation

Compared to the above described analysis, alternative contextual analyses of the motion of the stone in the air would mean, that other main parts than the two phases are delimited, and/or that the two phases are given another meaning, and/or that the relation between the phases is given another meaning. Such continuing work with internal relations is very clear in the further historical development of knowledge about physical motion. Aristotle's

delimitation and relating of force and motion was challenged in several different ways. Another historical analysis of the projectile motion is the so called impetus theory. This theory was developed with some variation in the meaning of force and motion and their interrelation, i.e. different delimitations of internal relations, over several centuries from the 5th (John Philoponus) to the 14th (Jean Buridan) century. Philoponus argued that it was not the air that propelled a projectile but an impressed force, impetus, that eventually dies out. Buridan thought that the impressed force was permanent unless acted on by resistance or other forces. He defined the impressed force to be proportional to the quantity of matter and speed. It is unclear if he saw impetus as a cause of or effect of motion.

It is clear that the conceptions of Aristotle, Philoponus and Buridan involve contextual analyses in which internal relations are delimited in some different ways. The different analyses yield different whole characteristics of the case. In Aristotle's analysis the case is composed of two parts, phases, with different explanations, forced and natural motion. The forced motion is forced through the air as a medium acting on the stone. In Philoponus' analysis the whole motion is explained by a force transferred to the stone and diminishing only at external resistance. In Buridan's analysis the transferred force, the impetus, was seen as permanent and related to other forces and to matter and speed, but with an unclear meaning when it comes to explaining the motion. It is clear that these different analyses represent a struggling with which parts and internal relations to delimit in conceptualizing the case. The relations are also to some extent expressed in general logical formulas. The parts involved are, over time, to an increasing extent quantified and measured. The quantification and measurement comes late, compared to the qualitative delimiting of parts and relations, i.e. the contextual analysis. But it is also the case, that the use of external relations in the form of mathematics has formed a basis for developing the delimitation of internal relations.

Delimitation of whole characteristics

Another and here final example of an analysis and conception of the motion of the stone is the following. In addition to the direction of motion, change in velocity or acceleration (including retardation) is included as a main aspect. On the basis of this aspect the two phases of the motion are related as change in velocity from negative acceleration (retardation) to positive acceleration. Also,

two aspects of direction are delimited, motion vertically and motion horizontally, and the change in velocity is seen as mainly a change vertically. The relation between the two phases, the up- and down-going phase, is explained by a continuously acting force of gravitation. This force first causes a retardation of the stone upwards, and thereafter an acceleration of the stone downwards, at the same time as the stone moves horizontally at a constant velocity (if one leaves out the air resistance, which diminishes this velocity somewhat).

This alternative contextual analysis is in line with a Newtonian analysis and conception of physical motion. The analysis means a delimitation of a main cause as a general aspect common to both the phases, namely the generally acting force of gravitation. Another even more crucial difference, compared to the previously described analyses, is the discerning of the aspect of acceleration (positive and negative change of velocity and change of direction) as effect, which is the basis for the meaning of the two phases, and the meaning of the relation between them. It is the continuous relation between cause and effect, which gives the relation between the two phases its meaning. The two phases can be said to be related according to the principle of cause and effect, because the same cause and effect relation explains both the phases, and the relation between them. Different effects (change in direction and velocity) are seen as in principle the same effect (as acceleration), where change in direction and retardation also is acceleration, and is the same kind of change as positive acceleration, and are explained by the same cause, i.e. gravitation.

This contextual analysis and explanation is more complex than the preceding ones. The relation between the two phases is based on the delimitation of more aspects, the meanings of which are common to the two phases. The aspects are velocity, acceleration, direction (vertical and horizontal) and force of gravitation. Most important is that the analysis discerns, and is based on, the aspect of acceleration and a continuously acting force. This change in analysis and conception turns the motion into a more integrated whole, compared to the previous conceptions, through relations between more aspects, which are common to and unite the two phases.

If the starting point for the analysis is, that the motion of the stone through the air constitutes one phenomenon, which is to be analyzed and understood, only this analysis represents a full contextual analysis of the phenomenon. If we had stopped the analysis with the second conception above (Aristotle), we had to consider if the two phases had to be seen as two different phenomena, since

the relation between them has no uniting meaning. Also, it then could be more relevant to consider the first phase as starting when the thrower starts the throw, and not when the stone leaves the hand. We then would have to reconsider our preliminary delimitation of the phenomenon and the case. The impetus idea of a transferred force makes the motion more clearly delimited from the throw, and more consistent when it comes to the impact of the air, but lacks in clarity when it comes to the cause and effect relations within the motion. The Newtonian analysis gives a conception of the motion as a whole, in a way that means that we do not have to reconsider the original delimitation of the case/phenomenon, even if we also here should consider the relation to what comes before and after our delimitation. The delimitation arrived at could be specified in each case of a throw, to make the conception and description of the case/phenomenon more exact. The aspects making the whole to one phenomenon are acceleration and force, and the most significant whole-characteristic is the relation between force and acceleration.

Natural science research

The above presented sketchy description of the historical development of the knowledge of a case of physical motion is given to clarify that there is an element of contextual analysis in this development. This has been made mainly limited to the result of the knowledge development in terms of the achieved conceptions and explanations of the physical motion. The contextual analytic qualities appear in the results of the analyses. It is the qualities of the result that also represent arguments for the relevance and credibility of the approach. The result reveals both analytic and contextual qualities of the approach, since the analysis must have been made in a certain way to reach the result achieved. At the same time, there are extensive further especially contextual elements in the actual development, which have not been described. These are elements of both the theoretical contexts forming the starting points for the different analyses, and elements of the specific investigation contexts in form of how observations were made and data collected, documented, treated and presented.

In the coming examples, in the following chapters, the theoretical context will mainly be considered in terms of the preunderstanding of one researcher, the author, of the phenomenon investigated. It then mainly is about one of several possible preunderstandings. In the present chapter, with its description of a historical development, it is clear that there is a varying preunderstanding

behind the different conceptions and explanations of physical motion. There is also a variation in how observations and measurements have been carried out. The aim in this chapter is not to show how contextual analyses have been made, but that they have formed part of the development of the knowledge of the phenomenon. This is mainly revealed in how the resulting knowledge of a phenomenon builds on the discerning of the phenomenon, parts of the phenomenon, and relations within the phenomenon. It is this discerning and relating of and within cases of phenomena, and the description of phenomena on this basis, that is the contextual analysis.

It is evident that the discerning of the here attended to phenomenon, and parts of the phenomenon, and the relating of these parts, have been made in different ways in the historical development. It is also clear, that this has been decisive for the understanding of the phenomenon. Thus, the contextual analysis is fundamental and decisive to the understanding of physical motion, irrespective of how the analysis is made more specifically. This is the point made through the description in this chapter. The example of physical motion with a focus on the result, the explanation, is helpful in that it is limited, clearly delimited, and permits a description of varying analyses to illuminate the character and importance of contextual analysis. The contextual analysis as an element of the development of knowledge has been quite hidden, depending on that the focus in the later development has been on definitions of variables and mathematical calculations.

A very important contribution from Newton was his development of the use of mathematical tools in describing physical motion. Force and acceleration could be defined more precisely, quantified and measured. It could even be that a more precise definition, quantification, and measurement, of one or both aspects come before arriving at the internal relation between them, and the deciding of the whole-characteristic of the case of motion. Newton struggled with the internal relations involved, for instance with the meaning and relations of the concept of impetus. Here we get nearer to the issue of working with internal and/or external relations in investigating phenomena. It is not the aim here to try to clarify how this worked for Newton, only to deal with the issue in principle, and to clarify the difference between natural and human sciences.

Within the natural sciences, constructions of external relations have been used extensively and successfully. Based on an initial delimitation of internal relations within a case, delimited parts have been defined, measured, and quantified, and external relations have been constructed to describe the

relations involved and the phenomenon. The construction of external relations has involved making the description of both the parts and relations between them more precise. The use of external relations has resulted in a more developed and precise knowledge of the phenomenon, which is one reason why they are seen as the most scientific part of the research. The specification of external relations may lead to a revision of previously delimited internal relations, to an improved contextual analysis, which is an additional reason for their scientific value. However, the value of constructing external relations has certain conditions. The success depends on the result achieved. The use of variables, and external relations between variables, has given relations in the form of functions. And the variables and functions have been found to have generality across cases.

Research within physics is to a great extent and in a fundamental way case based. Based on a contextual analysis of the case some variables experienced to correspond to delimited parts are defined. Variable values may be expected to vary across time within the case. If variables are externally related at a fixed point in time it turns out that the value in one variable has one corresponding value in one or more other variables. The relation between variables can be summarized in the form of a mathematical function. The result can be generalized to new cases. In a new case of projectile motion the same definitions, variable measures, and functions, as in previous cases can be used, and be shown to fit and explain the new case. There can be said to be identical variable values and functions between cases. This also implies that the cases have identical relations to their contexts, when it comes to the meaning of the variables and functions. This of course is a very valuable form of knowledge, which has been called nomothetic, and which has been seen as a general ideal for scientific knowledge. However, the conditions of identity and generality are not fulfilled within all fields of research, and not within the human sciences.

The delimitation of internal relations, which are here considered fundamental in natural sciences, has not been attended to as a scientific method, but has been considered to be preliminary, personal, intuitive and may be theoretical work. However, this work with internal relations has been a crucial part of the investigation of the phenomena, and of the knowledge of them. The ultimate achieving of and reliance on external relations have masked the fundamental character of the initial contextual analytic part of the research work. The fundamental character of the delimitation of internal relations is best revealed when problems of precision of meaning and problems of

generalization are confronted, as has been the case in the development of the explanation of physical motion described above. One aspect of research reinforcing the picture of dominance of construction of external relations is, that the description of the result of delimitation of internal relations is mostly given in the form of external relations, as a basis for generalization (in the form of testing in new cases). This is hiding the development of construction of internal relations (seen as merely conjectures, formulating of hypotheses). Within the hypothetical-deductive approach, represented by Popper, a description of a delimited internal relation in the form of an external relation tends to be taken as the starting point. This entails that the delimitation of internal relations is essentially left outside the methodology, as conjectures used as starting points for the research. In inductive approaches the focus is on facts, on each individual observation and variable value, and the compilation of observations and variable values and the result of the compilation, all in the form of constructing external relations.

The relative success of external relating within natural sciences reflects identity in context and in internal relations. This is in accordance with more or less explicit assumptions about the oneness of the physical world, and the generality of physical phenomena. The results support such assumptions and conceptions, in the sense that they reveal identity of context. Within physics, the insight into relativity seems to come quite late in the development of knowledge about the phenomena, the insight that identity between cases and their parts is valid within a shared or identic context. This is understandable considering the conception of the physical reality, and the research results achieved. However, it is now generally understood that a contextual view is fundamental also within the fields of physics and natural sciences.

Human science research

Within the human sciences we have an almost opposite situation to natural sciences in many respects. There has not been the same agreement about the uniformity of the phenomena, and not the same generality of the descriptions. There is within the human sciences a variation in the conception of the aim of research related to the problem of generalization. This variation is reflected in descriptions of research as nomothetic versus ideographic, and in discussions of the aim in terms of explanation versus understanding. This difference is also a part of the difference between research paradigms. Following the line of

reasoning in the present book, the most important methodological difference is the difference between use of external and internal relations. In one kind of research one relies very much on construction of external relations, and in another kind of research one relies almost exclusively on work with internal relations. This situation makes the choice between using internal or external relations more crucial within the human sciences than within the natural sciences.

Research relying on construction of external relations has been underpinned by conceptions of science and scientific knowledge, and an emphasis on generalization as the main aim of research. The construction of external relations within human sciences has not been primarily based on assumptions about the nature of human phenomena. If ontology is seen as an important basis for methodology, the use of external relations may be said to be less well-grounded than the use of internal relations within the human sciences. The main reason for this is that the use of external relations is less well-grounded considering the context dependent character of the phenomena investigated. According to our general understanding of human beings, groups, societies and cultures, there are important differences between all cases within those groups of phenomena. These parts of the world, and phenomena having these parts of the world as contexts, cannot in principle be generalized from and to by constructing external relations. This is confirmed by the research results achieved. There is a lack of at the same time precise and generally significant descriptions of the phenomena.

Generalization of external relations within the human sciences has not made it possible to demonstrate the common nature of the phenomena studied, to the same extent as has been done within natural sciences. This has been recognized, and the aim of research has been adapted to the situation. Some researchers have chosen to emphasize generalization by use of external relations, rather than descriptions based on the varying character of the phenomena. Instead of trying to reveal the character of phenomena by describing and grouping them, based on similarities and differences, researchers have been aiming at statistical descriptions of the extent to which different characteristics, and combinations of characteristics, are present within groups of cases. This kind of descriptions has been made for large groups of cases. Such descriptions, of course, have their value as descriptions of the extent to which characteristics and combinations of characteristics are present, when the delimitations of characteristics may be taken to be relatively unproblematic. The

value of such descriptions is dependent on the quality, and the significance, of the descriptions of characteristics and combinations.

The utmost problem in constructing external relations within the human sciences is, when they are used as the main approach to develop knowledge about the character of phenomena. There is a conflict between this aim and the use of external relations. Within the natural sciences the general significance of a certain characterization of phenomena is revealed through its generality. Within the human sciences the use of external relations does not reveal a corresponding significance across cases in the form of mathematical functions. Statistical relations are then used to replace clarification of relations within phenomena. Researchers have come to rely on variables and categories of description per se, to an extent that removes the description from the phenomena investigated. This is an approach which goes far beyond the approach within the natural sciences in relying on the use of external relations.

Generalization by use of external relations, in the form of statistical correlations, represents a very weak basis for making conclusions about the nature of the phenomena within the human sciences. Such conclusions tend to be very speculative interpretations, and go far beyond the data and empirical results. The problem is, that the conclusions have to be based on far-reaching assumptions about the validity of the categories and variables used. The validity should not be assumed but made probable. The validity of the categories and variables is usually weak, as the approach does not consider the contextual dependence of the meaning of the content of categories and variable values. Attempts to help this situation by very extensive use of external relations will tend to mask the problem rather than be of any great help.

Our knowledge of parts of the surrounding world is always to some extent abstract, incomplete, partial, and dependent on generalization. This makes differences between contexts, and between the relations of investigated cases to their contexts, very crucial. If identity between contexts (or if phenomena can be assumed to have the same context), and identity between cases, can be expected, and can be demonstrated, is vital to what may be considered to be a justified methodological approach. A successful use of generalization of external relations presupposes identity of context. When the results of attempts to generalize in this way are not satisfactory, one should progress by grouping phenomena and contexts according to similarities and differences. This is done in the natural sciences in the form of differentiating between different kinds of phenomena. Such taxonomic work is fundamental to all science and the basis

for generalization. Within the human sciences such groupings are more difficult to justify, because the differences within groups of cases are more fundamental, and the similarities less distinct. This means that we have to be much more concerned with the differences between cases, and we have to describe similarities against the background of existing differences. This takes a research approach with delimitation of internal relations within each case, and carefully made analogies between cases.

Within research relying exclusively on work with internal relations, the concern for generalization as an aim of research varies considerably. The emphasis has been on contextually credible descriptions rather than on generalization. In relation to the problem of generalization the concern has thus focused on one aspect, the justification of the description in relation to the part of the world investigated. Similarity between cases as a basis for generalization has often not been focused. In a sense the focus has been on the individual case. This has been so also in work having a theoretical orientation, such as for instance work starting from psychoanalysis or Marxist theory. The approach in theoretical work has been similar to work within natural sciences. The similarity is that the work represents a hypothetical-deductive methodological approach. The main relation attended to is not between different parts of the world (cases) but between theory (conjectures, hypotheses) and description of individual parts of the world. This means that the work with internal relations in the individual case is guided by theoretical concepts. Generality in the form of theory has then tended to be taken for granted rather than been tested and developed through the research.

Generalization requires different approaches depending on the similarity between contexts. In human sciences there are fundamental differences between cases and contexts which take a contextual approach. A contextual approach means working with internal relations within each case of a phenomenon, and the working out of analogies between cases. If the contextual approach is analytic it means a delimitation of internal relations within cases and comparison between cases. There is a fundamental similarity between natural and human sciences in that both have their basis in work with internal relations. Both also have to deal with the problem of generalization. There is a difference in identity between cases and contexts, which means that the problem of generalization has to be dealt with differently by and large. In the natural sciences one can to a large extent rely on generalizations on the basis of external relations. Within the human sciences one has to work mainly with

internal relations and delimitation of those. This is what is needed to meet the aim of generalization considering differences in context.

Chapter 6 Contextual analysis of learning

In the first chapter of this book some citations were given from Svensson (1976). The publication has the title Study skill and learning and is a report on an empirical investigation of studying in higher education. In the investigation the concept contextual analysis was used to describe the analysis made. Here in chapter 6 contextual analysis will be described and discussed as an approach to investigate the phenomenon of learning, as an example of contextual analysis. The description will not be a summary description of the previous rather extensive empirical investigation, and the way of conducting contextual analysis in that investigation. The phenomenon of learning will be used to discuss the principles of contextual analysis in relation to learning as one kind of phenomenon. The specific result of such an analysis will only be hinted at. The focus will be on what it means that the approach to the phenomenon, and the treatment of data about learning, is a contextual analysis.

As was pointed out in the outline of the book in chapter one, and also in the introduction to chapter five, the use of the example of investigating learning (and the following examples of investigating teaching and culture) is different from the use of the example of investigating the phenomenon of physical motion, discussed in chapter five. The following description of contextual analysis of learning is based on one, the author's, understanding of the phenomenon of learning. It is one of several possible understandings of the phenomenon of learning. It is based on the author's own research and knowledge of the field of research on learning. According to contextual analysis an investigation should start from the researcher's best available pre-understanding of the phenomenon investigated. This pre-understanding should be the basis for delimiting and analyzing cases of the phenomenon. The pre-understanding should at the same time be developed throughout the investigation, based on exploring, discerning, and delimiting the phenomenon and its parts. The presentation of contextual analysis of learning (and teaching and culture in the following chapters) is made according to this principle. It means that there are many possible alternative contextual analyses of learning, based on alternative understandings of learning.

The phenomenon of learning

The first thing to do in a contextual analytic empirical investigation of learning is to delimit cases of learning in their contexts, based on the researcher's pre-understanding of the phenomenon. The focus on the phenomenon comes first in contextual analysis, and before more precise definitions of concepts and choices of methods. The delimitation of cases in relation to contexts concerns what is included in the case/phenomenon, and what is not included but is seen as belonging to the context. The delimitation has to be based on the understanding of the world, and thoughts about possible delimitations of cases of learning. The delimitation is dependent both on what the world is affording, and the researcher's readiness to see and use these affordances. The dependence on the researcher's readiness leads to a situation where the delimitation of the phenomenon always has to be reconsidered in relation to new evidence, and experienced new possibilities. The need of continuous reconsideration and argumentation is a need in all research, and in every part of a contextual analysis.

Cases of learning form part of human activity. Human activity is complex. Learning is a bodily activity, and bodily activities can be described at different levels, for instance activity at physiological and neurological levels, which are involved in learning, but do not here form part of the descriptions of cases of learning that the analyses aims at. Human activity is also described at the level of behavior. This level is only included in a limited way, and is insufficient for the aimed at description. There are also descriptions at a cognitive level of cognitive processes, which are rather close to descriptions of learning, but still are not descriptions of learning. Central to descriptions of learning, based on the conception of learning started from here, is to describe the content of human activity as interaction with the surrounding world, and as depending on the part of the world interacted with. An interaction described as a case of learning is only described in a limited way. The totality of the interaction is not described in all its complexity, and with all its details. The research problem is to find which characteristics of the interaction that are most fruitful to describe, to develop knowledge about learning. The characteristics looked for are especially the most significant characteristics of the involved learning, and of the conditions for achieving these characteristics of the learning.

