

Revisioning Quantitative and Qualitative

Chapter Summary

Introduction

The qualitative and quantitative approaches described in this book are in fact not as incompatible as so far presented. There is a certain “consilience,” or compatibility and unity, between different methods of research, where their results can complement each other, and extend the understanding of the social phenomena we study. This chapter argues that both qualitative and quantitative methods are needed to study the social world and improve our understanding of it. Using multiple perspectives—theoretical, methodological, empirical—enriches our understanding of social problems and is more likely to produce good research.

The chapter starts by discussing the alleged incompatibility of social methods and shows how they are similar with respect to some key criteria: empiricism, answering research questions (hypotheses), and aspirations to realism. It then considers main distinctions between the two camps and shows how these are overcome in practical research, by using *mutual analysis*, *quantification in qualitative research*, and *multi-strategy research*. The three strategies are considered in detail and the logic of combination of methods is examined, demonstrating what outcomes of research the combination of methods is likely to improve.

The Natural Science Model and Qualitative Research

This section looks at the similarities of qualitative and quantitative methods with regard to the main criteria of natural science model: basing research on evidence, formulating and testing theories, and working on narrow research questions. Very often the natural science approach to social research, for example doing surveys, is equated to *positivism*. However, methods used in practical research do not always correspond to philosophical assumptions associated with them. For example, just like surveys, qualitative research also exhibits features associated with a natural science model for the following reasons:

- *It includes empiricist emphasis* such as a need for direct contact of research with reality, and a focus on data. This approach is embodied in the grounded theory, which is described as “grounded in data.” Another part of empiricism emphasizes that social reality must be studied from the point of view of participants, and that the meanings people give to their actions can be ascertained through the senses.
- *A specific problem focus*, or a narrow definition of the research question, may be present in qualitative research, although it is normally associated with the quantitative one.
- *Hypothesis- or theory-testing*: Qualitative research often includes a degree of hypothesis or theory testing, as in hypothesis testing and theory construction described in grounded

theory. Although the direction of research is *deductive* in quantitative and *inductive* in qualitative research, hypothesis formulation and theory testing is present in both. Sometimes qualitative research might start right away with a hypothesis to test.

- *Realism*: There are currents in social theory which aim to bridge ontological assumptions of natural and social sciences, such as Bhaskar's (1989) theory of *critical realism*. **Critical realism** claims that social science should not only study the causal relationships between factors in social world, but also describe the mechanisms through which these causal relationships work. In other words, social research on any issue should study human agency and contingent social events as much as the underlying social structures that reproduce themselves in the process. Social science should study both social structures and processual events that lead to a certain outcome. Hence, the *mechanisms of causal influence* should be examined as much in qualitative studies as in quantitative ones.
- Some qualitative researchers engage in *neo-positivist* predictions based on qualitative life-history interviews (such as Miller (2000)), while others, such as the proponents of grounded theory Glaser and Strauss, believed, as positivists do, that an external reality exists, and that the job of social scientists is to uncover its nature.

Quantitative Research and Interpretivism and Constructionism

In this section, we consider how qualitative and quantitative studies are similar with regard to the main criteria of qualitative research: concern with studying meaning of action (interpretivism) and the constructed nature of social reality (constructivism). Qualitative methods are considered to be based on assumptions of interpretivism and constructionism. However, the primacy of these assumptions in qualitative methods can be contested, and this section will demonstrate how.

First, let's consider interpretivist assumptions. Qualitative research is often presented as having a monopoly on studying meaning: rich, in-depth explanations are only seen as possible in qualitative interviews. However, quantitative research also studies meanings in the form of *attitudes*. Questions on attitudes are regularly asked in surveys and many scales are constructed to measure those. These measures of meaning are, however, sometimes seen as imposed because they come from the ideas proposed by researchers and not by research participants.

