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# On Generalization in Qualitatively Oriented Research

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**Abstract**: In this article, I open a debate about the importance and possibilities of generalization in qualitative oriented research. Generalization traditionally is seen as a central aim of science, as a process of theory formulation for further applications. Others criticize the concept in general, either because of the insufficiency of inductive arguments (POPPER, 1959) or because of context specificity of all scientific findings (LINCOLN & GUBA, 1985). In this paper, I argue that generalization is necessary in qualitative research, but we have to differentiate different aims of generalization: laws, rules, context specific statements, similarities and differences, and procedures. There are different possibilities to arrive at a generalization: analysis of total population, falsification, random or stratified samples, argumentative generalization, theoretical sampling, variation, and triangulation. Depending on the type of research or research design some of those strategies of generalization can be important for qualitative oriented research. This is discussed especially in respect to single case analysis.

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## 1. Introduction

Qualitatively oriented research projects usually use more intensive and extensive methods of data collection and data analysis like in-depth interviews, open-ended questionnaires, long-lasting field research with many field notes, and interpretative document analysis. This often allows the construction of only few cases or small samples. But can we draw more general inferences from our data? Are the results of such a study valid not only for the study but for the population on which the research question wanted to make statements? Do we find in our cases or small samples characteristics or relationships that have value for other cases or samples? This is the problem of generalization. [1]

Looking for first, rough definitions of the term, we find formulations as

- inferring general formulations, scientific laws, from specific facts;
- extension of the validity of formulations;
- transfer of assumptions over persons, situations or contexts; and
- raising the level of abstraction in sentences. [2]

In traditional quantitative social research the problem of generalization is discussed under the concept of external validity (of experimental studies). Would the same result be found under a different set of circumstances (SARAFINO, 2005)? [3]

Generalization is a central step in the qualitative research process, as FLICK (2005) has worked out in his qualitative process model. He underlines the necessity to define the aims of generalization (e.g. comparisons, typologies, age, sex, area). But what are concrete procedures of generalization? [4]

In his contribution to the *FQS* Debate on Quality of Qualitative Research, FAHRENBERG (2003) underlines the necessity of generalization, but criticizes in qualitative studies an overhasty generalization of their results. [5]

Some authors argue that here are different forms of generalization in qualitative and in quantitative oriented research. DIRIWAECHTER, VALSINGER and SAUCK (2005) distinguish functional generalization (looking for commonalities between observations, more quantitative) and categorical generalization (building homogeneous classes, more qualitative). FLICK (2005) differentiates between numerical and theoretical generalization which goes in a similar direction. But they all underline the important role of generalization. [6]

## 2. The Logic of Generalization

The procedure of generalization seems to be the kernel of all scientific work, a basic attribute of scientific knowledge as the aim of science. From single observations we try to draw inferences to more general formulations to be extended to future situations, as Figure 1 illustrates.

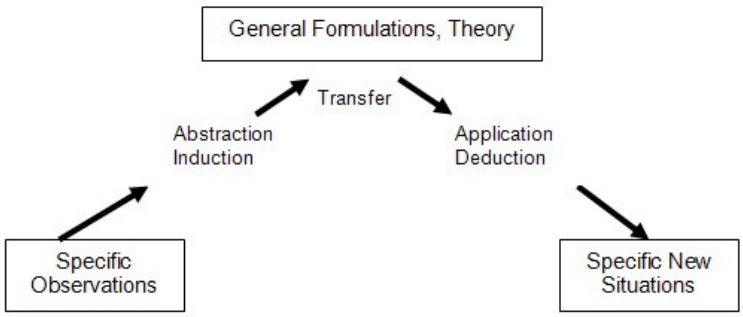


Figure 1: The process of generalization [7]

The formulation of more general statements is only possible by abstraction. This conclusion is called induction. The general formulation can be linked with other, formerly developed general formulations to a network of statements, a theory. The advantage of those theories is that we can apply them to new situations which we don't have to explore over again. This conclusion is called deduction. Such a proceeding seems to be very useful, that is, it appears to be at the core of scientific work. But there are considerable objections. [8]

## 3. The Critics of Generalization

There are two critical positions towards generalization: a constructivist and a critical rationalist position. [9]

The first position can be characterized by the famous notion: "The only generalization is that there is no generalization" (LINCOLN & GUBA, 1985, p.110). From a constructivist point of view all phenomena are time and context specific. Our insight can only be a reconstruction of subjective perspectives of people in specific situations. So the aim of inquiry can only be the development of an ideographic body of knowledge. Even the social constructivist position, which seeks for similarities of individual perspectives, takes those agreements as only time and context specific. DENZIN (1983) argues in a similar direction stating that "the interpretivist rejects generalization as a goal" (p.133). Human interactions and lifeworld phenomena have always multiple meanings, which leads to an inherent indeterminateness in the lifeworld and forbids generalizations. [10]