The concept and the phenomenon of learning can be understood and delimited in different ways. Learning can be understood as a continuously ongoing process in the life of humans and their interaction with their

surrounding world, and then is a matter of change and/or development of their relation to the world. Learning then is an aspect of human life, and can be active or passive, intended or unintended, with or without awareness. Learning can also be understood more limited as an active, intended and with awareness directed activity with learning as aim, goal and result. When learning is an aware and intended activity, one does not have to assume that the result is the intended, or awareness about the result. Learning in this presentation is assumed to include not only the activity of learning but also the outcome of the activity as an important part of the learning. The wider meaning of learning as an aspect of human life is the most fundamental, and important to have as a general starting point. This starting point means the inclusion for instance of learning that can be involved when one reads a book or experience an event without a conscious aim to learn, but may be is learning a lot. In the following, the description of learning starts from learning through an activity carried out with the intention to learn.

One thing that is characteristic of the concept of learning, as it is used here, is that it refers to the activity of a person. This means that the activity of the person is the most immediate context in delimiting a case of learning. There has been a tendency to assume that ways of learning are individual traits, which are rather stable across time and situations. This then is an assumption that has to be argued for on the basis of the analysis of quite many cases of learning, across time and situations, for the same learner. In contextual analysis that aims at clarifying the character of each investigated case of learning, generality across cases is not presupposed, but generality is an open question. The delimitation and description of cases of learning is not a matter of defining and measuring general traits, but aims to create an understanding of specific cases of the phenomenon of learning. According to the present discussion, the challenge here is to delimit cases of learning based on delimitation of critical features of the outcome of learning, in relation to critical features of the activity leading to the outcome, and in relation to conditions of this activity.

An initial question in the analysis is how a part of the total activity of a person can in a fruitful way be delimited as a case of learning. This part of the total activity of the person should, according to contextual analysis, form a whole that constitutes a phenomenon of learning. We have to make a preliminary delimitation of such a whole as a starting point for further analysis. Through the here above made choice to focus on cases of learning involving activity with an intention to learn, the cases will come close to the concept of

studying. When we talk about studying, we are usually talking about rather extensive and complex cases of studying, as for instance studying in courses at university. There is a long tradition within educational practice and educational research to talk about and delimit phenomena that are considered to be or be connected to rather extensive cases of studying. The example of physical motion, focused in the preceding chapter, forms part as content of cases of studying and learning in education at several levels in the educational system, compulsory school, high school, university, and then as part in more extensive cases of teaching, studying and learning.

Studying is the most immediate context of intentional learning. The talk about and research on learning has often been concerned with methods and techniques of learning. This has meant focus on smaller parts of studying and learning. The knowledge interest has at the same time concerned bigger wholes of studying and learning. The main interest has been to understand what results the use of the methods and techniques leads to, especially what leads to good results. There has been a tendency to focus on external observable characteristics of studying and learning as for instance making notes, underlining text, making summaries of messages and so on. Even if those techniques have an interest, they only represent rather surface and peripheral parts of studying and learning. To look at these techniques as important in themselves is a mistake, since it separates them from being part of the learner's nearing to and dealing with the content that is studied, and which the use of the techniques form part of. Underlining should for instance be seen as part of reading and understanding a text, and taking notes for instance as part of listening to, understanding, and using, a teacher presentation in a lecture. Also, activities like reading, listening, writing, and problem solving, is not necessarily cases of intentional learning. We have to delimit what in these forms of activity are cases of learning.

The interest in activities of studying and learning usually concern characteristics assumed to lead to good results. One is talking about study techniques, study skills and study methods in this way. One reason for the focus on specific parts and characteristics of studying and learning is that they are easy to observe. In research, the appreciation of what is easily observed is combined with a strong inductive tradition, to start from smaller parts of phenomena and smaller units of data. The starting point in smaller units is especially clear in variable based research. One has tried to develop knowledge about studying and learning by starting from and combining descriptions (measurements) of

smaller parts of studying and learning. Predefined smaller data units assumed to form part of the phenomenon of studying and learning have been combined. What is suggested here is to instead make contextual analyses of cases of learning as wholes. Contextual analysis starts from phenomena as wholes, as what has to be understood. The knowledge interest concerns a learning as a whole, including its result or outcome.

Delimitation of cases of learning

The context where we most often think and talk about intentional learning is in formal education with organized studies. These contexts are characterized of set study tasks within planed courses within an educational system. In an educational setting, study and learning activities are carried out within the framework of a course structure, which is also often linked to an examination system. In a general sense, then, studying can be expected to be about performance on study tasks within the course structure. A focus close at hand is on a rather extensive task which encompasses, in varying combinations, the kinds of activities mentioned above. If we start with one student's participation in a university course, including the course examination, in delimiting a case of studying and learning, we have to make a more precise delimitation as a basis for further analysis. Participation in a course is a rather vague delimitation of a complex activity. The question is, what in this course activity should be included in our delimitation of a case of learning, and if the case in a meaningful way can be limited to participation in this course.

At a first consideration, it may seem relevant to delimit a case of learning as equal to study activity in a course, including participation in the examination. Of course, it is interesting to investigate the relation between study activity and study success, but it is problematic to understand learning as equal to activity within a course that leads to the result in an examination. The delimitation of a whole of learning is dependent on the delimitation of main parts making up the whole. The learning activity leading to a certain result in an examination within a course cannot easily be found to be equal to the activity in the course. One great problem with such a delimitation is the relation of the activity and the result in the course to previous knowledge. In most cases, the most important thing for the result, and for the difference in result between students, is previous knowledge, what the students already know before participating in the course. In the extreme case a student, who already knows what is asked for in the

examination before starting the course, does not have to be active and learn at all in the course. The student with least pre-knowledge may be the one who studied the most, and learned the most in the course, and at the same time failed the examination. If we want to understand learning, we cannot restrict cases of learning to activities and achievements in a course. We have to connect the achievement to the activity that leads to the achievement.

What learning in a course means depends on the character of and the amount of material dealt with, the time allocated, and the character of and the carrying out of the learning activity. The learning in such a case involves the display of understanding of study material through special skills demanded in performing the examination. Examinations are by necessity restricted in their form, content and scope. This means that only some parts of what the students have achieved can be demonstrated in the examination. Selection of content is necessary. This creates several problems. Especially in higher education, where the volume of material, which students are expected to study, is substantial. Since study success rather than learning is what counts, and since success is defined as success in examination, it seems unnecessary for the student to learn more than what is demanded in the examination. It seems to be in the interest of the student to be selective, and to focus on learning in accordance with the examination. This creates a problem when we are to delimit cases of learning. We could investigate what leads to passing examination, but that does not correspond to what we mean by cases of learning. What leads to completing the course is an alternative phenomenon that also is interesting to investigate, as is the relation of this phenomenon to learning.

Thus, intentional learning is often part of a context of study activity, which includes in addition to learning what will here be called study pattern. The more extensive and free the study activity is, the more extensive is the role of the study pattern. The study pattern is not about the very activity to study the part of the world learned about, but is about how the study of this part of the world comes about and is arranged. The studying has an allocation in space and time, and this can come about and be arranged in different ways, through different forms of activity in interaction with the given conditions. The study activity has varying duration and spread in space and time. The studying involves varying uses of available opportunities to study, and different materials presenting what is studied and so on. The study arrangements can be highly pre-organized like in formal education or very little predetermined as in the studying of autodidacts. Autodidacts make more or less the whole organizing of their

studies themselves. Even when pre-organized opportunities to study are afforded these affordances can be used to different extent and in different ways.

Study patterns are only preparing conditions for learning about parts of the surrounding world. At the same time, the study patterns are important by both being conditions for cases of learning, and being closely connected to the overall activity of the learner. As was pointed out above, learning can be seen as an aspect of all human activity. When we here talk about studying, we are talking about studying of specific phenomena, that leads to learning about those phenomena. We can talk about a part of this activity, to study specific phenomena, as an activity of learning, as meaning and leading to learning, in the sense of development of the relation to the part of the world studied. We here consider it necessary to include the outcome of learning in developing knowledge about cases of learning. Learning is an aim and a central character of studying. In studying there is an internal relation between the learning activity and the learning outcome. Thus, studying is considered to involve one part, that consists of activities that are prerequisites to dealing with the content of the parts of the world studied, in which eventual learning is included. This preparatory part is here called study pattern. The part that consist of dealing with the content studied, and that makes it a question of learning activity, is here together with the learning outcome called learning.

These two parts, study pattern and learning, are internally related. To devote time, to visit places (to observe phenomena, listen to lectures and so on), to collect materials, to choose to focus on materials in space and time, are all prerequisites for relating to the part of the world the study is about. The study pattern influences the character of the dealing with the content of what is studied. And the dealing with the content of the phenomenon studied influences the further study pattern. The learning about a part of the world influences the search for new possibilities to learn, which influences the study pattern. Within formal education, one student's study pattern may be guided by the passing of the examination as the main aim, and by an understanding of what the examination demands, and what the student already knows. This aim and understanding guides the study activity towards a limited and selective learning. Another student's aim can mainly be to reach a deeper understanding of the part of the world studied, based on an experienced lack of understanding, irrespective of the demands and limits of the formal course. This aim will lead to a different study pattern, learning activity, and learning outcome, compared to the first mentioned student's studying.

Both study pattern and learning have to be analyzed into subparts to get a better understanding of cases of studying and learning, of the relation between activity and outcome. It may for instance be fruitful to find out about the amount of time spent, the distribution of time, the places and facilities used, and so on, as parts of the study pattern. What parts are most relevant and fruitful to discern, delimit, and clarify the meaning of, has to be found through the analysis of the data and the developing understanding of the case. Here the focus is on analysis of cases of learning, where cases of studying only represent contexts, and the relation to these contexts is considered to clarify the character of cases of learning. The learning activity also has to be analyzed to find main constituent parts. The parts concern the nearing to the part of the world studied, and how the content of this is dealt with. To get a deeper understanding the outcome part also has to be analyzed into constituent parts. In this chapter, the examples of cases of learning are thought to be cases, where the learning aims at development of knowledge about a part of the world. One important part of the analysis is how the part of the world studied is seen as consisting of some main parts, which they are, what meanings they are given, and how they are related in the student's learning.

Delimitation of main parts

In the preceding chapter an example was given from the historical development of the delimitation of the internal relation between cause and effect in an example of physical motion. Examples were given of how cause and effect can be discerned and related as an internal relation. In the present chapter is presented a special way of analyzing and understanding learning. In contextual analysis we have to make an initial delimitation of the whole of each case, as a starting point for further analysis. The aim is to in the further analysis delimit main parts of the phenomenon and their interrelations. A more precise delimitation of main parts will also lead to a revised delimitation of the whole case. In the present understanding of learning, cases of learning have two main parts, a learning activity part and an outcome activity part. The inclusion and delimitation of an outcome part, as one of two main parts, is based on an understanding of learning saying that the outcome, or as may be is more often said the learning result, is crucial for understanding the character of the activity as a learning activity. In contextual analysis these two main parts, learning activity and learning outcome, are delimited in relation to each other as an

internal relation, where the meanings of the two parts are mutually dependent. The further delimitation of this internal relation, between learning activity and learning outcome, decides more precisely the delimitation of the whole case in relation to its context.

In delimiting one case of learning, what we have to start with is the learning activity and learning outcome of one learner, and what in the learner's activity and result we consider be part of this case of learning. Here is now suggested, that with learning we mean an activity in relation to a part of the world aiming at learning about this part. With learning we mean a change in the relation to this part of the world. Thus, the outcome main part of a case of learning consists in a changed relation to the part of the world studied. Let us here restrict the aim of the learning and the learning outcome to be a change in the learner´s understanding, conception, knowledge, of a part of the world. Then we have a direction towards a part of the world, and an aim to learn about this part, as a starting point for the delimitation of the case of learning.

The learner's direction towards a part of the world can to some extent be observed. However, our interest is not primarily in external behavior, but in development of knowledge of the part of the world, which is dependent on the direction and character of the learner's thinking. The thinking is not directly observable, so we are dependent on what the learner expresses and tell us about his/her thinking, and what the thinking is or has been directed towards. If the case of learning is placed in situations outside formal education, there may be little support from observing the situation in finding out what activity is a learning activity. If the case of learning is placed within a study program the situation is to some extent the opposite. The situation, the study material, and the teaching, invites to a direction of thinking and learning to a part of the world, but the thinking still may be directed towards something else.

To the difficulty with establishing that the activity has a clear direction to a part of the world is added the difficulty to establish the aim of the activity, and that it is an intentional learning activity. The presence of an intention to learn about a part of world can partly be inferred from the activity but not entirely. The intention to learn can vary a lot in its character. To come to know about the intention, we can get what the student can tell us, but we also can make conclusions about the intention based on the outcome of the activity. Such conclusions are part of the analysis of the case. What is important to the delimitation of a case is, that we can establish that there in some sense is an intention to learn about a part of the world. If we cannot establish such an

intention, we may upon this analysis have to conclude that this was not a case of intentional learning, since we have chosen to include an intention to learn in our delimitation of learning activity.

Learning is not only or mainly about an intention to learn. What is important and wanted is realized learning. A case of learning therefore should include the outcome of the learning activity. If we for a case of learning can establish a direction towards a part of the world, and an aim to learn, but nothing about the outcome of the activity, we cannot, according to the here suggested delimitation, give a full description of the case of learning. Even if we could describe the activity in several ways without relation to the outcome, the description could not with certainty be established as a description of learning. To analyze and describe the outcome is decisive to analyzing cases of learning. It is often strategically helpful and fruitful to start with the outcome in both preliminary and further delimitations of cases of learning.

Often the best way to identify a case of learning is to identify a change in the student's activity in relation to a part of the world, a change that can be seen as an outcome of learning. There are two stages here, a relation to a part of the world, and a change in this relation. There is often an expected outcome of a learning activity, a certain kind of change of the relation to the part of the world learned about. To establish a case of learning we have to establish a change in relation to the part of the world, and the character of this change. The easiest way to do this is to establish a difference in the learner's relation to the part of the world at two points in time. The difference between the two points in time should represent a change that demands learning, and here, according to our choice of phenomenon, mean a knowledge development. To delimit a case of learning as a whole we also have to include what activity that leads to this outcome, this change. Of course, it is also possible to start from a preliminary delimited activity part, a learning effort, to then find the outcome of that activity. At this approach we have to consider the possibility that the learning effort is not followed by much of a change in the relation to the part of the world studied.

The outcome part of a case of learning has several elements. A quality of the relation to a part of the world, and a change in this quality in a direction wanted, may have several components and/or aspects. To establish the change, differences in quality at two points in time have to be established. It is such differences, as an outcome, that have to be related to the activity and process leading from one quality to another. One problem with the idea that learning is

what results in passing an examination, discussed above, is that the examination only reflects a certain quality of the relation to a part of the world at one point in time. It then is possible to evaluate if this quality is what is wanted. However, the history of how this quality was achieved is extensive and includes all that is relevant in the learner's past history. To be able to be more precise about a case of learning we need to be more specific about the quality of the relation to a part of the world. A fruitful way of specification seems to be to establish a specific change in the quality of the relation to a part of the world, and to relate this change to how it came about.

We can as an example of a part of the world studied use the motion of the stone in the air focused in the previous chapter. A learner involving him/herself in an activity changing the analysis and conception of the motion, from seeing the motion as the effect to be explained by force as the cause, to seeing change in velocity as the effect of force, is a case of learning. This identified change is a wanted change. A challenge in investigating learning then is to both delimit a change and determine how the change, in this case an improved conception of the motion, came about, what activity and qualities of the activity that lead to this outcome. Some qualities of the learning activity can be identified from the outcome, like that the student has changed focus, made new distinctions, and related parts in a new way. To further clarify the character of the case of learning we have to know more both about the activity (thinking) of the learner and the external conditions, what parts of the surrounding world the learner interacted with to change the analysis and conception of this case of physical motion.

The outcome in terms of the arrived at change in explanation of the case of physical motion can have been arrived at in different ways. In starting from a change as outcome we have excluded cases of no change, for instance a repetition of an already established conception. Thus we start from that cases of learning includes a change, and we want to clarify what leads to the change. An example may be a learner who's way to change has been through comparison to other cases of motion, where force is conceived of as causing change in velocity. The cases may for instance be cases of linear motion like sliding on ice. Previous experiences and thinking of such cases have lead the learner to a changed conception of the motion of the stone in the air. In cases of linear motion change in velocity is afforded in a quite obvious way as what has to be explained. This thought of learner on his/her own arrives at a change in his/her analysis and conception of the motion of the stone in the air by focusing on change in velocity as the effect. Another learner may come to this

change by help of a study material and a teacher that explicitly point out that the effect has to be seen as a change in velocity, and that force is always connected to change in velocity and not to motion. These two kinds of activities and processes leads to the "same" change in outcome, but involve very different capabilities to change the knowing and thereby very different cases of learning with different qualities.

Learning of and through language presentations

In studies it is very common to use language presentations (verbal and texts) to relate to a part of the world studied. It is also common that the language itself, or the presentation, is the part of the world studied. When the language presentation is used as support in relating to a part of the world referred to, the way to use the presentation becomes a critical part of learning. The presentation itself may easily become the main phenomenon focused, rather than the part of the world referred to in the presentation. What is studied, the presentation and/or what the presentation is about, becomes an issue in characterizing the learning. The character of the relation of the presentation to the part of the world referred to varies, giving varying conditions for the use of the presentation in learning. The way of using presentations in relation to the parts of the world referred to also varies. The access to different presentations, and choosing between possibilities, is a part of studying and learning.

In research, a direct investigation of phenomena is made to create new knowledge. In studying, students are approaching phenomena by help of knowledge about the phenomena already developed and presented by others in language presentations. Within the human science fields, which concern human action and interaction and human relations, the presentation of knowledge often has an orientation towards solving human and social problems. The presentations often get the form of argumentation, which is often most clearly available and studied through reading texts. A critical whole characteristic of learning then is the discerning and relating of arguments and conclusions. The whole of the argument conclusion relation gives an understanding of the phenomenon, the problem and its solution. Another frequent organization of presentations of knowledge is that of principle and example. In the development of knowledge some principle has been identified as central to understanding a phenomenon of a certain kind. The knowledge is then presented by describing the principle in one or more cases of the phenomenon,

where the principle is presented as central to the understanding. A main critical whole characteristic in dealing with the presentation than is to understand the principle and the examples in such a way, that the meaning of the principle in the example is clear, as well as that the example is just an example.

At the same time as the use of language presentations is a support of learning, they also present a special type of challenge. Every presentation is in itself a part of the world that is approached and dealt with. Language presentations vary a lot in character. In learning the most central question is what is learned, what is the object of learning. It can be the language, the presentation, the communication. However, it can also be some part of the world that the presentation is a presentation of and about. This difference, and which part of the world that is dealt with, is often unclear. When the aim is to learn about some other part of the world through a presentation the mentioned variation creates a problem. Since a presentation is given in its own context of communication, this context can easily be focused, rather than the part of the world dealt with in the presentation. It is, for instance, common, that learning in formal education is more a learning about theories in themselves, as systems of language, rather than learning about the parts of the world outside the specific language system that the theories are said to be about.