There are two criticisms on this point of view:

1. The point about qualitative research being better at accessing meaning *is more often assumed than demonstrated*: qualitative researchers claim to have spent a long time in the field or have conducted lengthy qualitative interviews to claim that their interpretations are trustworthy. However, they rarely demonstrate that the interpretative understanding has been accomplished, for example, by direct *respondent validation*.
2. Quantitative researchers also claim that attitudinal questions can be reasonably good if their statements are formulated with the help of *prior questioning* of participants on the issue and creating the statements on respondents' previous suggestions.

Secondly, let's turn to constructivist assumptions. Qualitative research methods, such as qualitative content analysis, are seen as better ways to show how *people* construct their understanding of reality. They describe people's meanings and understandings. However, quantitative research methods can be better in showing how *representations of social reality are constructed in the media*, such as popular magazines, TV shows, and others. For example, Lanz and Booth's (1998) research on the social construction of breast cancer shows that in articles from popular magazines, women with breast cancer were represented as predominantly young, with a greater majority of photographs portraying them as women under 50. This helped media to connect breast cancer with youthful lifestyles and create a social representation of women with the disease as young professionals. However, medical data clearly show that the vast majority of breast cancer patients are women over 50, something that was completely inversed in media representations. Therefore, the quantifi-

cation of meanings in quantitative analysis helped to show how social representations of breast cancer in the media were different from medical reality.

Research Methods and Epistemological and Ontological Assumptions

The discussion above shows that scholars using a particular research strategy do not always share the same epistemological and ontological assumptions. The connections between methods and assumptions are not absolute. For example, studies show that historically, proponents of functionalism were not necessarily more likely to use surveys as their research methods (Platt, 1996). The philosophical assumptions, and the subsequent decision of which style of research to use, are specific to the researcher. Frequently the decisions on methods are more likely to be governed by practical considerations than by philosophical assumptions: researchers first choose a specific method of research and then can emphasize positivistic or constructivist assumptions associated with this method.

Problems with the Quantitative/Qualitative Contrast

Differences between quantitative and qualitative methods are often seen as unbridgeable, but often it is not the case. Closeness between the two camps can be seen not only in the looseness of connection between methods and their philosophical assumptions, but also across several specific contrasts between quantitative and qualitative methods:

1. *Behaviour versus meaning*: It is often claimed that quantitative research deals with behaviour, and qualitative deals with meanings. This contrast is not so sharp, because surveys also consider meaning in the form of attitudes. On the other hand, qualitative research also considers behaviour, although it studies it in context. Qualitative researchers further interpret the meaning of this behaviour looking at norms, values, and culture. In broader comparison, both approaches look both at what people do and what they think, and the contrast between behaviour and meaning should not be overstated.
2. *Theory and concepts tested in research versus those emerging from the data*: Much quantitative research (e.g., survey research) can proceed in a more inductive way than often admitted. While the *concepts* in survey research have to be decided in advance, the hypotheses and theories may not emerge until after the data have been gathered. Since surveys ask many questions, the number of potential hypotheses is vast, and they cannot all be specified at the beginning of the process, but are formulated *after the data collection*. Hence survey research is much more exploratory than is commonly claimed. In addition, survey findings may also contribute to the inductive process of research, when the findings lead to formulation of new hypotheses that are tested in a new study with new data.
3. *Numbers versus words*: The way of presenting their results is also not so divisive. Survey researchers do use descriptions, while qualitative researchers use numbers to make their arguments. For example, qualitative researchers engage in limited quantification when they calculate numerical summaries or percentages to derive some general trends from their data. Others use “quasi-quantification,” providing approximate words such as *many*, *often*, *few*, or others. In turn, quantitative researchers analyze qualitative evidence to better understand their subject matter or to generate ideas.
4. *Artificial versus natural*: Critics of surveys often stress that they are limited instruments that produce artificial accounts of social life. They see qualitative research as more *naturalistic*, in that it studies people in their natural settings, behaving as they normally do. Interference of the researcher is minimal. However, artificiality is not only an issue in quantitative work. Qualitative research, if based on interviewing, may take people away from their natural settings as well, and it is not easy to check how the accounts of behaviour given by participants in the interviews correspond to their actual behaviour. Interviewees are conscious about being interviewed and might give accounts that are changed or reac-