The second position brings the central logical argument, that a complete inductive proof of general sentences is not possible (POPPER, 1959). Even if we observed thousands of white swans it is impossible to draw the inference that all swans are white (because tomorrow a black one could occur), and only such time- and space-unrestricted sentences (universal statements) are scientific useful. This is why POPPER developed his program of falsification working only with deductive inferences. He hopes that after falsifying all fallacies only true sentences will remain. This position of critical rationalism, nowadays often called post-positivism, is found in qualitative oriented research as well (DENZIN & LINCOLN, 2003). So the controversy is open. [11]

There is a position that mediates between the extreme standpoints for and against generalization. Malcolm WILLIAMS (2002) calls it *moderatum* generalization and puts it in contrast to total generalization, where the specific sentences S are completely and identically covered by the general laws. "Moderatum generalization: where aspects of S can be seen to be instances of a broader recognizable set of features. This is the form of generalization made in interpretive research" (p.131). [12]

In this article I argue that such moderate position is fruitful. Generalization is important and necessary for scientific research, but we have to specify what sorts of arguments or inferences are aimed at with generalization and what procedures of generalization are used. [13]

## 4. The Aims of Generalization

In Chapter 2 I stated that general formulations, that is, theoretical sentences, are the aim of generalization. But they can have different forms and structures, and different types of general sentences need different procedures of generalization. Perhaps we can differentiate eight different types of generalizations:

- *Universal laws*, unlimited in space and time, as claimed by POPPER, are indeed difficult to proof. It can always happen that a contradictive observation is made in future. The generalization therefore must be made very cautiously and must be held in a process of permanent review. But there are severe doubts if in social sciences universal laws can be found at all. In psychology for example universal laws were formulated (frustration-aggression law: all persons who are frustrated react with aggressions; early learning laws: classical and operant conditioning) but later on restricted by further research (frustration-aggression law: consideration of anger emotions; learning laws: consideration of cognitive factors).
- *Statistical laws* are easier to proof because there can be contradictory observations. We only have to show that theses contradictive cases are so infrequent that this can be explained by chance.
- If we try to formulate general, theoretical sentences more cautiously, the term of *rule* instead of law would be helpful. Rules describe regularities and similarities, rules can have exceptions. Peter WINCH (1958) was one of the first to postulate rules instead of laws in social sciences. Behavior is meaningful and symbolic and therefore an application of rules in social contexts.
- More restricted, more modest in generalization would it be to aim at only *context specific statements*. We want to formulate rules ore describe relationships which are valuable only under certain conditions, in similar situations, persons, times. The results of the study can only be generalized to middle class people in industrial states in 21st century. The concept of middle range theories, going back to Robert MERTON (1968) goes in this direction.
- To record *similarities and differences* between several observations by systematic comparisons would again be a more moderate form of generalization. Behind the similarities and differences rules or relationships between variables could be formulated, but this is a matter of interpretation, not proved by the empirical data themselves.
- *Descriptive studies* want to prepare the ground for generalizations in the sense of collecting specific observations as basis for discovering similarities or rules. Good descriptive studies try to present the phenomena in a broad range, to explore different contexts and so they have to reflect on later generalizations.
- *Explorative studies* do not generalize well but develop general statements, hypotheses, which can be tested for generality in following studies. They have to reflect on those possibilities (e.g. empirically testable hypotheses).

- The most "modest" form of generalization would be to generalize not the results of the study but the *procedures* to come to results. In some forms of action research it seems that the authors do not want to generalize the solutions to the problems in their own praxis but want to give advice how to solve similar problems in the future. Maybe the constructivist position goes in the same direction: not the result of reconstruction but the procedures, the discourses on reality, can be generalized. [14]

Those eight levels of generalized sentences differ in abstraction: from general laws to procedures for gaining insight in specific situations. It is the epistemological position of the researcher and the conditions and possibilities of his research field and research question which determines the aim of generalization in a study. The next point would be to find a concrete procedure for generalization. [15]

## 5. Procedures of Generalization

There are very different possibilities to come to generalizations. I want to describe eleven pathways:

- The analysis of the *total population* is in some cases possible and fruitful. A study of world champions, Nobel Prize winners, or European countries can analyze all relevant cases and has therefore no problems of generalization.
- *Falsification of general laws* is the procedure critical rationalism (POPPER) suggests as the only possible one. It is an indirect strategy because it tries to find false generalizations and hopes that true generalizations will remain.
- Working with *randomized samples* is the way quantitative studies would usually work with. We hope that the random sample contains cases with all relevant attributes as in the population. The size of such representative samples should be big enough (more than 30 because of the "central limit theorem") and can be calculated if we determine alpha level, power and effect size in the statistical analyses that should be applied (cf. COHEN 1988). It is unusual but possible to work with randomized samples in qualitatively oriented research (e.g. an open-ended interview study).
- Random sample strategies often are difficult to achieve (a list of the whole population is necessary!) and *stratification* strategies are adopted (often in combination with random strategies). Following theoretical considerations some dimensions are defined as central (e.g. age, sex) and the distribution of those variables in the sample is previously fixed (we want n female and m male in our study). The strata can be fixed in equal parts or following the distribution in the population (cf. for sampling THOMPSON, 1992).
- Working with *bigger samples* is a strategy that can be recommended in general. The more cases we have analyzed the more general the conclusions can be. The restrictions in sample size within qualitative oriented studies normally come from practical considerations (intensive and complex data collection) and it is wise to extend the sample at its limits (following an adequate sample strategy).

- *Argumentative generalization* is an ex post strategy. The researcher discusses the qualities of the sample and considers the possibilities of generalization (TERHART, 1981). TERHART suggests a more specific form of generalization. The researcher has to find out what aspects of our results a generalizable to what to what new situations.
- *Theoretical sampling* is an important strategy in qualitative oriented research developed in the framework of Grounded Theory (GLASER & STRAUSS, 1967; STRAUSS, 1987). It is a form of argumentative generalization in the process of data collection. The main idea is that from the beginning of data collection the material is analyzed by coding and memo-ing in a sense of inductive theory development. The first results lead to considerations what further material (including new interviews, field observations, and documents) is needed to confirm or support or critical check the first results. This is an iterative process that comes to an end if sufficient evidence had been found (saturation).
- *Looking for typical material* is another strategy for generalization. From prior considerations or ex post analyses parts of the material (the cases) are seen as typical for a broader population. (cf. MAYRING, 2003, Chapter 4.3.17).
- *Variation* of the phenomenon, looking at the phenomenon under different circumstances, is a central strategy within phenomenological analysis (MOUSTAKAS, 1994). Looking for contrast cases is a similar frequently recommended strategy (e.g. within Grounded Theory). The finding of similarities within the variations leads to generalizations.
- *Triangulation* (cf. DENZIN, 1970) means the combination or integration of several studies to come to more secure and more general results. The new trend of multi methods and mixed methodology (MAYRING, 2001; TASHAKKORIE & TEDDLIE, 1998) goes in this direction.
- A last strategy for generalization would be to do *comparative literature analysis*. We can look for similar studies and compare our results with those studies. This can lead to complex meta-analysis (cf. for different approaches SCHULZ, 2004). [16]

This list shows that there is a broad range of different possibilities to generalize results in quantitative and qualitative oriented studies. Again the adequate strategy depends on theoretical and epistemological considerations. [17]

## 6. Possibilities of Generalizations from Single Case Studies

I want to demonstrate the possibilities of generalization for a type of study widely used in qualitative oriented research: the single case analysis. Here the necessity of generalization is evident, because the single case itself is not of interest, only the conclusions and transfers we can draw from this material. [18]

The first tentative and weakest form of generalization would be to analyze the context of the single case and to generalize the results to similar contexts. We have deeply interviewed a young male person in a larger city and we generalize

the results to young male urbanities. It would be better to reflect on generalization ex ante, which means to select the single case following prior considerations. Looking for a typical case, a representative case, a frequent occurring case or a theoretical interesting case would be a good strategy. That means that it would be good to formulate a case definition (What would be a good case for my study?) before the case selection (cf. MAYRING, 2003). [19]

The next step to confirm the results and to come to more general conclusions is to widen the case basis. The recommendations of case study researchers are to work with three to ten single cases (cf. YIN 2005). The use of contrast cases, of theoretical sampling has been described above. [20]

A last possibility to come to general conclusions from single cases lies in the longitudinal structure of the material. We can identify time series in a single case and analyze trends (see for statistical possibilities SHUMWAY & STOFFER, 2006). But even experimental designs can be reconstructed in single cases: Several interventions in the life course, observations before and after the interventions, comparison with biographical phases without intervention can lead to a systematic analysis of intervention effects and causal interpretations (cf. JULIUS, SCHLOSSER & GOETZE, 2000). [21]

## 7. Final Conclusions and Questions

In summarizing, there are three general questions on generalization in qualitative oriented research projects:

- Is generalization of the study results important or necessary in research?
- What is the aim of generalization? To what statements do we want to generalize?
- What are possible procedures of generalization? [22]

I argue in this paper that the problem of generalization depends on the aims, the statements to be made, or the anticipated results. In most cases the targeted conclusions of a qualitative study are more general than the results found: we need generalization. There is a broad range of possibilities for generalization from qualitative studies. Especially single case analyses are not speaking for themselves, they need generalization. A reflective, theory-guided selection of cases and a stepwise broadening of the case basis are central procedures for generalization of single cases. [23]

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