Critical whole qualities of cases of learning can concern the approach to and understanding of presentations, as well as approach to and understanding of parts of the world studied directly or by use of texts. In learning by use of language presentations the relation to the studied content is totally decisive. Whole characteristics of the approach to and dealing with the presentations, and the phenomena referred to in the presentations, is decisive for the outcome of learning. In investigating cases of learning we thus have to delimit whole qualities in approaching and dealing with presentations, and in approaching and dealing with phenomena, in relation to the outcome of learning. Descriptions of these critical qualities of the main parts of cases of learning, activity and outcome, and their subparts, is what can give fruitful knowledge about learning, and also helps in delimiting the cases of learning in a more precise way. This delimitation cannot be absolute because of the dependence of a wider context.

Context dependency and generality

The result of the research is intended to be a contribution to the knowledge of the investigated phenomenon. The understanding, which has here been the

starting point for describing contextual analysis of learning, is that human phenomena are complex and context dependent. Therefore, it is crucial in development of knowledge to make clear how that which is investigated is delimited in its context, to know what the knowledge is about, and be able to add to this knowledge. Here contextual analysis is different from variable based approaches that observes, describes, and/or measures different characteristics of learning without a clear delimitation and starting point in cases of learning. Also, more descriptive and interpretive approaches are often unclear about delimitation, and does not as clearly distinguish between the case of learning and its context. Descriptions and interpretations often weaken the distinction between phenomenon and context, which the contextual analysis aims to discern to also make it possible to clarify the relation between phenomenon and context.

Within the frame of discernment of cases of learning the contextual analysis aims at discerning parts and relations within the case. How parts are discerned, delimited, and related is the main result of the analysis. This can be made in many different ways within the frame of contextual analysis. What the approach prescribes is, that delimitations shall be made and be argued for as explicitly as possible, starting from the preunderstanding of the phenomenon of learning. Above, certain starting points have been emphasized, that cases of learning should include the outcome of learning, and that activity and outcome are two main parts of learning. Moreover, the analysis has to start from more specific assumptions about the nature of the case. Above, for instance, the character of learning through language presentations has been discussed. The contextual analysis means, that these choices and delimitations of parts and relations within cases of learning shall be made and be motivated as clearly as possible.

To what has been said above comes, that specific observations of learning activity and learning outcome have to be interpreted in their contexts. The mentioned delimitation of parts of learning then forms the context for interpreting specific observations. At the same time, the specific observations form the basis for delimiting the parts. The result is knowledge about cases of learning as wholes. The contextual analysis here differs from variable based investigations in some different ways. Such investigations, for example, can start from a corresponding dividing up in activity and outcome. However, this is combined with lack of clarity about how activity and outcome form part of and make up a case of learning, and how the meaning of different variable values is dependent on the whole of learning. More describing and interpreting

investigations of learning often miss, even if data are interpreted in context, the analytic qualities of contextual analysis of clear delimitation of parts and relations, and the interpretation of specific data this makes possible. A more analytic form of knowledge of learning is considered fruitful in contextual analysis. Comparison and integration with knowledge developed through other approaches are dependent on the possibility to establish correspondence in how the descriptions are related to cases and parts of cases.

Since learning is a throughout life ongoing process it is difficult to delimit cases of learning from their contexts of learning. A case of learning builds on previous learning, and it has always consequences beyond any chosen delimitation. The benefit of a learning goes beyond a better knowledge of a specific subject matter content, and its long-term retention, and use in new situations. Improvements in skill of learning, which stem from any particular learning of subject matter are not specific to learning that subject matter. They are also improvements in the skill of learning more generally, and of learning to learn. The learner becomes more skilled at extending his or her understanding through an exploration of new and more complex material. To be skilled in learning knowledge content means to be deep, holistic, and thorough in approach and understanding. The most important aspect of this is the open exploration and use of the possibilities inherent in a material, based on use of relevant previous knowledge. It is the exploration of relevant knowledge, and of relevant principles of organization of content, that represents skill in learning and learning to learn.

The capability to learn, and to learn to learn, is depending on previous learning, but is about going beyond previous learning. But even this going beyond is context dependent, and has to be understood in relation to context. One important condition is that every case of learning is unique, in the sense that it is not identical to any other case and has its own context. This is the reason for considering each case as a case, and not as a basis for generalized knowledge about all cases of a certain type, as is for instance made concerning physical motion, discussed in the previous chapter. Instead, cases of learning have to be described when it comes to both critical similarities and differences, and not only similarities. Even if the main focus is on describing the phenomenon, cases of learning, it is also important to clarify critical relations to contexts of the cases. The understanding of critical relations to contexts is decisive to generalizing the results, and to the integrated knowledge of the cases.

To understand the context-dependent character of descriptions of cases of learning, and what possibilities of generalization they give, one has to understand that the descriptions are related to similarities and differences between the cases which are not included in the descriptions. As an example we can think of a case of learning from a text material about a social conflict already known to the students (and generally). We assume that the text presents facts about and related to this situation, and also interpretations of what has led to the situation, and arguments about how it can and should be handled. Different students' studying of and learning from this same text material represent different cases of learning. Let us assume that we have collected data in different ways about the students understanding of the issue, the conflict situation, what led to it, and what could be a solution to the situation, prior to the studying of the material and afterwards. In addition, we have collected information about their interaction with the text material and their learning activity. What would it then mean to consider the context-dependency of the content of the descriptions of the cases of learning, and to generalize from the descriptions?

The context-dependency of descriptions of cases does not only concern the relation between the case and its context, but also the relation of what is included in the description of the case to what is left out. Every description is a reduction seen in relation to a totality that could have been included. As argued in the previous chapter, we cannot in human sciences expect, to the same extent as in natural sciences, to achieve identity and generality between cases of the descriptions arrived at, even if those are the best possible. This depends on that what is included in the description is internally (in difference to externally) related to what is not included. This is so both concerning language meaning and the conceptualizations expressed in language. Two persons using the same language expressions, in expressing their understanding of a social event, or in describing their own study activity, do not have to mean the same. Or perhaps we should say never mean the same, because their use of those expressions form part of their own unique individual language system, where those expressions are related to other expressions and their meanings, and this is different from person to person.

The differences in language meaning are also related to differences in conceptualizations of parts of the world, but not equal to differences in conceptualizations. Rather similar conceptions of a phenomenon can be expressed in very different language, and fundamentally different conceptions

of the same phenomenon can be expressed in very similar language, although there also has to be some critical difference connected to the difference in conception. Both language expressions and conceptions expressed form part of larger systems of language meanings and understandings of the world to which they are internally related. The internal relation to a broader context concerns parts of the phenomenon not included in the description of the phenomenon, but also the relation to a wider context not considered to be part of the cases. This situation means, that the line between the case and its context is not clear, an absolute delimitation cannot be made. This condition is the same also for descriptions of personal and cultural understandings of natural science phenomena, although not for those phenomena themselves, as has been emphasized in the discussion of physical motion in the previous chapter. The understanding of conceptions about physical motion historically, and among present day people, has to be based on using internal relations. The description of physical motion can be made by use of external relations.

Considering the context dependency of human, social and cultural phenomena, how then can we in doing contextual analysis of cases of learning deal with generalization of the result. Construction of the same external relations in new cases based on previous cases, and prediction, will not give the outcome wanted. Precise prediction is not possible. Instead we have to analyze similarities and differences between cases. There will be similarities and differences that we consider critical from some point of view or perspective. Concerning learning, a change in understanding of the part of the world the learner is interacting with and learning about is a critical part of the case of learning. Another critical part of the case will be the activity foregoing and leading to this learning outcome. If we return to the example of a social conflict situation, mentioned above as an example of content of learning, the question then is how one can generalize from one case of learning about this situation to new cases of learning about the same situation.

If we assume that the conflict situation presented in a text material is a conflict between two or more parties, persons, groups, organizations, or nations, then the understanding of such a conflict, resulting from learning from the material, can vary in many ways. If we want to generalize from one case to other cases, we cannot assume identity between cases, and not even similarity in crucial aspects, but have to attend to differences between cases. In our example we can chose a case where two main parties are involved, and the understanding of the conflict concerns the relation between those two parties.

The understanding is, that there is a conflict of interests, with a historical background, and with some possible future solutions of the conflict. If we start from this situation what is most important is, that the learner understands the background to and the position of each part in the conflict, how these positions are in conflict with each other, and what would be necessary and sufficient to do to solve the conflict. We can describe the outcome in those terms, and see the outcome as a result of the understanding prior to the learning from the material and the study activity in relation to the material. We can also describe main parts of the learning activity related to main parts of the outcome.

When we have made such a description of one case, we cannot generalize this description to new cases exactly as it is, and find identical units and relations in new cases. So, one main problem is what can be generalized to which cases. Through the description of one case, we have a knowledge that can be used in relation to new cases in several different ways. We can use our description to identify similarities and differences compared to our first case in new cases. The identification of similarities means that there is a similarity that may be described in a way common to cases, but that what is common is at the same time internally related to something that is different between cases. This means that what is pointed out as similar is related to something that has different specific meanings from case to case. An important aspect is, that it is a great difference between finding something for the first time, and recognizing something similar when it already has been identified in one case. The same goes for the identification of differences between cases. When descriptions of new cases are added, the knowledge of similarities and differences increases, and the possibility to identify and use those also increases.

In the example of studying and learning about a social conflict the similarities and differences may be of several different kinds. If we focus on the understanding of the social conflict, we may find that there are some main qualitatively different ways of understanding the conflict. Those different ways may exist among people irrespective of the material that is studied in our example. Some of these ways of understanding, conceptions of the conflict, may exist among those studying our material before and after their learning from the material. It is a relevant knowledge in meeting people to know about this variation in conceptions, to understand new conceptions that are similar or may be very different. Such knowledge is useful both to understand others understanding, and if one wants to influence their understanding, and it involves generalization from previously described cases of understanding. What

is just described is not a generalization concerning cases of learning, but concerning cases of understanding or conception.

Generalization concerning learning has to concern cases of learning activity in relation to learning outcome, in our example concerning learning from a material about a social conflict. The main relation between learning activity and learning outcome then is in focus. The generalization then should preferably contain an identification of necessary and supporting conditions for achieving different outcomes. The necessary conditions concern what characteristics of the phenomenon that the students have possibility to identify, either through their previous experience or through the study material presented, and have attended to, to achieve the outcome. To make the learner do what is necessary to achieve a wanted outcome can be supported in different ways, by the environment and the overall activity of the learner, from case to case. Descriptions of how these complexes of cases of learning are constituted, from case to case, gives a knowledge that can be used to identify the character of new cases, and also to arrange for and support wanted cases and outcomes to come about.

So far we have considered the possibility of generalization of descriptions of cases of learning and of their constituent parts. However, the context-dependent character of the phenomena does not only involve parts within the phenomena, but also the relation to a context not included in the phenomena, a wider context. The example of social conflict can be expected to exist for the student in a broad personal, social, and cultural context. Our research interest in context dependence concerns first of all, how this broader context is related to the aspects of the case of learning delimited and described in our investigation. The most accessible and effective way to clarify this relation to context seems to be through the case of learning described. The learning activity (and even the outcome) may include a direct involving of meanings and parts from a broader world context, and references to such meanings and parts. Descriptions of cases can be seen as suggestions of similarities and differences compared to other cases, that can be investigated and described. Descriptions of similarities and differences between cases of learning contributes to the understanding of the cases, and to the use of the descriptions in relation to new cases, and in supporting learning.

Chapter 7 Contextual analysis of teaching

In this chapter, contextual analysis of the phenomenon of teaching will be discussed to further clarify the character of contextual analysis, now in relation to a more extensive socio-cultural phenomenon. Teaching is given an inclusive meaning. The focus is not narrowly on teacher activity, although teacher activity is a most important part of teaching. The character of teaching is assumed to depend on the relation of teacher activity to student activity and student learning. This relation is understood to depend also on a wider learning environment. In the preceding chapter it was emphasized, that the presentation of contextual analysis of learning was one possible analysis starting from the author's understanding of learning. It is the same in this chapter, the presentation of contextual analysis of teaching starts from and is limited to the author's understanding of teaching. Thus, there are other possible contextual analyses starting from other understandings of teaching.

Compared to learning as a phenomenon, connected to the activity of one individual student, teaching, as delimited here, is a phenomenon including at least two often several individuals. Like in the previous example contextual analysis concerns the delimitation of cases as wholes. This delimitation is made more precise by delimitation of main parts and their relations, through delimiting critical characteristics of these parts and relations. Here is only presented the general methodological approach and not a specific carrying out of a detailed investigation. The specific carrying out of contextual analyses may vary a lot concerning specific choices made. The carrying out of detailed contextual analyses of specific empirical cases and data is assumed to lead to an understanding forming the basis for new contextual analyses, and further development of knowledge about teaching.

The phenomenon

The word teaching tends to put focus on the activity of the teacher as the one who teaches. At the same time, the word presupposes a relation to a person taught (or often a group of persons), and in this sense it refers to a social phenomenon. Teaching is seen as aiming at and resulting in changes in the

activity of the other person (the student/learner), and this is what gives teaching its meaning of teaching. The understanding of teaching started from here is that teaching has two main parts. The fundamental character of teaching consists of the relation between what the teacher does on one hand, and the activity and result of the student(s) on the other hand. This relational character of teaching is common to educational phenomena. There is a corresponding double meaning of the concept of education as referring to the system of education (the teaching) on one hand, and the values, knowledge and skills of educated persons (the student result) on the other hand. The main educational issue concerns the relation between the conditions created by systems of education and the resulting education of educated people.

The understanding of teaching that seems to have underpinned much early research is that teaching is a question of method. Using the expression teaching method we most often think of ways of teaching directly used by teachers. A broader concept is educational program, most often seen as a part of an educational system. The issue raised here concerns the idea of predefined ways, designs and carrying out of teaching and education, as what is leading to educational results. Both in educational practice and educational research there has been an interest in finding better teaching methods, and the best method (including program and system), and to compare methods. Very close to the thinking in terms of method is also the so called process-product research on effective teaching that dominated during the 1960s and 1970s (Dunkin & Biddle, 1974).

The thinking of teaching as a matter of method or process is seductive. A method and process is assumed to lead to a fixed result. This makes the method and process all important for the result. This does not apply to what is described as teaching methods and teaching processes in relation to what is seen as aimed at and achieved results. Teaching is done in a certain way. The way of doing something of course leads to the result. This is the seductive element in talking about teaching methods and processes. What the way of doing teaching is leading to is not what is considered the aimed at and/or achieved educational result, but only a condition for this result. The educational result is expected to be achieved by the student, who comes in between the teaching method and/or process and the result. The student is an agent that achieves the educational result. The activity of the student constitutes the relation between the two main parts of teaching. The educational result is only indirectly related to the teaching

method and/or process. The teaching method is important but only as condition of learning.

In theorizing about teaching, in practice and research, there has been a tendency to separate between content and form. The focus on content has been a concern with what subject matter should be dealt with in the teaching, when and why. This is the focus of much curriculum thinking and research. The focus on form has concerned general aspects of the way of dealing with subject matter, when and why. There is much of an educational planning perspective in those focuses on content and form. At the same time there has been an awareness of that content and form are intimately related in teaching. In developing an empirically based understanding of teaching we have to start from teaching as manifested. Teaching as manifested is both content and form without a divide. The most interest in teaching, in both practice and research, is in characteristics representing or related to valued outcomes. The outcome also has the character of wholes of content and form. Thus it seems relevant to find crucial qualities within the whole of content and form, rather than making a divide between content and form.

In much talk about teaching, and also in research on teaching, the content is taken to be equal to content in a discipline or some existing knowledge tradition. The content is considered as predefined in relation to the activity taking place in teaching. This predefined content may also be the content given in curricula, textbooks and educational materials. However, this is not the actual content of teaching, which is what has to be understood to understand teaching, and understand it to its consequences. The actual content is what the teachers and students think, feel, say and do in relation to subject matter. That is what is related to the outcome. The same goes for the forms of teaching methods. The actual forms of teaching are not predefined and/or generally described forms and methods, but the forms and methods manifested in what teachers and students say and do. If we want to understand teaching, especially if we want to understand teaching to its effect and outcome, we have to focus on the actual teaching.

The student mediates between what the educational system and the teacher afford and the outcome of this affordance in the activity and achievement, the learning, of the student. To investigate this relation is a demanding task. It will take observation of both educational conditions and teachers' activity, as well as observation of students' activity, and still this is not enough to clarify the relation, since the relation is internal and dependent on the experience,

intention and nearing of the student to situation and content. Although a description of students' experiences of teaching only captures a part of the phenomenon of teaching, this is the most crucial part to understand teaching in terms of the relation between teaching affordances and teaching outcomes. Thus, such a focus may illuminate the holistic character of cases of teaching.

Delimitation of cases

We here understand teaching as a relation between two main parts, teacher activity in a broad sense and its immediate outcome in the form of affordances to the students on one hand, and students' activity and learning in relation to and as a consequence of the affordances on the other hand. Included in the delimitation of teaching is the learning of students as one part. How one can analyze learning was discussed in the preceding chapter. The main question about teaching addressed here is how parts and qualities of students' learning are related to parts and qualities of the educational environment and the activity of teachers. First we have to discuss different possible preliminary delimitations of cases of teaching.

Many cases of teaching can be delimited as an activity carried out by specified persons at certain places, during certain times, within a system of organized activities. A common example is the activity in a school class, which can be seen as a case of teaching. A classical case study of teaching may have concerned one school class (or very few classes), and comprised an exhaustive observation and description of the life of the class. In contextual analysis of cases of teaching, in an educational perspective, the aim is not to describe the life of the school class, but crucial educational qualities of the activity of the class. This means that the social, emotional, cognitive, interactive, communicative life of the class (including the teacher(s)) is not comprehensively investigated. Those qualities are only considered in relation to students' learning, especially, but not exclusively, subject matter learning. Data collections and descriptions are much more focused, selective, and limited, compared to a classical case study, but the investigation is case based, as the data of the class are dealt with as a main united entity in the analysis. Since the study of each case is limited there is room for more cases, and comparison of cases can be an important part of the investigation. The extensive life of the class, as a social-cultural phenomenon, of course, can also be investigated through contextual

analysis, but this would be an investigation of another phenomenon than teaching, as teaching has been defined here.

Cases of teaching may be delimited in many different ways, and have very different extension, from a short encounter between two persons, an episode, where one person may be seen as teacher and the other as student, to a system of teaching occasions over a long time period and with many persons involved. A case of teaching within an educational system may be delimited as an episode between a teacher and a student within a lesson, a whole lesson with a group of students, or teaching within an educational program. The cases could concern teaching to one class of one subject, several subjects, or all subjects during one term, a year, or a whole educational program. Other delimitations are also possible. What delimitations and choices of cases of teaching that are made is dependent on what qualities of and questions about teaching that are focused on, and how these are considered to be best investigated and answered.

An investigation, for example, of a class-room teaching in one subject during one year, focusing the students' learning, can be made in many ways. The data collection can be made by observing the teaching, by using different documents about the teaching like course plans, course assignments, knowledge tests, by use of other data from the teaching, and by interviews or written answers from the teachers and the students about their experience of the teaching. There are more possibilities, and different choices of data collection will give somewhat different pictures of the teaching. Teaching is a very complex activity and process, and there are many different qualities that may be focused. Focus on certain qualities means a certain delimitation of what is the research object. What is going on in a class-room may be described from many perspectives, for instance a general social perspective focusing on social relations in the class, a psychological perspective focusing for instance on the emotional climate, a communicative perspective focusing on the communication patterns, and more possible perspectives and foci. As suggested above the perspective here is educational, and focuses the relation between conditions of learning and learning. It then is of special importance to focus students' experiences of teaching since they are what constitutes this relation.