tive. In focus groups, while researchers praise focus groups for emulating natural conversations in ordinary life, it is unclear whether participants themselves see focus groups as natural interactions. In short, naturalistic quality is compromised in any kind of interview, qualitative or quantitative. Similarly, participant observation may be affected by artificiality and reactivity because of the researcher's presence. Hence, artificiality and naturalism are a matter of degree in both methods, qualitative and quantitative.

The contrasts above demonstrate that while the distinctions between qualitative and quantitative methods do exist, the divide between them should not be exaggerated, because differences between approaches in practice are much more subtle than the contrasts presented in theoretical models of positivism and interpretivism.

Mutual Analysis

In **mutual analysis**, one approach is used to analyze studies conducted in the other (e.g., qualitative approach used to analyze qualitative studies, or vice versa). Mutual analysis is applied to studies that already exist; it is therefore a sort of *meta-analysis*, where the findings of several existing studies are examined at once to draw broader implications for a given research question. The two types of mutual analysis are as follows:

1. *Qualitative methods used to study quantitative research*: This is research where quantitative studies are examined using qualitative methods. For example, using description is increasingly popular in quantitative research. It is seen not only as a formal presentation of findings, but also as an attempt to persuade readers of credibility of findings. For example, this argument is used by researchers studying the ways in which statistics constructs and interprets arguments in social research, and how statistics are used to give research more legitimacy and credibility (*ethnostatistics* approach, Gephart, 1998)
2. *Quantitative methods used to study qualitative research*: This approach entails quantitative analysis of existing qualitative studies, such as a quantitative content-analysis of work ethnographies (Hodson, 1996). Comparing ethnographic studies in a given area, this approach can be called *meta-ethnography*. Selecting studies suitable for analysis is a key issue in this approach, and requires a very good knowledge of the substantive area. The advantage of this method is that it allows one researcher to compare findings from different settings and organizations, by quantifying and coding the texts. It also allows researchers to test hypotheses derived from specific theories.

Quantification in Qualitative Research

Another type of mixed-methods research is when qualitative researchers engage in quantification during their qualitative studies. There are several ways in which quantification can be accomplished:

- *Thematic analysis*: Looking for themes is one way of quantifying qualitative research. Researcher checks the themes in transcripts or field notes. Themes are established based on how frequently certain activities, words, or topics reappear in the transcript. This implicit quantification influences how certain activities or topics become a theme of interest.
- *Quasi-quantification*: This is a situation where qualitative researchers use terms *many*, *often*, and *rarely* to describe the relative frequency of the problem they are studying. Since these descriptions are imprecise, quasi-quantification is not very revealing and it is hard to measure the overall influence and generalizability of findings.
- *Limited quantification*: Qualitative research is often accused for providing “anecdotal data” that cannot be generalized to a broader population. Mentioning an issue in an interview transcript or a brief citation says nothing about the prevalence of the issue in the population, or its significance. For this reason, engaging in limited quantification is preferable,

since mentioning specific numbers looks better than imprecise quantitative descriptions, and description with numbers helps to combat accusations of anecdotalism. The use of software programs also contributes to increasing quantification of qualitative research.

Multi-Strategy Research

There are three approaches to multi-strategy research:

1. *Triangulation*: The use of quantitative research *to corroborate* qualitative findings, and vice versa.
2. *Facilitation*: The use of one research strategy *to assist with research* that uses a different strategy.
3. *Complementarity*: Using two or more approaches to *fill in the gaps* where a single approach would not be sufficient.