The choice of delimitation of cases has consequences for what qualities will be attended to and discerned. If the unit investigated had been one lesson, instead of the one year teaching of one subject suggested above, some qualities specific for the content and events of that lesson had been discerned. The unit investigated could also have been an event/episode within a lesson. With a unit

of one year, what is common to, and what holds together different lessons, and what seems outstanding over a longer period of time, can be expected to come to the fore, if the year as a whole is focused. Teachers and students can be expected to describe both general qualities over the year and events specific to individual lessons. In the latter case, it is probably events that stand out in the experience over a longer period of time. Thus, it is important to understand the result of an analysis in relation to what main units of teaching that have been focused.

Teaching as an activity has an ethical and normative basis. Teaching has an aim to achieve a result valued as good. Educational research, although primarily focused on description, is carried out in a context of interest in improving education. The question of what constitutes good teaching is a classical question. The most common way to deal with this question has been to do it in a philosophical theoretical normative way, starting from some postulated fundamental values and formulation of qualities of teaching that are assumed to correspond to those values. Based on this normative approach cases of teaching can be described and discussed as having the wanted qualities or not. Usually the description is restricted to the teacher part of teaching focused on what the teacher and environment afford. In difference to this a contextual analysis starts with empirical cases of teaching and focuses what characterizes those cases. There can still be a normative question about good teaching, but then in the form of what empirically appears to be good teaching. This means openness to what good teaching can be.

A main characteristic of teaching as an object of research, approached from an educational perspective, is that it has closely related collective and individual parts. The individual parts are what the teacher and each student is feeling, thinking, saying and doing. The collective part is what is said and done in the class-room in interaction between the participants. This interaction develops over time and a common history is developed. What individuals feel, think, say and do is dependent on the interaction and the history of interaction in the class, as well as on the individual's own history. The teacher has the main responsibility in forming the interaction and its cultural content, and especially the work with subject matter content. It is this cultural and subject matter content of the classroom interaction that is focused and expected to be related to the intended and achieved educational goals. This relation between activity and outcome is created through each student's activity and learning. For this reason, a first person perspective, in which the students' experiences are

clarified, is crucial to understand the main relation between the classroom activity and the educational outcome.

Starting from the teacher part of teaching

In our discussion of the delimitation of cases of teaching, and of main parts of teaching and their interrelation, we have arrived at delimiting two main parts, the teacher part and the student part. We found that understanding of the relation between those two parts is crucial to understanding teaching in an educational perspective. We also found that this relation has a special character in an educational perspective. The character of the relation is understood based on the outcome of the relation on the part of the student, resulting from the activity of the student. The learning of the student, discussed as research object in the previous chapter, is what leads to the educational outcome. The teaching has to be understood in terms of what it means for the learning of students. Thus the learning of each student forms part of the understanding of a case of teaching as delimited here.

In focussing on teaching as phenomenon it is common to focus on the teacher part of the teaching (including method, program and system as stated above). Extensive work and effort is used in arranging and preparing for teaching, and in building programs and systems of education. These often extensive activities are important and make a big difference in creating conditions for face to face teaching and for learning. This work is a field of human activity that can be investigated from many perspectives. That the activities are investigated from an educational perspective is here assumed to mean that they are understood and described in relation to the educational aims and results of the arrangements and preparations. The teacher part can be investigated by use of documents, observations, and reports, about buildings, characteristics of educational systems, educational programs and methods, prepared material, technique based communication, and face to face teaching.

To investigate the teacher part of teaching through observations and reports imposes certain limitations, as well as possibilities, depending on who is making the observations and giving the reports. The specific character of those limitations and possibilities is also dependent on the character of the observations and reports, and how they are obtained. In the case of written documents, those are written in a context and for a purpose. This may mean, for instance, that a document dealing with the teaching part is not really a report

on the teaching, but rather a description of an intended teaching, or of some given possibilities to learn. In many cases, documents are not from the teachers and students themselves, and give restricted access to the actual teaching as a whole. The relation to learning, important in an educational perspective, tend to be unclear.

Most existing documents have been made for some purpose, which is most often not only or mainly to describe the actual teaching. Those purposes limit the relevance of the descriptions as descriptions of teaching. Even spontaneous descriptions that are entirely focussed on teaching, if such descriptions can be found, have clear limitations. They are limited to the context and perspective of the reporter, and may say more about the reporter's delimitation of teaching than about the actual teaching in the perspective of educational research. The aim is to get beyond the limits of the understandings of individual reporters, since the main aim is not to study different individuals' conceptual understanding of teaching. Thus spontaneously written and oral reports have their limitations, and they also are hard to find and build an investigation on. Most reports coming into existence independent of researchers will be dependent on some other context than a theoretical interest in teaching.

The advantage of all forms of observations and reports initiated and structured by researchers is that they take their starting point in a context of a theoretical interest in the phenomenon investigated. The importance of this context must not be confused with if the investigation is hypothetical deductive or explorative. The latter difference is a matter of what is assumed to be known, and what is left open to discover, based on the theoretical context and the focus started from. This difference is expressed in the choice of and the design of the data collection methods used. The use of specific questions and given alternative answers, for instance, means that more far-going assumptions are made, while open questions or themes means that more is left open for discovery. The more that is assumed, the greater is the risk not to find the meaning of the phenomenon, and to create less relevant and fruitful descriptions. If the assumptions are relevant on the other hand, the descriptions may be taken further and made more detailed. More open questions involve fewer assumptions and give a better chance of detecting important characteristics of the phenomena not known in advance, but at the same time limits the room for going further with more precise specific questions.

It makes a big difference if the activities in the teacher part are described merely in relation to educational aims, or if they are described also in relation

to educational outcomes. If the formation of systems, programs, methods, and teacher preparations and activities are mainly made and described based on formulations of educational aims, they are based on assumptions about a relation to results aimed at. The description of the teacher part and its main parts in relation to educational aims will be unsatisfactory if the relation to educational outcome is unclear. The most common way to try to solve this problem is through different forms of evaluation of qualities of the teacher part by help of descriptions of qualities of the educational outcome. It is difficult to establish a relation between qualities of the teacher part, starting from this part, and the educational outcome. It is most feasible for specific contents, that are treated in the teaching, expected to be learned by the students, and can be observed as educational outcome. For instance, if a mathematics content specified to some mathematical operations is dealt with in teaching in a prescribed way, and the students' knowledge of these operations is observed after the teacher part of teaching, one may perhaps make conclusions about if the way of teaching was successful or not. This is a conclusion that can be made if one can exclude that the mathematical operations were learned in some alternative way.

The most dominant tradition in trying to establish relations between treatment (teacher activity) and outcome has been the experimental (or quasi-experimental) approach. The idea has been to compare at least two alternative treatments (ways of teaching the mathematical operations for instance) when it comes to outcome. This has mostly been done at a group level with attempts to make the groups of students as equal as possible before treatment and then compare the results of the groups after treatment. The descriptions of qualities of the treatments and of the outcomes have been made separately in an independent way, and have then been externally related to find how they are combined. This approach has not been successful in clarifying relations of this kind. What is suggested here is that construction of an internal relation between treatment and outcome in teaching experiments is more successful in clarifying the relation than construction of external relations.

In investigating the educational phenomenon of teaching it is natural to focus on teacher activity in a broad sense. On the other hand, what is leading to the result of teaching is the student activity. To the student the teacher activity represents affordances and conditions of learning. Starting from conditions created and affordances given it is important to observe what students make of these conditions and affordances to understand the outcome,

and the teaching as a whole. This leads to a focus on parts of the student activity related to and starting from parts of the teacher activity. Which are the student experiences and uses of the teacher part? What we are saying is, that to reach a better understanding of teaching we have to describe the learning of the students. How the learning can be investigated by contextual analysis was described in the previous chapter and will not be repeated here.

Starting from the teacher part of teaching in investigating learning means a restriction of the investigation to focus on what the teacher is doing as a starting point. This gives a possibility to describe a relation between teacher affordances and learning outcome restricted to the affordances started from. However, it does not give a full picture of cases of teaching. The teacher activity both creates an environment and forms part of a larger environment, which motivates a question about how the environment forms part of the contextual analysis of teaching. All investigations have and must have their limitations. What is most important is that the limitations are grounded in the understanding of the phenomena, and that the results are interpreted in consideration of the limitations, and an understanding of the phenomena as wholes. The results have to be interpreted considering the existence of a wider not investigated context. To understand the relation to a wider context, and reach a most fruitful delimitation of the phenomenon of teaching, it is important to also start from the student part of teaching.

Starting from the student part of teaching

Cases of teaching have to be understood based on the student learning involved, and then as both being part of a bigger environment and as creating an environment for the students. In the following we will consider the teacher part of teaching in relation to students learning as dependent on a learning environment. The relation of the teacher part to the student part of teaching is through the learning environment of the student. Learning environment refers to what is used in learning by the student including the use of what the teacher does. This relation between learning environment and learning is what has to be understood to understand teaching to its consequences. We have emphasized that the relation between the teacher and student parts of teaching has to be understood starting from the student part, and the outcome as created by the student. In learning the students are only using some of the affordances of the teacher and the environment, and which they use, and how they use

them, is crucial to understand the actual teaching. Based on this understanding of the relation between teacher part and student part of teaching there is a need to consider the learning environment of students.

The word and concept of environment has a general meaning of something surrounding something else to which it is an environment. There is a fundamental difference in how we consider the relation between the environment and the entity (entities) it is an environment of. We may think of a specific environment as something in itself apart from entities it may be an environment of. It means that the environment can be described in terms of its characteristics and qualities independent of, or without explicitly considering, what it is an environment of. Then the relation between the entity and the environment is seen as external. This is a view in line with seeing the relation as causal. It also means, that the environment may be studied and described in itself, independent of the character of and relation to the entity (entities) of which it is an environment. The teacher part of teaching could be treated in this way, which would not be a contextual analysis of teaching as described here. It has been quite common to start from descriptions of the teacher part, and relate characteristics of teaching (codes, categories and variable values) to measures of educational outcome in the form of student results on knowledge tests.

However, descriptions of environments seem to be based on an understanding of the general nature of the entities focussed on, and what is a relevant environment on the basis of this nature. If the unit is a rock, a tree, an animal or a human being will make a difference in what is considered to be a relevant environment to relate to and how. So, even when the relation between entity and environment is dealt with in an external way, this still seems to be based on a more general internal relation between the entity and its environment. That the relation is internal means that the meaning of the environment is dependent on the meaning of the entity it is an environment of, and that the meaning of the entity is dependent on the meaning of the environment it is included in. This mutual interdependence of the meaning of entities and environments is dependent on the perspective of the experiencing person or researcher. Different disciplinary perspectives, for instance, give different delimitations of and internal relations between entities and environments. Thus a contextual way of thinking, in the sense of use of internal relations, has a general relevance, but is used to varying extent and in different ways in research methods.

Often when we are talking about environment, we are thinking of environments of human beings. One way of thinking about environment is as that which affects human beings, like for instance chemicals can affect human bodies. Within the psychosocial and cultural fields, we find that the relation between environment and human being is mediated through the activity of human beings. This is certainly the case when we are talking about learning environments. All human learning is through the activity of the human being. The relation between human beings and their environments can only in a very restricted sense be seen as causal and external within the human sciences. Instead, the relation has to be seen as dependent on the human being as an agent, and as an internal relation.

If the learning environment involved in the actual teaching is seen as dependent on the activity of the learner, this can be dealt with in different ways. A narrow sense of learning environment is the environmental and teacher activity parts used in the student's learning activity. A broader meaning of learning environment can start from the limitations and possibilities present in the external environment as conditions of learning. When talking about learning environment in the narrow sense we are talking about learning environment based on learning that has been realized. When we are talking about learning environment in the broad sense, we are talking about teaching/learning that can or could have been realized. To talk about learning environment in the broader sense involves making assumptions about conditions and possibilities of learning.

If teaching is to be understood to its effects and consequences as suggested here, it has to be understood as part of and as creating of a learning environment used by students. It is problematic to establish what environment (and teacher activity) is involved in learning. Students' uses of the environment for learning can be directly observed to a limited extent. We have to get indirect indications through the learning taking place. One possibility is to get students' reports on their use of the affordances. To the student, the learning environment, the learning activity, and the learning outcome, may be expected to make up an experiential whole. To the student, demands and possibilities of the situation are often more obvious than his or her own learning. This seems to be so in most learning situations, even in education, but even more so in work situations, which are not primarily defined as learning situations. Thus we may expect that students often are better at reporting on the teacher activity and learning environment than on learning. To report on learning environment, they have

to be aware of that they did learn, and what they used to do it, without having to be very precise about the processes and the character of the learning. In a similar way students may be expected to be able to report on limitations and possibilities to learn in the teaching. In some cases, what has been learned may be very clear to the learner. In some cases, they may be good at relating what they learned to the learning environment, in other cases may be they do not know what helped them in learning.

Thus, students on the basis of their experience may describe learning, learning environment, and teaching to varying extent. Educationalists, teachers and others do also describe teaching activities, learning environments, and learning. This is done on the basis of assumptions and observations varying in character. As researchers we can also get a description of the students' teaching and learning environment from their teachers as well as from themselves. A crucial difference is the one between reporting on others learning environment and learning compared to reporting on the own learning environment and learning. Teachers may be expected to focus on the external situation based on general assumptions about teaching and learning, and focus on conditions that are common to students. Such reports will be dependent on the conceptual understanding of the teachers, their theories, teaching aims, and measures undertaken, and their overview of the actual work and activities of the students. Teachers may also be expected to often be more concerned with the teacher activity, in the sense of the management of the students' school work, than with the students' actual learning, although the learning should be fundamental to this management. Teachers' management of school work to a large extent may be expected to follow its own logic, which is only partly based on knowledge about the students' learning, and perhaps more based on general assumptions than on specific knowledge about the learning. At the same time teachers' reports on learning can be expected to include aspects which are not so apparent to the students themselves.

If we take the starting point in the learner's learning, one way to do this is to observe a change in some quality of the student's activity representing learning, and relate this change to the interaction with the environment/teaching, and to infer what aspects and qualities of the environment made the change possible, facilitated or generated the change. The change is a change within the experience and activity of the individual. It is dependent on the individual's responding to environmental demands and possibilities. What environmental parts (and teacher affordances) that are used

in learning may be inferred from the learning, the change in student activity, taking place. The learning is also dependent on how these environmental parts are used. The learning activity described in the previous chapter mediates between the affordances given and the learning taking place. So, the importance of, or how good the learning environment is, is also dependent on the way of using different affordances. The way of using the environment may be inferred from the outcome, but it may also be observed more directly.

The activity leading to learning may be considered from the point of view of the learning outcome, in terms of what the activity has to be to lead to the outcome. The identification of the learning environment then can be made through relating the learning outcome and the learning activity to what is used in the learning activity as learning environment. Such an analysis means to clarify internal relations by "tracing back" from outcome to activity and environment. One limitation of this approach is that one has to know the learning outcome and learning activity first, before being able to say something about the learning environment and teaching. In this suggested approach, we need to select an important or interesting learning that has occurred, and describe its relation to learning activity, learning environment and teacher activity. Although starting from the outcome of learning gives a close relation between the student part and teacher part of teaching, it most often does not give a full description of teaching. The description of teaching will be limited to the learning focussed and described. This can be very relevant, especially when the learning focussed is considered the important expected or not expected outcome of teaching.

A full description of teaching should also include a description of what learning the teaching is leading to ("tracing forward"), even learning not expected or focused in advance of the analysis. Such a description has to include how what the teacher says and does interact with other parts of the environment in influencing the students' ways of learning. This interaction and influencing can be observed and described in several stages. If one is focussing on teacher activity and learning environment, it seems relevant to include reports on both own and others learning environment, and from learners' and teachers'/managers' (and other's) perspectives. The relation between these reports are interesting not only as triangulation, to get a better picture of the teaching and "learning culture", but also to find differences in understanding, and complementary data, in line with a contextual understanding of research data and the meaning of teaching and learning environment. Even if it is the

learner's experience of the learning environment and teacher activity that is decisive of the educational result, differences in conceptualisation of learning environments and teaching are in themselves important conditions for creation of teaching, learning environments, and learning.

What is meant by report in this context is that an informant is telling about something, not that the telling has some specific form. In principle reports are retrospective but may also concern ongoing conditions, which are rather stable characteristics of teaching. Reports are often very dependent on ways of putting questions. Even if the approach is explorative, and if especially introductory questions are rather open, all questions have presuppositions and give some direction. Of a special interest is the relation between presuppositions and directions in relation to the objects of investigation, in our case teaching. As we are depending on the informants' interpretations of the questions and the themes introduced through the questions, it is crucial if we make the reports dependent or not on the respondents' understanding of certain concepts and terms like teaching, learning and learning environment.

We can avoid the words teaching, learning and learning environment in the questions. We know that the understanding of these terms vary a lot, which makes it problematic to presuppose the meaning of them. Instead, the questions can focus on what is done, changes in activity, demands on the students, how the demands can be met, how the students become more successful, and what possibilities of development they have. Even if questions are formulated in an open way, they can at the same time be clearly directed towards the teaching situation. One can report on the teaching situation and learning environment with focus on what activities are used to achieve different outcomes, and what activities are seen as demanded, facilitated and made possible. The questions have to focus on some different parts of the teaching situation and learning environment, and ways of relating to those parts. Different foci of the questions used limits and makes possible how teaching and learning are investigated through the reports collected.

Context dependency and generality

Compared to the phenomenon of learning we become when it comes to teaching, if possible, even more dependent on awareness of context. This depends on that more persons are involved, who each represent their own context when it comes to the meaning of different environment conditions and

activities. It is these meanings that have to be clarified through the contextual analysis, and used to get knowledge about cases of teaching. The contextual analysis is here different from variable based compilations of data by clarifying meanings in relation to parts and relations within the case. Variable based approaches do not decide meanings of variable values based on the individual case but through beforehand definitions. Compared to more descriptive and interpretive approaches meanings of observations and data in contextual analysis are more clearly decided in relation to greater parts and main parts of the phenomenon.

The discussion on teaching in this chapter starts from the authors understanding of teaching, and suggestion of choice and delimitation of cases of teaching and their intrinsic parts and relations. It is part of contextual analysis that it shall start from the available knowledge of the phenomenon. It is important for the possibility to understand and value the result, that this starting point in a preunderstanding is made clear. It is also the aim, that this preunderstanding will be developed and changed through the analysis. Even if the contextual analysis starts from a certain preunderstanding, it is not restricted to any special understanding. We can for instance make an analysis of teaching with a focus on the activity of the teacher without including student learning, may be only the teacher student interaction. Also with such a preunderstanding of teaching we can make a contextual analysis.

When it comes to knowledge about cases of teaching, a decisive difference has been lifted forward between restricting the focus to the activity of the teacher and taking the starting point in the learning of the students, and the latter was chosen as the more fruitful starting point. The importance of learning environment has been stressed. What is important in contextual analysis is, that the delimitation of cases of teaching and of parts and relations within cases are made clear. How fruitful the resulting knowledge becomes is dependent on the preunderstanding and the delimitations and the interpretations that lead to the result. Contextual analysis can be made from different preunderstandings and delimitations of teaching. Through the contextual and analytic character of the investigation it is made clear what delimitations are made with what result. Different delimitations of investigations of cases of teaching leads to different knowledge of teaching. This makes it important to be clear about the delimitations made, and by that to be clear about the conditions and limitations of the knowledge developed. The more explicit one is about this, the better basis one has to compare and integrate different results into an integrated

knowledge of teaching. Also, comparisons and integration with results from other approaches are dependent on, how we can make clear that results are about corresponding cases and their intrinsic parts and relations.

We cannot give an exhaustive account of the total teaching and the learning environment. The same external situational environment and teacher activity may be the environment of different kinds of learning. Usually, when concerned with teaching, we are interested in the environment in relation to certain learning rather than other. In relation to different kinds of learning, we have to delimit different learning environments related to that kind of learning. The kind of learning of interest may vary a lot. In many contexts we are interested in learning that has long term consequences within a broad field. To observe those long term consequences is very demanding. Since the relation between present learning and later consequences is not causal, consequences will be dependent upon the learner as user of what is learned in later situations. Both the readiness and the capability to use what is learned will be dependent on qualities of the learning. An interesting question then is what qualities of learning that will be important in relation to the use of what is learned (including further learning), and if such qualities may be identified already at the time of learning.

Most important are possibilities to relate to varying situations, and to varying distinguishing characteristics of situations. There is an external and an internal side of the possibility to relate to situations and their characteristics. What might be possible from an external point of view, and may be realised by some persons, might not be possible from an internal point of view for other persons, due to different ways of relating to the situations. Such differences concern values and aims as well as knowledge and skills in relation to situations. We have to expect a great variation in creative acting and learning to a large extent dependent on previous learning. What is most apparent and most often focussed on, as representing possibilities for creative acting and learning in new situations, are experiences of specific situational elements, knowledge of facts and specific skills on one hand, and knowledge of concepts and principles on the other hand. The creative use of these possibilities in acting in concrete situations is a very crucial aspect of creative acting and learning, which is mostly not sufficiently considered. Ways of relating such elements of experience to each other in relation to specific situations and across situations represent central qualities of creative acting and learning.

The aim of the research discussed in this chapter is to develop knowledge about teaching, which takes knowledge about teacher part and learner part. The crucial question is what character this knowledge is expected to have. It shall be based on cases of teaching, learning environments, and learning, as the units or objects investigated. There is a great variation in methods used in case based investigations (Wolcott, 1994; Miles & Huberman, 1994). Investigations to varying extent include, are based on, and generate conceptual knowledge in relation to descriptions of specific cases. A common way to use concepts in research to describe cases is to start from defined concepts and categories and/or variables, and observe and describe the cases by use of those concepts and categories and/or variables.

In contextual analysis a more explorative approach is used. No specific elements of teaching or learning environment and learning are defined beforehand as a basis for observation and description. On the contrary, the precise and specific character of the elements involved is expected to be detected and clarified through the investigation. What might have been given the character of assumptions in the form of definitions of elements of teaching instead will have the character of results. The reason for this is that there is no firm basis for making good assumptions-definitions. The elements that will be found in the explorative approach will most probably not be the same elements as if predefined, but have the possibility to be more relevant. The basis for the greater relevance is a delimitation of the elements within specific cases of teaching. Delimitations are always made in a context and some assumptions are always made. When the research starts from predefined elements the context started from is the researcher's theoretical understanding of the phenomenon. In the explorative approach the starting point of the investigation is also in the theoretical understanding of the researcher, but not in terms of given elements, but in the understanding, in principle, of teaching and parts and relations involved, as described in this chapter with a special focus on the relation to learning.

The most immediate context for learning is the activity of the learner. The activity of doing something is the most immediate environment of learning, if we think of learning environment as what is closest to and surrounding the very learning. However, here we are using the term learning environment to refer to what is outside the activity of the individual, but which the activity is involving, and which is important to the learning. There is an internal relation between the character of the activity and what parts of the environment that are involved.

The character of the activity makes a difference to what learning that takes place. The specific character of the activity will be dependent on specific qualities of the external environment interacted with. These relations and contextual dependencies need to be clarified in discerning the nature of learning environments and teaching.

Generalizations from investigated cases to new cases have to build on similarities and differences in the described character of the cases, especially concerning the main relation between the teacher part and learning via the learning environment. Since there are differences between cases in the more specific meanings of parts, we cannot be sure about what the relation of one part in a new case to other parts of the case look like, but we can have well-grounded expectations concerning important main characteristics. If, for instance, the teaching has been focussing on a certain distinction as an important difference in understanding a subject matter content, and the focus on this distinction and the way of presenting it has showed to be crucial to achieve the wanted understanding in previous teaching, this teacher activity part may be expected to have a similar relation to the learner activity part in new cases of teaching. The character of new cases will always have to be expected to differ in specific meanings of parts and relations, even if similarities in main characteristics can be expected.

The possibility to generalize in a successful way can be improved by considering and describing the relation of the investigated cases to a broader context, as a basis for expected generalizations. Traditional ways to consider a broader context use to be to survey relations to background variables, or to relate to rather covering qualitative descriptions of the background (the broader context). In the first case correlations to background variables is looked for. In the second case a basis for interpretation concerning possible relations is looked for. In both cases, the idea is to cover as much as possible of the context that can be related to the phenomenon investigated. This course of action involves two problems. It demands an extensive coverage of the context, and/or knowledge about what parts of the context that are most relevant to include. Both these demands are difficult to meet.

The use of background variables builds on construction of external relations between context and phenomena. Covering qualitative descriptions of background/context tend to build on a similar idea, even if the descriptive character opens for interpretations of relations as internal between contexts and phenomena. The use of internal relations opens up for another possibility. If

the phenomenon is internally related to the context, this relation can be explored also from the side of the phenomenon. Often relations to context are actually expressed in data about the phenomenon. For instance, in the presentation of a subject matter content the teacher may refer to something that has been treated previously, but which is not directly included in the content of the teaching investigated. This gives a possibility to explore a possible relation to this part of the context as important to the possibility to generalize from the case to other cases. It might be important if the teaching in these new cases also has been preceded or not by a similar previous teaching.

Above was mentioned teaching about an important distinction in a subject as an example of the possibility to generalize to new cases. The relation to a broader context in the form of an immediately preceding teaching may, as suggested above, be an important part of context. The learner's pre-knowledge is important, even when it is not related to a context that are shared and immediately preceding the teaching investigated. Critical relations to students' personal contexts can be explored based on the character of the content (what pre-knowledge seems to be needed), students' ways of dealing with the content, and references made by the students to previous experiences. To make clear relations to the context will both clarify differences among the cases investigated and give an enlarged basis for generalization to new cases. Contextual analysis does not only concern the contextual character of parts and relations within the phenomena studied, but also the contextual character of internal relations to the context of the phenomena as a basis for deeper understanding of the phenomena and for well-grounded generalizations.

Chapter 8 Contextual analysis of culture

The examples of contextual analysis discussed in the two preceding chapters are taken from the field of education. They are chosen as examples of phenomena central within human science and against the background of the author's own research. This is the case also with the example of culture in the present chapter. Although culture is not a phenomenon taken specifically from the field of education, education is very much a cultural phenomenon, and it is also possible to look at culture from an educational perspective (Svensson 1997). However, in this chapter culture is approached from a general human science or cultural science perspective. The aim is to extend the presentation of contextual analysis to the phenomenon of culture in general. The previous examples form a backdrop. Like in the previous examples of analysis of learning and teaching the example of contextual analysis of culture is limited to a starting point in the author's understanding of culture, as one of many possible ways of making a contextual analysis of culture. It is the best possible way, according to the author's present understanding, in strive for better understanding.

Culture is a most challenging phenomenon to investigate. It is difficult to delimit and to analyze, much depending on its character of product of human activity, and it's at the same time detached and flowing character. This difficult to capture character makes culture especially relevant as a challenge to further clarify characteristics of contextual analysis. Learning and teaching, dealt with in the two preceding chapters, can with a focus on their content be seen as cultural phenomena forming part of a broader cultural context. Those phenomena can be seen as culture in an educational perspective. The same activity can also be seen as culture from various other perspectives. In a similar way all disciplines within humanities and social sciences can also be said to in some way concern culture. Within those disciplinary perspectives different research objects can be delimited and analyzed in a corresponding way to those discussed for the examples in the previous chapters in this book. The investigation then is of a special kind of cultural research objects, delimited and specified in a specific way. Thus we have to make a difference between investigating cases that are totalities of culture (anthropological and

interdisciplinary perspective), and cases that are complex cultural wholes within humanistic and/or social science disciplinary perspectives, and that form part of the total culture.

When the object of research is the totality of culture, without limitation to a special disciplinary perspective delimiting a part of culture in a specific way, this is a greater challenge to the analysis. The analysis of a cultural whole makes demands on the delimitation, that makes contextual analysis difficult but also very relevant. Culture as a research object is chosen here as an example because it is especially suited to help clarify the character and limits of contextual analysis. The example of culture will also help in giving a picture of the relation of contextual analysis to development of knowledge within the broad field of human science knowledge.

The problem of delimiting cases of culture

The first step in contextual analysis is to make a preliminary delimitation of cases of the phenomenon investigated, here cases of culture. The emphasis on delimitation of cases is based on the importance of and concern with what is investigated, to be clear about the objects of research. At the same time, the focus is on the description of those cases/objects as containing main parts and relations between those. This has been illustrated for the previous examples of cases of learning and teaching. The discussion of the delimitation of cases is more extensive in this chapter than in the preceding chapters. In the preceding chapters, the main discussion has been about main parts and whole characteristics of the cases. This is expected to be the case within most fields of research, and within the disciplinary perspectives of the human sciences. The main focus on the characteristics of the objects of research, and not on their delimitation, is based on that a preliminary delimitation is not found to be very difficult to make. Even if this delimitation can be made in different ways, and a choice has to be made and argued for, there are mostly rather clear options. With culture it is somewhat different. The very delimitation of cases is more problematic. At the same time, it is from a knowledge perspective important to clarify the cases in line with the view in contextual analysis that it is important to know what is investigated. Therefore, in this discussion of contextual analysis of culture much space will be used to discuss the delimitation of cases of culture to illustrate the methodology and approach.

The challenging character of culture as research object is witnessed by many researchers. Wuthnow et al (1987) writes: "Culture is, assuredly, a perplexing phenomenon – ubiquitous in presence, complex in detail, and as such overwhelming and incomprehensible in its totality and in its intricacy. Any attempts to grasp it all in analysis will, therefore, be frustrated from beginning to end." (p 71) What is suggested here is not to grasp the totality of culture through contextual analysis. But the approach demands that we start with clarifying some entity as a whole of culture. To delimit any whole of culture is problematic. What will be presented in the following is a discussion of what an approach to and analysis of cases of culture as wholes would mean in contextual analysis. The first question then is how to make a preliminary delimitation of cases of culture based on an understanding of what culture is. Through history many definitions of culture have been presented. Two definitions will be used as starting point for the here chosen meaning of culture. The first is old and the second is more recent. Here they are used to reflect a historical development and also to complement each other.

A classical and very much used definition of culture has been given by Tylor (1891): "Culture is that complex whole which includes knowledge, belief, art, morals, law, custom and any other capabilities and habits acquired by man as a member of society". This definition has three main parts: a complex whole called culture, parts of the whole being capabilities and habits, the capabilities and habits being acquired by man as a member of society. The meaning of culture is connected to a complex collective whole which includes a lot of entities different in kind and extension. In the definition there is a clear emphasis on acquired parts of culture. It is through understanding those parts and their interrelations, and how they make up a whole, one can understand what culture is.

A more recent definition of culture is given by Hannerz (1992): "There have been times when they have used it to stand for even more, but in the recent period, culture has been taken to be above all a matter of meaning. To study culture is to study ideas, experiences, feelings, as well as the external forms that such internalities take as they are made public, available to the senses and thus truly social. For culture, in the anthropological view, is the meanings which people create, and which create people, as members of societies. Culture is in some way collective." (p 3).

In this definition the focus is on the constituent parts of culture, and they are said to be meanings. They are said to be internalities that take external forms

when they are made public and thereby truly social. There is no emphasis on a complex whole, and not on capabilities and habits, as that which equals culture, as in Tylor's definition. Creation of meaning, rather than acquisition of capabilities and habits, is emphasized. People are said to create meanings and culture, and at the same time to be created as members of society through meanings and culture.

According to Tylor's definition of culture, culture is based on acquisition of capabilities and habits as member of society, and according to Hannerz, culture is based on creation of meaning. Here the position is taken that it is important to understand the creative and dynamic nature of acquisition of capabilities and habits, that they are created (and recreated) within a context of experience and expression of meaning. It is also important to understand that creation of meaning is based on capabilities and habits. The simultaneous reproductive and creative nature of culture is the basis for cultural change and development. In the definitions there is an emphasis on that culture is collective and on a manifold of elements. There is in the definitions no focus on clearly delimited wholes of culture, or more complex cultural units than capabilities, habits and meanings. In contextual analysis we have to delimit cases of culture as complex wholes that are investigated, and where main parts of the wholes, and the wholes, are clarified in a mutually delimiting way. The two definitions above do not give a full basis to do this. They are more helpful for investigating elements of culture and compile descriptions of those in an inductive way, which is also the most common way of doing what is called cultural analysis (but is rather compilations of elements into compositions).

If we are to make a contextual analysis of cases of culture, we have first to delimit such cases as wholes in a preliminary but still well-grounded way. Of course, one can do contextual analysis of any unit of culture, and for instance analyze meanings, capabilities and habits as cases. Also, the cases of learning and teaching discussed in the previous chapters can be seen as cases of culture in different perspectives and in different ways. Here we are discussing more complex cases of culture including more aspects of culture. The first thing to consider then is, that the delimitation of a case should be based on that it forms a unity and cultural whole. At a closer look this is a great challenge. In the previously referred to definitions culture is decided in relation to individuals as members of society, and in relation to collectives and social contexts. Thus individuals, people, and society is a basis for delimiting cases of culture. The

culture investigated is culture expressed by individuals, groups and societies started from. This gives many possibilities to delimit cases of culture.

The challenge of the individual-social-culture complex

In contextual analysis the focus of the analysis is on the cases, the phenomena and research objects, investigated. The aim is to delimit main parts and relations within each case to illuminate its character. At the same time, the delimitation of the case and its character is seen as dependent on its relation to its context. Considering the relation to the context therefore is a necessary part of the analysis of a case. The main focus of the analysis is not on the character of the context or the relation to context. Still, the character of the relation to context has to be considered throughout the analysis. The relation to context is especially complex for cases of culture. One main reason for the complexity is the difference and relation between psychological, social and cultural phenomena. Cultural phenomena have an individual and social base.

The complexity of culture as phenomenon depends on the complexity of its relation to context. Every case of culture is related to a context of culture not included in the case. Capabilities, habits and meanings investigated are related to and delimited from other capabilities, habits and meanings. They are delimited from a wider context of culture. The character of the delimitation, and the relation to a wider cultural context created through the delimitation, has to be acknowledged. The case of culture also has an individual and social non-cultural context, which is also a generic context. The individual and social generic context of culture invites and leads to mainly individually and socially based analyses of culture, since culture is produced and appearing within an individual and social (collective) context. It is individuals and groups that develop capabilities and habits, and expresses meanings.

In studies of culture, it is culture that is the object of research and not the individual or social base. There are possibilities to focus more or less on, and start more or less from, the culture, or from the individual and/or social context, in the study of culture. This is reflected in the difference between humanities, focusing more on culture, and the social sciences, focusing more on the individual-social context, in the study of culture. With the concern in contextual analysis with the delimitation of objects of research, and with their relation to context, it is important to make a distinction between

individually/socially and culturally based analyses of culture. This difference means a difference in delimitation and analysis of cases, and thus also in their relation to a wider context, which also means differences in the outcome of the analysis. According to contextual analysis it is important to attend to the delimitation in relation to context as a limitation to the knowledge of the cases of culture investigated.

Thus, it is important in investigation of culture to be clear about how the cases of culture are delimited, if the delimitation is based on individuals, groups or culture and in what way. In the following we will mainly focus on the relation between social and cultural entities, in line with the understanding that culture is a social phenomenon, although it also has an individual base. To illustrate the complexity of the problem we will also pay some attention to how the individual form part of the socio-cultural complex. The individuals' involvement in social culture necessarily concerns elements in the collective culture. In principle, we could think of the total culture of an individual, all the skills, habits and meanings experienced and expressed by the individual, to stick to the definitions given above. We could investigate the total culture of an individual as a case. This would be a form of psychological cultural investigation that is less common.

What is more common is investigation of parts of individual culture as parts of social culture. We can for instance think of an author and her production as an element of social culture. The delimitation of one author's literary production as the object of research would mean an individually based delimitation of the research object and analysis of an entity of culture. This way of delimiting the cultural entity, based on one individual, has consequences for the whole analysis and understanding of the case of culture. From the delimitation made the analysis can be made in different ways, based more and less on the individual, social and/or cultural context. We may focus on what characterizes the authorship. We may see the content of the author's production in the context of the biography and life of the author. We could think that this biographic context is important to understand the content of the production. We could also analyze the production mainly in a social context, may be in relation to a group of authors, who represent a certain field of literary production, or starting from the author as part of some other social context. We could also focus on the content of the production in relation to a wider cultural context based on an understanding of what are central elements of the content. We could do this without going into the biography of the author or

into her social context. The relating to a wider cultural context could involve meanings created by other authors contemporary or preceding her in time, and also meanings experienced and expressed by readers of her production. If the relating to context is based on content, similarities, differences and relations concerning capabilities, habits and meanings, the analysis is culture based. The analysis could also be extended to who these other authors and readers are, in relation to different meanings they are expressing and are reading into the production we are analyzing. This would mean a culturally based analysis connecting to social and individual contexts.

Above we have started from an author's production as the case, the main cultural entity, that is to be investigated, and have pointed at that it can be delimit in relation to its context in different ways. These differences in relation to context also means different more precise delimitations of the production, and main parts and qualities of the production. It would in principle be possible two include all delimitations and ways of relating to context in an investigation. However, it would be very difficult to do it all in the same investigation, and at the same time make a precise and specific analysis of the production and its relation to context. The analysis would anyhow still be limited to the at the occasion available understanding. The example illustrates some things that tend to be common to studies of culture. The first is that the relation to the cultural context is an important part in clarifying what is investigated. This also implies that cultural entities cannot be clearly delimited in advance to then be analyzed. The starting point has to be taken in smaller parts of the culture, and the delimitation of a bigger whole of culture be searched for through exploring its relation to context. At the same time, the example illustrates how important it is to clarify how the delimitation of the cultural entity, the case, and its relation to the context, is made, to know what is investigated and to make a cumulative development of knowledge possible.

The focus in the following discussion will be not on the individual but on the social basis of culture. If the object of research is delimited based on an individual, on a social entity, or on a cultural entity makes a big difference to what is actually investigated, what the relation to context is, and what main parts and relations that can be discerned. The idea here is not that any of these in principle different ways of delimiting the object of research, and to develop an understanding of culture, is better than another. Rather they are complementary to each other. They can all be carried out by use of contextual analysis. What is important according to contextual analysis is to be clear about if the delimitation

made starts from an individual, a social or a cultural entity (based on the character of a skill/habit/meaning complex). In the next section, the focus will be on the difference between a social and a cultural starting point for analyses of culture, to further clarify the analytic and contextual character of contextual analysis. The individual basis is now left out of the discussion.

Socially based and culturally based analyses of culture

Common forms of cultural studies are studies of the culture of a society or social group, where the society or social group is the basis for delimitation of cases and wholes of culture, i.e. the studies are socially based investigations of culture. The culture of a society or group may be one distinct case of a unique culture, but it can also be a case of multi-culture, or only part of a bigger culture, so that it cannot be culturally clearly delimited from the culture of other societies or groups. When the culture is a homogenous culture, exclusive to the society or group investigated, and the investigation is focusing only on culture, and not on other aspects of the society or group, one comes close to a culturally delimited entity of culture. But if the investigation of main cultural parts and relations start from socially delimited parts of society and social groups, it is not a culturally based analysis, but a socially based analysis of culture. It is not an analysis of parts of culture as a whole, but a description of culture of social parts of a society or group as a whole.

The social groups can for instance be ethnic groups, religious groups, professional groups, organizations or other dominant parts or groups of a specific society. What makes the clearness of the delimitation even more complicated is that the dividing in social groups may also in some cases be culturally based, like for some groups mentioned above. What is important from a contextual analytic perspective is to be clear about the basis for delimiting cases and main parts of cases and their interrelations. In socially based investigations of culture, the cases and their parts and interrelations are socially delimited. The basis for delimiting cases and parts, and relating them, is social relations and social organization. The investigation of culture can be part of the study of society to illuminate and clarify the character of the society, and culture as one important aspect of society (or a social group or people).

Even with a starting point in social organization an individual investigation can be limited to study only the culture of a society or social group. Then, it still

is a socially based investigation of culture, and not a culturally based investigation of culture. The social character appears less clearly, since the focus exclusively is on the culture of the society or social group. The difference compared to a culturally based analysis is, that the delimitation of the case is taken for given as a society or social group, and is not made as an entity of culture. There may be problems with the delimitation of the social entity, but the culture is delimited to this entity, and the delimitation of culture is not explored in itself. The delimitation of the culture can be investigated in a second step of the analysis, where the relation of the described culture to a broader cultural context is explored.

The difference between socially and culturally based investigations of culture becomes especially clear in contextual analysis when main parts of the cases investigated are to be delimited. The main parts can be delimited as socially or culturally based parts. If the study is socially based, main parts are delimited as the culture of parts/subgroups of the society or group studied. If we study the culture of social groups, the focus is on describing the culture of each group. The culture of the groups may be more or less similar and overlapping, and the similarities and differences can be described. The knowledge interest is to understand the culture of the groups (making up the society). If the study is based culturally, the main parts are delimited as different subcultures, based on cultural content, for instance languages, belief systems, traditions etc., and not based on social groups. In the culturally based study of culture we are not primarily interested in social groups, but in what makes up and characterizes cultural entities. The cultural entities delimited may be clearly connected to social groups or not. That is a second question. It is not the cultures of groups and societies that are studied but the culture itself. The focus is on what entities of externalizations of meaning, what habits and capabilities, referring to the definitions given above, that constitute units of interrelated parts in a way that can be considered to be cases of culture.

The difference between socially based and culturally based investigating of culture can be exemplified in relation to investigations of organizational culture, which has become an expanding field of cultural studies. An organization can be socially delimited based on defined membership, ownership, formal rights and responsibilities. A knowledge interest can concern the culture of the organization. The focus of the investigation and the description of culture will be limited to the organization. A contextual analysis of parts and relations of the culture of the organization can be made in a mainly socially based or

culturally based way. In the socially based way, we would investigate and describe the culture of socially delimited parts of the organization, like different sites, departments, professional groups or some other social division of the organization that we find relevant. In the culturally based way, we would focus on some main cultural parts present in the organization, what is characteristic of these and how they are related. Cultural parts could be the use of different ethnic languages, the content of different fields of expertise, the content of different value systems etc. The cultural parts may correspond to social parts, groups possible to delimit, but may also transgress the boarders of social entities including the organization itself. The transgression of the organization itself is the other side of that the analysis is not culture based from the start. The cultural parts delimited within the organization may form basis for delimiting new social parts/entities based on the cultural parts. Thus there is a variation in how contextual analysis can be made. What is important according to contextual analysis is to be clear about how wholes, contexts, parts and relations are delimited and related, and the arguments for the choices made.

Thus, there is a difference in principle between investigating, describing, comparing and relating culture of given social entities, parts and their relations, and doing the same for culturally delimited entities, parts and relations. The socially delimited entities and parts may be culturally very much the same or different. The culture within socially delimited entities may be well integrated or diverse, even multicultural. The cultural differences may be small or deep-going. In delimiting different cultural wholes, the delimitation is based on that these are culturally integrated and mutually different. The two kinds of analysis of culture, the socially based and the culture based, may give very different descriptions of and understanding of culture. Thus, the understanding of culture can be based on investigating the culture of social wholes and their parts and the cultural relation between those. Or the understanding can be based on the investigation of cultural wholes, their parts and relations between those.

A special issue concerns the relation of a culture, investigated through socially based or culture based analysis, and its broader social and cultural context. When the analysis of culture is socially based, like in the case of the culture of an organization, then the analysis of the relation to the broader context would also be socially based, even if it would focus on the relation to the culture of the social context outside the social entity/organization. One part of that relation may have the character of shared culture. This follows from that what is studied is the culture of a social entity, for instance an organization. To

clarify the cultural relation to a broader social context becomes a matter of relating to the culture of one or more other social entities but only as context and not as investigated entities.

Culturally based contextual analysis of culture

Now some cases of culture and analysis of those will be discussed to further clarify the character of contextual analysis, also in relation to the flow character of culture. The study of wholes of culture in classical anthropological studies has been socially based, that is based on the identification of a rather clearly delimited group of people. The basis is of the same kind as in studies of organizational culture mentioned as an example above. Investigations of culture starting from entities of culture have mostly started from wholes of culture within aspects or fields of culture, delimited by different human science disciplines. These investigations are not investigations of the totality of culture but of a certain part of the totality of culture. Thus, when we here discuss culturally based contextual analyses of culture, it is analyses of parts of a total culture. This part character makes the relation to context especially critical.

A very relevant example of a part of culture is language. Referring to the previously discussed definitions of culture we can say that language is capability, habit and meaning developed collectively. Language can be used to further illustrate the difference between socially based studies of culture/language and culturally based studies of culture/language, and the relation between social and cultural entities when doing contextual analysis. If we start with a social entity, a society like Switzerland or India, to study language, it is clear that within those social entities there are several languages that represent very different cultural entities. There is a clear difference between studying the languages of social groups, parts of the population, and studying the languages as cultural entities. If we study the languages of parts of a population, there may be several languages in a group (that members speak several languages), and different languages may form main parts of the analysis of the language of the group. It may also be the case that the division in social groups and in languages roughly correspond, that there is only one language in each group. Even if there is a great correspondence it is very likely that individuals in the groups know and use more than one language.

To study the languages of Switzerland or India is very different from study one or more languages. There is a totality of language, and starting from focus

on language per se, the first question is how to delimit a smaller whole of language (compared to the totality of language). To investigate the German or French or Italian language will be very different from investigating the languages of Switzerland. To start from the language, and not the social entity, means that the relation to the social organization, social groups, the society or state, would either be based on the delimitation of language or not considered at all. In the case of starting from the language, the delimitation would include for instance all German speaking persons. In analyzing the German language, we would find differences connected to social origin and social belongingness, for instance differences in dialect. We could for instance find, that there is a specific form of German, that we can call Swiss German. It is possible that the delimitation and description of Swiss German would be rather similar if we started from a social delimitation to Swiss people talking German, or started from Swiss German independent of belongingness to a population. The point made is, that there will, to a varying extent, be a difference between socially based and culturally based analyses, and what contextual analysis says is, that it is important to acknowledge how the analyses are made.

From our interest in language we could make different further delimitations. We could be interested in the use of, variation and change in use of, certain language constructions, irrespective of the social basis for the use and change. This interest could for instance concern the relation to and influence from other languages. In the case of the German language it could be expected to have relation to Greek, Latin, English and more languages. This interest could focus on similarities and differences in linguistic constructions. Linguistics deals primarily with the construction of language itself, and only secondary with the relation to the social context. The possible relation to other languages illustrates, that the relation of one language to a bigger language/cultural context has to be considered. If we are not only interested in describing a language, but also in explaining and understanding the character of the language, the context becomes very important. The cultural language context is not only spread socially and geographically in present time, but especially in time historically. What should be included in the analysis as part of the case is a challenge.

One very important characteristic of elements of culture to consider and clarify in research, especially when it comes to relation to context and to other parts of culture and other cultures, is cultural flow. The character of flow concerns capability and habit and especially meaning, the elements mentioned in the earlier referred to definitions of culture. Culture has the character of

products created and recreated by individuals and groups. These products can be carried over, and be recreated, from one individual or group to another. This transfer is a flow from one whole of culture to another whole of culture (or between big parts of culture). To understand the flow of culture, there is a need for a focus on elements of culture, their constitution, nature and relations. Culture in the collective sense of a whole way of life of a people presupposes a unity that is not always easy to find, but still there is always culture. It is not the whole way of living that is flowing between cultures but only some parts. The flow has to be understood as a meeting between cultural elements of different origin and from different contexts. The flow from one culture to another is rarely a transfer of fixed elements, that may be identified in their original form within the new context. Rather the flow manifests itself in new creations within the context of the receiving culture (see Svensson 1997). Cultural flow can be described mainly as a flow between parts of cultural totalities or as a flow between social entities.

The example of a language as a cultural entity also illustrates the flow character of culture. If we make a cultural analysis of language, the relation to social groups becomes a secondary question outside the analysis of language. An example of adding of the social aspect is descriptions of the historical, social and geographical spread of a language. Languages also come in contact with each other and influence each other. This comes about through the activities of people. But still, the flow is from one language to another. The flow is seldom totally one sided but mutual. And the flow from one language to another is, as pointed out above, seldom a flow of a fixed language unit preserved in its original form. The unit flowing is usually changed when it meets and is incorporated in the receiving use of language. The change may to varying extent concern all aspects of language from pronunciation, grammatical structure, meaning, to use of language. Such changes and differences in different aspects of language, connected to flow of language, of course can be analyzed through contextual analysis. At the same time this flow character of culture means that one language, like for instance English, is not clearly separated from other languages. To understand characteristics of English, it may be important to include characteristics of other languages, that English has been and is related to.

From language the step to literature as culture is not long. Literature is clearly a cultural phenomenon. How do we delimit literature? There is a totality of literature like there is a totality of language. However, those totalities are too

large to investigate in their totality in one investigation. At the same time as it may be easy to delimit small entities of literature, like a book, to delimit extensive wholes of literature is clearly more difficult than to delimit different languages. The flow character of culture depends on that culture has an individual and social human basis and a product character. Units of culture are created, communicated and recreated. The product and flow character of culture is especially apparent for more limited units of culture like books, pieces of music and plays. Not the least in times of globalization and internet the flow character becomes apparent.

The delimitation of the research object is depending on the understanding of the phenomenon investigated, but also on the knowledge interest and the perspective in approaching the phenomenon. This is further clarified in the way main parts of the phenomenon are discerned and delimited, which has to be in agreement with the delimitation of the object as a whole, which may be has to be reconsidered as a result of the analysis. One can never make an exhaustive analysis of any object big or small. There are several possible ways of delimiting parts of the object. What is stressed here is that one should strive to be as clear as possible about on what grounds the parts and relations are delimited. Different cultural phenomena are delimited as wholes from different disciplinary perspectives. At the same time, these phenomena constitute parts and elements of a total culture, and are dependent for their deeper meaning of this totality of culture. This means, that there is always a contextual dependence to be acknowledged in the development of knowledge about the phenomena.

Context dependency and generality

Cases of culture of very different extension can be delimited and analyzed. Thus, an element of culture, like for instance the message of a book, can be analyzed in itself as a case of culture. In this chapter we have mainly considered rather extensive cases of culture, that are social and collective in the sense expressed in the definitions referred to in the introductory part of the chapter. In contextual analysis there is a clear aim to clarify what is investigated, and we therefore have to be clear about if, and how, and what cases of culture are delimited. There is a difference between investigating cultural characteristics of a society, people or group of individuals, and investigating extensive entities of culture like languages, belief systems, customs etc. in themselves as cultural wholes (which are at the same time parts of a totality of culture). We have

named this difference as one between socially based investigation of culture and culturally based investigation of culture. Both kinds of investigations can be made by contextual analysis. The analysis starts from cases as cultural wholes, and we then have to make clear what wholes that are investigated, and how they are delimited. The difference in delimitation becomes especially important when main parts of the case/phenomenon, of the whole, is to be delimited and described, as the main aim of the investigation. Different disciplines within the human sciences make delimitations of different aspects of culture. In relation to these disciplines culture in itself as totality becomes interdisciplinary.

In this chapter, we have discussed contextual analysis in relation to complex entities of culture, as an example of phenomena that constitute a great challenge to study. A critical element of this challenge is the context dependent character of every cultural phenomenon, depending on it being part of a bigger totality of culture. In research, we have to go into parts of the totality of culture, to get a better understanding of culture as totality. The context dependency of these phenomena as parts of a totality, and how this dependency is recognized, becomes critical in research. The understanding and consideration of the relation of the phenomena to their context is especially critical in the investigation of culture depending on its part, product and flow character. The handling of this character most often takes contextual interpretation. The cultural phenomenon investigated is understood in relation to a bigger whole within a frame of a context of interpretation.

Within the humanities there are interpretive methods and traditions concerning how to handle the relation of the phenomenon to a broader context. The need for interpretive methods is most apparent when it comes to smaller parts of culture, specific expressions of capability, habit and/or meaning. These specific expressions have to be understood on the basis of a broader context of capabilities, habits and meanings based on similarities and differences. This broader context is not equal to the phenomenon investigated based on the collected data. If we for instance are investigating meanings expressed in a body of literature, delimited to be internally closely related, and more so than it is related to other literature, this will be so from a conception of this body of literature as a whole. At the same time a specific expression in the literature analyzed may be dependent for its meaning on expressions outside the body investigated. This illustrates, that elements of culture for their meaning are depending on a broader context than what is investigated based on the preliminary delimitation of the object of research and the data collection. The

dependence on a broader context for interpretation of specific cultural elements can be handled in different ways, and that is one thing that interpretive traditions deal with.

The use of predefined interpretations/meanings of cultural elements is common and understandable. One main reason is that elements are usually more observable and have greater pregnancy than more complex entities of culture. To start from elements, and compile elements, can be made in varying ways, and in both deductive and inductive approaches. The compilation may be very deductive and theory driven, or very inductive starting from measurements of cultural variables. In contextual analysis, the meanings of the cultural elements are found as parts of bigger parts and complexes of culture, and the meanings of bigger parts and complexes are found through analysis, and not through compilation of predefined meanings. In investigating complexes of culture delimitations has always to be made. If they are not made explicitly, they are made covertly through what is included in the investigation, through data collection, treatment of data and reporting of results. In contextual analysis one is explicit about the delimitation, through making a preliminary delimitation as a start, and by follow up and change of the delimitation as a result of the analysis. Comparisons and integration with results from investigations with other approaches are dependent on how clearly it is possible to identify corresponding delimitations of units and relations and determination of their meaning.

In contextual analysis the delimitation and description of the meaning and character of cultural elements, cultural parts, and complexes of cases of culture, are made in a contextual way. The character of the relation of the case to a context outside the case is explored, and not presupposed. The relation to the wider context is very important both in delimiting and characterizing the case, and in generalizing what is found to other cases. Generality of characteristics of a case is not assumed or claimed through defining and generalizing meaning of elements, parts of cases, or whole cases, but found through clarifying similarities and differences in meaning between elements, parts and cases, and in their relation to a wider context. Generalization will have the character of interpretation, based on knowledge of similarities and differences in both the characteristics of cases, and in their relation to context. The form of the generalization has to differ from many generalizations within natural sciences. To clarify this difference, we can use the example discussed in chapter 5 about throwing a stone.

As a cultural phenomenon the throwing of a stone is a smaller element and part of a culture. Here it can be used to illustrate the contextual and non-general character of culture. In chapter 5, contextual analysis of a case of throwing a stone was discussed as an example of physical motion. The aim was to present characteristics of contextual analysis, and how it is also relevant in natural sciences. The analysis concerned the motion of a body in the air, the delimitation of and relating of cause and effect in understanding the motion in the air. Examples of different contextual analyses of this physical event were presented against the background of the historical development within the field of mechanics. At the end of the chapter, the successful use of external relations in mechanics was discussed as preceded by use of internal relations, and the quite different situation in human and social sciences was emphasized. It was emphasized, that the context dependent character of human, social and cultural phenomena takes more extensive work with internal relations in developing knowledge of those phenomena, rather than construction of external relations. The main reason is, that one cannot assume identity between parts of different cases, and no identity between the relations of cases to context. Thus generalization by use of external relations is not particularly feasible within fields outside natural science.

All cases of throwing a stone, or any other projectile, up in the air, can be described in the same way according to the physical laws developed as knowledge of this kind of phenomenon. This knowledge of mechanics can form part or not of the cultural phenomenon of throwing a stone, a ball, a spear, or some similar object, and will, if included, have identical parts and be general across cases. If we place the phenomenon of throwing the object in a somewhat extended human, social, and cultural context, and consider it as a cultural phenomenon in line with the discussion in the present chapter, the lack of identity between different cases is striking as is the variation in context. If we follow the definitions of culture chosen, we have to consider the throwing of the object as capability, habit and meaning. To do so we have to include the thrower in his/her social and cultural context as part of the phenomenon.

If we consider the throw in relation to the three concepts of capability, habit and meaning, we can conclude that the throw is an expression of capability and habit, and that it has a meaning. The character of the capability, habit and meaning can vary a lot. The capability can vary in technical qualities like the length of the throw, the preciseness in direction, and in hitting a spot and so on. This will vary depending on the object thrown, the situation, the aim, and

several other factors. The throwing will also vary in other qualities like for instance in will and motive. The throwing may be a habit of the thrower, or of the social group, society or culture of the thrower, and a habit he/she has acquired and is acquiring. Alternatively, the throwing may be a one occasion event and not so clearly a habit. The throw will anyhow form part of the throwers habitual handling of physical objects, and the throwers awareness of cultural ways of handling objects. Thus, the character of habit can vary a lot. The throwing of an object always has the character of capability, habit and meaning.

The variation in both capability and habit is associated with a great variation in meaning, from doing something with a well-established meaning, to doing something given a new meaning. What is often meant by culture is the recreation of established meanings. Established meanings form the basis for generalization. However, even when there are established meanings of what is done, this does not mean that acts, as parts of different cases of culture, are identical, only that they are similar. This is the reason for the need of contextual analysis, and interpretation of similarities and differences between cases replacing generalization by use of external relations assuming identity between cases. If we for instance think of a situation of throwing as being a competition between throwers in who can throw the longest, this is one type of social situation of many possible giving meaning to the event. Another situation could be, that the meaning of the throw is to hit something. Between those two kinds of situations, the cultural cases will differ in capability, habit and meaning, although the same mechanical laws will be equally applicable to both.

Each throw of an object is a cultural complex of capability, habit and meaning, which is never identical from one case to another. There are many different kinds of throwing, that can be mechanically described in a general way as projectile motion but which culturally varies, and have no identical cultural parts except the physical laws. If we take the example of hitting an object with a stone, cases will vary in capability, habit and meaning, even when the same person is repeatedly throwing from the same distance to hit the same object in the same position. The manifested capability will be different from throw to throw, the habit will be different and develop from throw to throw, and the meaning will also vary depending on the manifested capability, habit and the wider socio-cultural situation. A throw can for instance mean improvement or lack of improvement compared to preceding throws. It can mean success or failure in relation to expectations. The objectively same throw can mean success

for one thrower in one cultural context and failure for another thrower in the same or another context. Thus the meaning of the throw is very much dependent on the context.

Even if capabilities, habits and meanings have been developed and become established over time, and give a basis for expectations and interpretations of cultural events, the knowledge of them does not give a possibility of predicting identity from case to case by use of external relations. Through comparing cultural cases by using contextual analyses, the knowledge of complexes of capabilities, habits and meanings can be developed, and give a knowledge basis for better and better interpretations of new individual cases, through their similarity to but also difference to known cases. Since the complexes of capabilities, habits and meanings are developed into some stability and generality over time, the knowledge developed can form basis for expectations of both similarity of new cases to previously known ones, but also of differences in new cases when conditions are different. These expectations, however, cannot be in the form of exact predictions concerning new cases. The cases will always be dependent on actors representing varying conditions.

Chapter 9 Development of scientific knowledge

The main aim of this chapter is to give a concluding presentation of the view of how to develop scientific knowledge that is part of contextual analysis as a research methodology. The fruitfulness and credibility of the development of scientific knowledge is the most important quality of a research methodology, and therefore it seems appropriate to end this book with addressing this theme. Most fundamental to the contextual analytic methodology and approach is the understanding of knowledge as a quality of the knower's relation to a part of the world. This makes the question of what part of the world the knowledge is about a most crucial question to answer.

Case based, contextual and analytic approach

In contextual analysis the main concern is with parts of the world and their character or nature. New knowledge about parts of the world is considered to be the proper basis for judging the value of the methodology and also of research in general. Knowledge of cases as individual parts of the world is considered the aim and criterion for valuing theories, methodologies, concepts, methods and all tools used in research. This is the reason why cases are focused as the most fundamental entities in contextual analysis. The emphasis on cases as parts of the world can be thought of as a strong empirical orientation. However, this orientation is not excluding a theoretical orientation and starting point. A theoretical orientation is seen as complementary, although theory is considered to have to be based on empirical observations of cases.

Approaches to empirical cases always have a "theoretical grounding" in the form of a pre-understanding of the cases investigated. The character of the pre-understanding can vary a lot, from just being an experience of a difference compared to previously experienced parts of the world to a worked out hypothesis about the nature of the case. What is important to clarify, according to contextual analysis, is what the pre-understanding leads to when it comes to delimitation and analysis of the investigated cases. It is quite common that

researchers place their research within some generally described philosophy, theory, methodology and/or research tradition. Such general descriptions are in contextual analysis considered to have a limited value in themselves. The important thing is considered to be, what those placements and relations mean in terms of the pre-understanding, delimitation and analysis of the specific cases investigated.

In investigations cases are cases of some sort. They are seen as research objects and phenomena of interest. Their meaning of research objects and phenomena is dependent on the researchers pre-understanding. The pre-understanding of research objects and phenomena includes an element of generalization. The generalization has the form that an individual case is seen as belonging to a group or category of objects understood as one kind of phenomenon. In talking about a phenomenon we can refer to an individual case or a group of cases considered to be the same kind of object. The grouping of cases into the same kind is something that has to be argued for and may have to be changed. Therefore, in contextual analysis the investigation of the individual case is emphasized. That the approach is fundamentally case based does not mean that cases will not be grouped into categories and types or even be presented in groups. The form of presentation is a practical issue. The important thing is that the analysis is case based, and that this base is well communicated.

What is a fruitful way to approach parts of the world, cases, to develop knowledge of those? A methodology/approach used in a specific investigation involves methods in the sense of specific ways of collecting and treating information/data. Such specific methods of data collection and data treatment are not here described as necessary parts of the contextual analytic approach or the methodology. The methods are expected to vary depending on what is investigated and the specific aim of the investigation. The focus in contextual analysis is on general aspects of research approach, including the way of dealing with specific research methods.

The most important general aspects of the methodology and approach are four previously described (chapter 4) ways in which the approach to and treatment of data about investigated cases are both analytic and contextual. The first way concerns the delimitation of cases, where the delimitation is analytic and contextual. The second contextual analytic way concerns the treatment of data about each case. This treatment is analytic in the sense that it starts from the case as a whole, and the whole of the data about the case, and delimits main

parts within this whole, considered to represent main aspects and components of the case. The main parts are analyzed as consisting of smaller parts. The contextual character of the analysis consists in that the delimitation of parts and subparts are made based on interpretation of the meaning of the parts as dependent on their relation to context.

The third way of combining analytic and contextual qualities concerns a focus on whole-characteristics of cases. The descriptions developed include main parts and main relations within cases. The character and meaning of the relations is fundamental, and to a great extent decides the whole-characteristics of the cases and what constitutes significant differences between cases. To discern internal relations within a case, in relation to the context of the case, means to discern an organized meaning of the case as a whole. The organization (the structure) gives meaning to parts and parts give meaning to the organized whole. The cases are delimited as wholes based on their internal organization.

The fourth way in which contextual analysis is analytic is in its form of result. The result has the form of explicit delimitations of parts, and of relations between parts, and condensed descriptions of parts and relations. The contextual character consists in that the descriptions are interpretations in terms of internal relations within the case as a whole. When categories are used to describe the result, the object categorized is understood to have a context-dependent meaning, which is not fully captured through the categorization of a part, relation or case. There is something more to the object described that is not included in the abstract description. What is left out as of less significance may later turn out to be important in a further deepening of the understanding of the case, and in comparison to other cases. Therefore, it is important to be clear about what is included and what is excluded in the description of cases.

A basis for making significant delimitations of cases is comparisons both within and between cases. An aim in making comparisons between cases, and parts of cases, and also in grouping cases, is to base the delimitations of cases on similarity in whole-characteristics and relation to context. This is achieved by clarifying similarities and differences between cases and parts of cases and their relations to their contexts. In these comparisons internal relations are constructed in the sense that meanings are delimited in an interdependent way. However, these relations are not relations between phenomena, or parts of phenomena, but similarities and differences. The delimitations and groupings of phenomena and parts of phenomena made early in an investigation are seen

as provisional, and the investigation aims at improving the delimitations and groupings on the basis of further analyses of the nature of the phenomena.

Making the analysis explicit

The focus on the case, as the main unit of research, is combined with an emphasis on making the delimitation of the case as clear and explicit as possible. This may be possible to varying extent but should always be strived for and argued about. There is always a delimitation. If it is not made explicit it is implicit through what is included and left out in data collection and in treatment of data. Although the first delimitation of cases should be preliminary, it is fruitful to make it explicit as a starting point for addressing the delimitation and change in delimitation as an issue throughout the investigation. The final delimitation resulting from the analysis is an important research result. An explicit delimitation tells what has been investigated, and gives a basis for comparison with other investigations of similar cases, and for using the result.

The analysis concerns the character of the case, and the character is described in terms of parts and relations between parts within the case. The analytic character of the approach means explicitness in delimitation of parts and relations within cases to a greater extent than is common in alternative interpretive and transformative approaches. The explicit delimitation includes a pointing out of what parts of the data material are used to describe which parts of the case. Even if the analysis means some transformation of data the transformation should be limited. The description is kept close to the data, although in a reduced and condensed form. It is considered important to be explicit about how the qualities described are present and expressed in the data material, and as part of the case. To be explicit about how descriptions refer to different parts of the case is emphasized. Explicitness about the relations between descriptions, data material and cases is seen as a very important quality of the research.

In contextual analysis a main task is the identification, delimitation and description of similarities and differences. When identity of meaning and quality cannot be assumed and/or demonstrated from one case to another, or not even between parts of the same case, the description of similarities and differences becomes very important. Variation and difference is the ground condition for development of knowledge, and the finding of similarities is a second step. First comes the quality in each case. Then we find this quality to vary which means

difference. Then we can clarify and make explicit differences and similarities in quality and meaning. When no identity in quality can be found, similarities can be delimited in different ways, and will always be related to concomitant differences, which will vary depending on what similarities are delimited. The more explicit the concomitant differences can be described, the clearer the meaning and significance of the similarities will be, and the better the ground will be for comparison with other cases, and for reinterpretation of cases, meaning new and possibly more fruitful delimitations and descriptions of similarities and differences.

The fact that the discerning of cases and their parts do not lead to definitions of identical meanings/qualities, which can form basis for description, is a fundamental condition for development of knowledge about phenomena. Definitions can be made explicit and precise which is of great value. In developing delimitations of qualities representing differences and similarities explicitness in describing the qualities is also important and of great value. However, that these descriptions are explicit and precise should not be taken for identity between cases. Even if similarities are described explicitly and precisely, the qualities of cases having this similarity must be understood to vary and be different depending on their dependence on context, and their dependence on other concomitant differing concrete parts of the cases. The explicit and precise description has to be extended to also involve the concomitant existence of differences. The extent to which and how the differences should be described has to be decided for each investigation, based on the understanding of the phenomena and the aim of the investigation. Most important is to emphasize that the meaning of similarities in principle is dependent on concomitant differences as a condition for use of the results.

Reporting the investigation

In addition to that research can be of direct use to those involved in the research, especially when it is carried out in a practical situation investigated, its usefulness is mainly through reporting. Working out reports will in many investigations improve the understanding and usefulness of the research even for those directly involved. The reporting is, of course, even more important and necessary for those who have not been involved and get all their knowledge about the research through reports. The explicitness and comprehensiveness of the reporting is crucial for the value of the research as a contribution to a

collective development of knowledge. There are different traditions and expectations concerning what should be explicitly described of the carrying out of the research. There is much agreement that the results of investigations shall be explicitly and clearly presented. When it comes to other qualities of the research activity there are varying ideas about what to report and how.

Research is argumentative in that the relevance and credibility of the results, and the discussion of the results, have to be argued for and not taken for granted. The whole way of doing the investigation is an argument for its relevance and credibility. The carrying out of investigations can be reported in varying ways in addition to reporting and discussing the results. It is common to describe the practical and theoretical background to the investigation. The description of the practical background is often an argument for the social and political relevance of the investigation, and is often of less importance to the credibility of the knowledge produced. The description of the practical background may also include a description of the context of the investigated phenomena. In contextual analysis this is critical information for interpretation of data and result. What is important then is, that the background context is described as closely related to the investigated phenomena as possible, and not only in a general way.

It is also important to describe the theoretical frame and theoretical assumptions started from in the investigation. It may be of value to describe inspiration from philosophical and theoretical traditions, and place the work in such contexts, as well as in relation to previous empirical research. In contextual analysis the most important is to clarify how the way of approaching the cases investigated is based on theoretical assumptions and previous research. Most important is what pre-understanding of the phenomena that is forming the basis for the delimitation and analysis of the cases investigated. This understanding of the phenomena, explicated and expressed throughout the investigation, forms a basis for the interpretation and understanding of the result. It is important that this understanding is made clear mainly for two interrelated reasons. The first reason is that it is needed to understand the character and the limitations of the investigation and the result. The other reason is that it is this pre-understanding that also should be questioned and developed or changed through the investigation, and to achieve this it has to be made explicit and clear.

The most direct arguments for the credibility of the results are the data used in the investigation. Both the data used and their treatment of course have to

be described, including from where and how the data/information were achieved. This is done in all reports of investigations. In contextual analysis it is stressed that the most important aspect of reporting about the data concerns their relation to the cases investigated. What cases and parts of cases do the data refer to and inform about? What possible data/information is missing or excluded? The treatment of data should be described so, that the relation to cases and parts of cases (including relations between parts) is preserved, so that it becomes clear what cases and parts of cases the results are about. The treatment of data should preserve the information about the original data and their relation to cases. Transformations and combinations of data alienating the description from the case, and hiding the relation to the case, should as far as possible be avoided. The methods used should not only be described in general terms or as general methods, but in terms of the specifics of the actual data collection and treatment of data in relation to the cases investigated.

One important part of the research result is the reporting of similarities and differences between cases and conclusions across cases. In reporting results can be presented case by case and/or for groups of cases. What is important according to contextual analysis is that all results and presentations are case based. That means that there is a clearly identifiable line from each presented result to each case the result is about. Even if results for groups are presented, they are in contextual analysis results for each case in the group, and not a description at a group level of an average or what is dominant or typical for the group. When similarities within groups of cases are presented as results, it is important to also give a picture of differences between the same cases, that may clarify the lack of identity between cases, and that it is just a similarity that is described. Description of concomitant differences also contributes to clarification of the relation of the cases to a broader context. The differences are important for interpreting the character of the described quality in each case, but also for the possibility to compare with other investigations, and make new analyses of the same and/or new cases and materials.

The use of language

Making the analysis, making it explicit, and reporting it, is made by use of language. In some academic fields it is the language (in a broad sense) that is the object to understand and develop knowledge about, like in formal logic, mathematics, statistics, cybernetics, and some forms of linguistics and language

studies, where meanings are dealt with as a matter of relations within the language system. Understanding then is equal to understanding language as object. Within other fields of knowledge, most fields, the objects to be understood are not restricted to a language (or parts of a language), but concerns a part of the world pointed out and described by use of language. Understanding is then both an understanding of a (scientific) language and an understanding of an object, knowledge of a part of the world by use of language. This situation makes the question of understanding and knowledge more complicated. Understanding then is both understanding of a (scientific) language, and understanding of an object, knowledge about a part of the world through use of language. It is this latter kind of knowledge that is discussed in this book.

There is a strong tendency to focus on the result of research in the form of descriptions (including explaining descriptions) of research objects. Those descriptions represent a use of language (in a broad sense including for instance mathematics) as tool and medium for expressing an understanding of the world. Here we have a great problem concerning to what extent a description is an understanding of the world expressed in language. Scientific knowledge is mediated through language. Language is developed through its use, and it is differently used within different academic fields, which means that understanding and knowledge has varying meanings, as it means to understand and use different languages. Important language differences between academic fields concern meanings (concepts), and relations between meanings (concepts) that can be described in terms of logic, structure and organization, and how meanings are used to describe objects.

Languages that are not only formal have a medium character. They contain and carry messages. In science the messages mainly are descriptions in a broad sense also including explanations. A description can be treated as one mainly within the language, or with focus on the description as a description of a part of the world outside language. (This difference is at hand even if we would argue that our whole experienced world is limited to our language.) This double character of descriptions raises questions about what is meant by understanding scientific descriptions in different contexts. To what extent the aim is to understand the language and/or the world is often unclear. If the ultimate aim is to understand the world, to develop knowledge of the world, there are some pitfalls.

Languages are parts of the world and in themselves objects, also understood through use of language, then about language. In a relational view it becomes very important to be clear about what is the object of understanding. Since the scientific language is the first and most visible part encountered in studying and research within a specific field the language easily becomes the object. In academic contexts it is at the same time more or less clear, that the understanding of academic languages includes referential meaning and understanding of objects described in the language. This is the fundamental relation in developing a scientific language, but tends to be secondary in the learning of the language, and risks to be secondary also in development of knowledge.

Focus on the medium character of language can be misleading in development of knowledge, especially in combination with an idea of objective knowledge as a product. The idea seems to be that the language contains the knowledge, and that the main aim and result is to understand and develop the language. There are also other conditions promoting this idea. Languages are developed collectively. Academic disciplines focus on a common language development in a way that is not the case with ordinary languages. Researchers meet scientific knowledge in a communicative context through literature and research material. It is then natural that language as a tool for communication comes into focus. Researchers can become occupied with learning and developing the language. Combined with a medium understanding of language, and of "objective" knowledge as contained in language, the communicative aspect of language, as the first met and most apparent aspect of academic language, can become dominant. Knowledge can be seen as equal to understanding the language, not including a deeper understanding of the world described, which merely becomes a background. If knowledge is taken to mean understanding the world by use of language this then risks not hold true to any great extent.

Language is a tool and medium for communication. As said above, the use of language as a tool for communication tends to dominate and decide what understanding means to the researcher. Language is also a tool for describing objects, and this is what is seen as a deeper understanding of scientific language. This more fundamental meaning of language is usually present to some extent, even when the focus is on language per se. This depends on the fundamental character of this relation as basis for meanings expressed in the language. Relations between meanings and descriptions in the language on one hand, and

the objects described on the other hand, is the most crucial aspect of scientific knowledge. How this relation is present in the language and knowledge is an important variation in the meaning of knowledge.

In research the starting point is often taken in the language, even if the field of objects described in the language is generally pointed out and delimited. Language units are dependent for their meaning on references to objects described. The meanings are abstractions in two ways. Firstly, they are a selection among possible meanings that could be used to describe the object "objectively". Secondly, the description is something else (a sign) than the part of the world described. The character of abstraction makes the relation between language and object open to interpretation. The way of relating description to object by a reader of the description will not be the same as for the person(s) making the description based on studying the object. Language is a system of meanings and descriptions of many objects, inviting interpretations based on language meaning rather than relations to specific objects. This leads to a risk that language meanings are imposed on objects rather than being based on objects due to the abstract and generalizing character of language. The relation between language and objects tend to be a quite open and uncertain relation.

Credibility and cumulative development of knowledge

What has been said above about making the analysis explicit and reporting the investigation is important for the trustworthiness and credibility of the research. The distinctions and interpretations made in the treatment of data seen in relation to the understanding of the cases are very important. The credibility of the result concerns firstly if it represents the best possible result considering the limitations of the investigation, and secondly if the limitations are properly considered and can be defended. There are always alternative possible limitations and interpretations. An important aspect of the credibility is if the investigation is reported in such a way that the result can be traced back to its basis in data and how data are interpreted in relation to the cases investigated. Such a possibility to follow how the result has been achieved gives a basis for both criticizing the result and suggest alternative analyses and investigations. It also gives a basis for comparisons with other investigations, and a cumulative development of knowledge, if those other investigations are reported with the

same credibility. Cumulative development of knowledge is considered an aim of scientific work and of contextual analysis.

The knowledge resulting from scientific work is developed through use of and is presented in a language. Our understanding of the nature of the language, and of the relation of the language to parts of the world, is crucial for judgment of credibility and for cumulative development of knowledge. All knowledge is only more or less objective, never absolutely objective (or true), since what we call knowledge is a human creation, individual and/or collective. In the attempt to develop objective knowledge there is a focus on to develop collective public descriptions as the more objective part of the relation to the object. This description part and the emotional, valuing, intuitive part of a relation to a research object form a whole, even if the parts may be more or less dominant and/or in focus. To develop as objective descriptions as possible is what scientific work is about. However, it is important to be aware of and consider that there is a collective subjective basis for what is thought of as objective knowledge. It is important to be aware of the emotional, valuing and intuitive basis for and qualities of collective scientific knowledge.

Since scientific language is dependent on references to objects for establishing meanings, focus on language needs to be combined with references to objects described. Those references are always limited. The meanings and descriptions are often said to apply to many objects within a field, but how is usually demonstrated in a few examples. Theories are abstract generalized descriptions leaving quite open in what sense they are an understanding of the world of objects referred to. Generalization is part of cumulative development of knowledge. The crucial question is how well the generalization is grounded. In research the main focus is on establishing a relation between research objects and descriptions of those specific objects, and to change and develop the language if necessary to establish theoretical knowledge. The aim is to create a clear relation of descriptions to investigated objects. Contextual analysis is an argumentation for rigor through establishing clarity about the relation of descriptions to objects of research. The character of scientific language varies between academic fields both concerning the language characteristics, and concerning the relation of the language to the world of objects described.

Trough out this book it is emphasized that development of knowledge and research methodology fundamentally concerns the relation between a researcher (as subject) and a research object (as a part of the world). This relation is manifested in analysis by use of language. The part of the world is

never totally described, and may also be objectively, but not fully or absolutely, described in alternative ways. The knowledge relation between a knowing subject and a part of the world as object of knowledge is fundamentally uncertain. Contextual analysis as methodology is an argument about how to deal with this uncertainty. In chapter one it was argued that methodology does not follow directly from ontological and/or epistemological assumptions. From this follows that contextual analysis may be part of different paradigms. The early discussion about paradigms was also mentioned in chapter one in discussing the background of the development of contextual analysis. Especially the difference between two schools of meta-science (the Anglo-Saxon and Continental school) and two main types of paradigms (systemic and contextual paradigms) were referred to. It was also said that contextual analysis was a reaction against positivism and was developed within a contextual paradigm.

Since then the discussion on paradigms has continued. The most interesting part of this discussion is here the discussion on criteria for evaluation of research and research methodology. Denzin & Lincoln (2011) in discussing criteria for evaluation of research say: "We live in an age of relativism. In the social sciences today, there is no longer a God's-eye view that guarantees absolute methodological certainty; to assert such is to court embarrassment. Indeed, there is considerable debate over what constitutes good interpretation in qualitative research. Nonetheless, there seems to be an emerging consensus that all inquiry reflects the standpoint of the inquirer, all observation is theory-laden, and there is no possibility of theory-free knowledge. We can no longer think of ourselves as neutral spectators of the social world." (p 564) Contextual analysis shares this observation.

In their description of the criteria used in evaluating research Denzin & Lincoln (2011) say: "There are three basic positions on the issue of evaluative criteria: foundational, quasi-foundational, and non-foundational. There are still those who think in terms of a *foundational* epistemology. They would apply the same criteria to qualitative research as are employed in quantitative inquiry, contending that there is nothing special about qualitative research that demands a special set of evaluative criteria." (p 564) About the quasi-foundationalist position the authors say: "In contrast, *quasi-foundationalists* approach the criteria issue from the standpoint of a non-naïve, neo- or subtle realism. They contend that the discussion of criteria must take place within the context of an ontological neorealism and a constructivist epistemology. They believe in a real

world that is independent of our fallible knowledge of it. Their constructivism commits them to the position that there can be no theory-free knowledge. Proponents of the quasi-foundational position argue that a set of criteria unique to qualitative research needs to be developed" (p 564). About the non-foundationalists they say: "For the non-foundationalists, relativism is not an issue. They accept the argument that there is no theory-free knowledge. Relativism, or uncertainty, is the inevitable consequence of the fact that as human beings we have finite knowledge of ourselves, and the world we live in. Non-foundationalists contend that the injunction to pursue knowledge cannot be given epistemologically; rather, the injunction is moral and political" (p 564).

The first position, the foundationalist, is used to describe the two following which are labeled as quasi- and non-foundationalist. This is quite understandable considering the historical development, but not quite satisfying when it comes to finding a fruitful position for developing and evaluating scientific knowledge. Contextual analysis is suggested as an answer to this situation. The non-foundationalist position is a relativist position ignoring or denying the epistemological problem. Contextual analysis is clearly not foundationlist or positivist and not non-foundationalist or relativist. The position suggested and described throughout this book is a contextual position concerned with how to develop contextually objective knowledge, in a way that also allows for cumulative development of knowledge.

Contextual analysis affirms the statement about the uncertainty of knowledge. According to contextual analysis knowledge relations between human beings and the world are internal relations. In focusing on research objects as parts of the world, and establishing meanings of those parts through description in language, the meanings are dependent on the human being, the researcher. All scientific descriptions are dependent on the describer and limited, but they should also be dependent on the part of the world described. In a relativistic position there is a tendency to look away from the relation to the part of the world, and focus on other qualities of the description in relation to ethical standpoints and political struggle. Those standpoints and this struggle are important, but it is also ethically important, and a struggle, to try to achieve objective knowledge, even if this knowledge can only be achieved contextually and within limits, and does not equal the absolute truth. The tendency in the relativistic position to neglect the importance of the relation to and dependence of the knowledge object cannot be motivated by the uncertainty of the knowledge.

It seems like we humans do not like to struggle with the uncertainty of our knowledge relation to the world. The development of the view of knowledge is characterized by escapism. Either we escape to absolutism and positivism. We know the facts we have the truth. Or we escape to relativism. We do not have to struggle because there are no facts and no truth. My truth is equally good as anyone else's. So it is all a matter of interests and political struggle. From the point of view of contextual analysis both positions are wrong and dangerous (from an ethical point of view). As part of contextual analysis it has in this book been argued that all research has a qualitative basis, and that the fundamental question is how meanings and relations between meanings are established in relation to parts of the world investigated. It is also argued that the defining approach to establishing meanings necessary in quantitative research is not well grounded in human research, and that how meanings can be fruitfully established is dependent on the character of the phenomena investigated and has to vary. Thus contextual analysis is anti-foundational both in relation to the set of criteria that has dominated, and in relation to the idea of a general set of criteria.

Chapter 10 Contextual analysis in summary

First a clarification will be given concerning the use of some words and concepts. This was given in chapter 1 and is repeated here. It concerns the words object, phenomenon, case and meaning. The word object is not used based on an objectivistic assumption, meaning that knowledge should be based on objectively given parts of the world, for instance physical objects or language. The word object will be used in the meaning of object of research, or object of knowledge, just meaning that which is investigated, and that which is spoken of. The objects investigated in contextual analysis will mostly be called phenomenon and/or case. Knowledge is understood as relational, as existing in a relation between the knower and the part of the knower's world the knowledge is about. Both phenomenon and case is seen as existing within the relation between knower and world. Phenomenon is seen as more of a conceptual unit, and case as more of an empirical unit, even if both are both conceptually and empirically based. Each case is a unique part of the world and a phenomenon, but a phenomenon usually corresponds to several cases (of the same phenomenon). How relations between descriptions of phenomena and cases are constituted has to be clarified in each investigation. The word and concept meaning is throughout used about the meaning something is experienced to have. The meaning referred to is more delimited and situational than is often the case in using the word meaning. Much of what is said in principle about meaning is what is generally called theory of meaning.

This chapter gives, in concentrated form, the most important methodological positions taken in contextual analysis, and the most important steps in contextual analysis as methodology and approach. Contextual analysis builds on discerning and delimiting cases of phenomena as objects of knowledge, discerning and delimiting main parts of the cases and their subparts, and relations between main parts and subparts. That the analysis is contextual means that cases, main parts, and subparts to their delimitation and their meaning are considered to be and are made dependent on their context. It also means that data are interpreted in relation to other data within each investigated

case. In the following is given a summary description of what is characterizing contextual analysis in 18 points and some concluding remarks.

1. Contextual analysis is a research methodology and research approach and not a specific research method. It does not deal with details of collecting and treating information and data. Focus is on stand points, in principle, concerning ways of carrying out scientific investigations. It is a part of the methodology, that the specific form and use of methods needs to be decided in carrying out the investigation and should not be defined beforehand. The methods need to be formed in context in relation to the investigated phenomena. This needs to be done based on the understanding of the investigated phenomena, knowledge of methods, and knowledge of investigations in previous research.
2. A first principle is to focus and start from what is to be investigated as a phenomenon (or problem). This may seem self-evident, but much research rather starts from theoretical concepts, categories, variables, information/data, and/or specific methods of collection and treatment of data. Which research objects that are investigated is often unclear, which is a problem given far too little attention in the research. The question about the character of the investigated phenomena is focused from start to end in contextual analysis, even if the possibility to delimit the phenomena varies.
3. To focus what is investigated in contextual analysis means to focus specific empirical cases of a phenomenon (or problem). The investigation is case based, and the cases are the objects of research investigated (including subjects), and what the investigation starts from. In a contextual analysis one has to decide what case/cases that are investigated. If it is hard to delimit cases one still need to try to clarify what elements of phenomena and parts of data are preliminary considered to belong to the same case. The cases have to be discerned and delimited in the context in which they form part. This delimitation is one way in which the approach is analytic. That the delimitation is made in relation to and as depending on context is a way in which the analysis is contextual.
4. An investigation of cases aims at better knowledge of those cases than already achieved. As humans we do not have access to directly given detailed knowledge about the surrounding world. We have to attain

knowledge through focusing parts of the world and investigate those. At the same time, we have to make the investigation starting from the knowledge of these parts we already have. This means that we have to discern and delimit parts of the world, objects, cases, at the same time as the investigation is expected to change and improve the knowledge we already have of the objects and base our delimitation on. Therefore, the first delimitation of the cases has to be preliminary and be open to change as a result of the investigation.

5. The world cannot be investigated in a totally exhaustive way but only in a limited way. The limitation is among other things dependent on the observer's and researcher's perspective. The perspective means that a part of the world is seen as something, appears as something, as a case of a certain kind. Other aspects of the same part of the world are not included in the observation/investigation. What will be part of the object/case is decided by the perspective. At the same time the perspective is decided by what part of the world that is appearing and approached. To be clear about how cases are delimited, what is included and excluded, is very important to be able to know what is investigated, to be able to compare cases, and to get a developable and useful knowledge.
6. One way in which contextual analysis is contextual is through attending to how the investigated is discerned and delimited within its context. The contextual character also consists in that the investigated is seen as dependent for its meaning on its context. The reasonableness of the delimitation made, and how it can be made more fruitful when it comes to knowledge about the phenomenon, is a central concern. The case investigated is delimited from its context, and other cases, through the information and data that is collected/produced and considered to be about the case. An important question is what data that are relevant and concern the case, respectively if important relevant information about the case is missing. In the treatment of data in contextual analysis, the relevance of data is not taken for granted but is tested in relation to the delimitation of the case.
7. Contextual analysis presupposes that collection of already documented or new information/data is made according to established knowledge of research methods. Characteristic of contextual analysis is that the starting point is not taken in data, but in an understanding of and delimitation of

the phenomenon/case, and a judgment of the relation of the data to the case/phenomenon. Individual data are considered relevant or not relevant depending on how what they refer to can be said to be part of the phenomenon/case. General knowledge about methods has to be used, like for instance how to make observations, interviews and so on, based on focus on what can become known about the case/phenomenon, and how critical/decisive the information can be expected to be. This is a consideration that also is made in relation to already documented information, and it can lead to that some data are left out in the subsequent analysis as not being about the phenomenon investigated.

8. Collected data are given meaning through their relation to the phenomenon and to other data about the phenomenon. Data about a part of the case is interpreted in relation to the other data about the case and the case as a whole. In difference to most analyses called qualitative analysis contextual analysis is not starting with coding and/or categorizing individual data to compile or synthesize those codes and/or categories. Instead the analysis starts from the case as a whole and search for main parts of the case/phenomenon. This means that data is grouped according to what main parts of the case/phenomenon they are about. The assigning of data to main parts of the phenomenon builds on an interpretation of individual data. At the same time the assigning of data to parts of the case/phenomenon contributes to the interpretation of individual data.
9. The assumption about and the searching for main parts of the case/phenomenon are based on an understanding of how human and scientific knowledge is developed, and also on the nature of our knowledge interest. Registering of a lot of particulars is not what we mean by understanding and knowledge. Knowledge presupposes a discerning of units with some complexity and internal organization, which means discerning and relating of parts within a whole. We can for instance think of a course of events as our phenomenon. We are then not only interested in the course of events as a chain of very specific separate events without internal connection. We are interested in how the specific events are related. Courses of events as chains of separate events do not give a basis for delimitation of a course of event as a case/phenomenon. It is the focus on something characteristic of a

course of events as a whole that gives a basis for delimiting it as a course of events of a special kind, and with a beginning and an end.

10. What is characteristic of phenomena/objects of knowledge is that they constitute wholes of related/organized parts. It is varying difficult to discern and delimit what constitutes a phenomenon. The difficulty can be of varying character and has to be dealt with in varying ways. One problem is if one can clearly delimit some main parts but not how they are related. This may suggest that what we believed to be one phenomenon is better understood as different phenomena. If one can delimit a lot of smaller parts, but not relate them into interrelated main parts, also creates uncertainty about if the data we have is about one or several phenomena. It also means that we do not succeed in finding any special character or nature of one or several phenomena, only that there are a number of separate units of a certain kind. Not to be able to delimit and describe the character of a phenomenon as expected is an important result. It can forward the development of knowledge, provided that one has really tried to delimit and describe the phenomenon thought of and focused.
11. The discerning and delimiting of main parts of a case starts from the knowledge one already think one has about the kind of phenomenon the case is assumed to be. The assumption, expectation, hypothesis about main parts of a certain kind, and the relation between them, is differently well formulated and underpinned in different investigations, among other things depending on the previous development of knowledge. They cannot be taken for given. It is part of contextual analysis to from data clarify the presence of main parts, if those correspond to expectations (the hypothesis if such is formulated), and how more precisely the main parts can be delimited, and what is characteristic of them in the investigated case(s). Not the least the analysis is aiming at clarifying how main parts are related, and what meaning the relation between them have, and what character that gives the case as a whole.
12. It is quite common, both in collecting and analyzing data, to use in advance defined categories and variables. Contextual analysis is explorative interpretive in relation to the case as a whole concerning the meaning of data, and interpretive in relation to other data within the case, and does not start from predefined meanings (categories and variables). Categories developed in previous investigations may form starting

points, and be part of the interpretative frame, but is not assumed to be significant with previously given meanings. Meanings are discerned and delimited in the new investigation within new specific cases. Then, similarity and difference in meaning compared to other investigations can be scrutinized, and a cumulative development of knowledge be realized through integrating descriptions of similarities and differences between investigations.

13. In investigations with more than one case of the investigated phenomenon it is an asset to compare cases. Comparison between cases may clarify meanings of data, parts of the cases, and the cases as wholes. In contextual analysis no compilation across cases of meanings or of categories referring to parts of the cases is made. Individual data and parts of cases are not taken out of their context, but are seen and interpreted as parts within the case. Compilations of results are made for cases as wholes. Else, in other investigations, it is quite common with compilations based on concepts, aspects, categories, and variables, the content of which would correspond to parts of cases in contextual analysis.
14. The analysis of a case aims at delimiting and deciding the meaning of parts and the whole of the case. The meanings of the parts are decided in relation to other parts and to the whole, and at the same time the whole gets its meaning in relation to the deciding of the meanings of the parts. The meanings are expressed in language descriptions and labeling. Those descriptions are by necessity selective. All data information is not included. The descriptions emphasize some meanings of data as central, of principle and critical importance for the case as a whole. To give such a description in a most well-grounded way based on data, and the case as a whole, is the very aim of the analysis. At the same time, it is important to pay attention to, and take the consequences of, the discerning and delimiting character of the analysis, that some meanings/qualities of the case are emphasized, and that there are other that are not included in the description and labeling.
15. It is a condition for the use of words, concepts, categories, descriptions and language on the whole that one disregards differences. The word chair for instance does not presuppose that all chairs are the same. If we demanded that all chairs should be exactly the same to use the word it would not exist. In contextual analysis we lift forward important/fruitful

qualities that are similar between cases, and at the same time do not disregard differences that are related to those similarities. The similarities lifted forward have to be understood in relation to the differences they are connected to. The contextual understanding means that what is described as a similarity involves a concomitant difference. The similarity always appears as a similarity with a starting point in a context that is shared, but not fully. What is described and named as similar has in reality a somewhat different meaning depending on its connection to something additional, and through forming part of a context that is different, and gives a different meaning to what is described as the same.

16. The relation between similarities and differences can be handled in different ways in contextual analysis. Cases may be chosen in different ways, to be very different or because they are similar in some way. This gives different conditions for comparisons, descriptions and naming. In investigations of one or a few cases it is close at hand with extensive descriptions that includes a lot of the differences between cases, and may be no common names, categories or descriptions used for parts across the cases. At many cases in the same investigation one can chose to more or less use common names, categories and descriptions of parts of the cases. If one to a great extent uses common descriptions it is important to, at the same time, put forward that and how the specific meanings of those descriptions vary between cases. If one to a great extent uses different descriptions of parts of cases for different cases it is important to point out significant similarities.
17. What has been said about similarities and differences between parts of cases also is valid for whole cases. Cases as wholes can and need to be compared to develop knowledge about them. One way to systemize the knowledge about the cases is to group them into categories (types), and describe what is characteristic of the cases in each category. This can be made in different ways. The aim is that similarities within categories of cases and differences between categories should be as significant as possible. The significance concerns the character of the cases and their relation to a broader context. Different groupings and categorizations represent different ways to handle similarities and differences between the cases. It is most important to not only focus on similarities within categories but also clarify the variation of dissimilarities within the categories. The dissimilarities/differences within categories form a basis

for alternative eventually better groupings and categories of cases, and a connected improved interpretation of what characterizes the cases/phenomena.

18. Investigations and analyses are usually not made only to understand the cases investigated, but also to develop knowledge that is useful in relation to other and more cases. A cumulative development of knowledge where results from different investigations are integrated is depending on that the ways of handling similarities and differences between cases in different investigations are clarified and can be compared. One may in two different investigations have emphasized different qualities as common between the included cases, i.e. one has arrived at two different results about the character of the cases. A scrutiny of the differences between the cases in the two investigations may show that it is possible to find the same common qualities in both the investigations. It may also be the case that big differences between cases are hidden behind common descriptions. In contextual analysis it is not the descriptions and groupings of the cases as wholes that constitute the whole result. The relation of the descriptions to the data material (with its variation and dissimilarities) is an important part of the result. It is the whole of concluding descriptions in relation to the data material that is the basis for cumulative development of knowledge and use of the result of the investigation in relation to new cases of the phenomenon.

Contextual analysis is analytic by starting from a bigger whole, a case, a phenomenon as a whole, and by within this whole discerning and delimiting parts and their interrelations. Most of what is called analysis in research does not have this character. All quantitative analysis and much that is called qualitative analysis starts from smaller predefined data units (variable values, codes, categories) as the basis for data treatment. The relation of these data units to the wholes of eventually investigated cases are usually unclear. The data units are assumed to have the same meaning in all instances where they are used. No consideration is given to that they may be part of cases in different ways with varying meanings. This way to treat data is called analysis but is a constellation of such predefined data units. It is unclear how the constellation that is made can be an analysis and describe cases/phenomena.

The contextual character of contextual analysis is linked to that the analysis starts from a bigger whole, a case, a phenomenon, and means a discerning and delimiting of this whole, and of parts and relations within this whole. The contextual character of the discerning and delimiting means that parts of phenomena, and data units, are identified and interpreted in their context, and as dependent on their context for their meaning. It means that data are understood in terms of what they say about a part of the case as contained in the case as a whole. Data are not given predefined meanings. It is the contextual delimitation of meanings that makes contextual analysis in a deeper sense analytic. This deeper sense means that it is the case/phenomenon that is analyzed through treating all parts and data units as parts and not as separate units.

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Generally, in society and not the least in research, there is a great need to consider soft values and specific circumstances. There is a need for scientific ways to give more comprehensive descriptions of the character of human and social states. Contextual analysis, presented in this book, is such a scientific way, a methodology and research approach.

In this book a description of, argumentation for, and exemplification of contextual analysis is presented. Even if contextual analysis is not a specific method, it involves a special way of conducting research and developing knowledge. The approach presupposes that methods vary depending on the character of what is investigated.

Characteristic of contextual analysis is that it is both analytic and contextual in an integrated way. In difference to much research that primarily starts from concepts, categories, variables, methods and data material, contextual analysis primarily starts from cases of the phenomenon investigated.

Lennart Svensson is professor emeritus in Education at Lund University. He is one of the founders of phenomenography and has developed the research methodology contextual analysis.

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