Arguments against Multi-Strategy Research

Arguments against multi-strategy research are based on assumptions that particular methods are strongly connected to their corresponding epistemological and ontological foundations, and because of that, qualitative and quantitative methods are inherently incompatible and cannot be used together. These arguments translate into two main positions:

1. *The embedded method argument*: this position suggests that using a particular research method implies acceptance of its corresponding epistemological and ontological positions (e.g., participant observation implies an interpretivist position, which is by nature inconsistent with the natural science model). Adopting this philosophical stance automatically means that multi-strategy research is not feasible: the ethnographer may collect a survey as a part of her or his work, but this will not amount to a proper integration of two methods, since such integration is impossible by definition. However, as we have seen earlier, the argument about strictly separated epistemological positions is difficult to defend.
2. *The paradigm argument*: This school of thought argues that the quantitative and qualitative approaches are based on separate *paradigms* that are epistemologically and ontologically incommensurable. **Paradigms** are a set of beliefs about how the world works and about the nature of knowledge. The term was used by T. Kuhn (1970) in his portrayal of development of science. Kuhn claimed that a period of “normal science” in any scientific period is followed by a “revolution,” where the established paradigm is overhauled by the new findings that do not fit it, and the new paradigm develops. The “revolution” finishes when the new paradigm gains widespread acceptance among scientists, and the period of “normal science” sets in. The old and new paradigms are “incommensurable”: each uses its own assumptions, terminology, and methods. Following this theory, some sociologists consider qualitative and quantitative approaches as representatives of two incommensurable paradigms that cannot be reconciled. Again, the paradigm argument assumes inherent connection between method and epistemology that is not necessarily the case.

Hence, the opponents of multi-strategy research claim that quantitative and qualitative research cannot be combined because of their incommensurable paradigms, and different *epistemological* (and thereby ontological) principles. By contrast, the proponents of multi-strategy research tend to present a **technical argument** for combining quantitative and qualitative methods. Simply put, it claims that different research methods can be used without necessarily adopting a particular epistemological (or ontological) position. The selection of a method is a decision about which window the researcher will open to look into the “room.” It does not dictate how one will see.

Approaches to Multi-Strategy Research

The Logic of Triangulation

Triangulation traditionally means using more than one method to conduct social research. Broader notions of triangulation also include using multiple theoretical perspectives, multiple observers, or multiple sources of data. Webb et al. (1966) stressed the importance of using unobtrusive methods (see chapter 7) as tools for triangulation.

Triangulation can be used within and between qualitative and quantitative strategies. It was initially proposed as a way to improve confidence in findings in quantitative research, but was then adopted in qualitative research. It is increasingly used to cross-check research results from both qualitative and quantitative traditions.

The combination of research methods in triangulation can be planned and embedded in the design, or can occur spontaneously in the process of research when different kinds of data are generated and it becomes apparent that the data can be compared to see whether they lead to the same conclusion. It is possible that the results obtained from one method will not always corroborate the results from another method; the findings might be contradictory. In this case, further examination of data is necessary and further research might be required to resolve the contradiction.

Qualitative Research Facilitates Quantitative Research

Qualitative research can facilitate quantitative research in two ways:

1. *By suggesting hypotheses:* Qualitative research can be used to generate hypotheses or design questionnaire items for quantitative research. A researcher starts with qualitative investigation, and then subjects ideas and views voiced by participants to test by designing a survey or using other quantitative method.
2. *By aiding measurement:* Researchers use their knowledge of context acquired in the course of qualitative project to formulate questions for structured interviews, surveys, or self-completion questionnaires. The knowledge of events, history, and context accumulated through ethnography proves very useful in designing a quantitative study, and helps to reflect local specifics in survey questions.

Quantitative Qualitative Research Facilitates Qualitative Research

In turn, quantitative research facilitates qualitative research primarily by identifying people who could participate in qualitative research. A survey may suggest participants for qualitative interviews, and help to select people in different groups with different characteristics.

Complementarity

Sometimes the researcher does not get enough information to produce a credible conclusion when he or she employs only one research method. In this case, the researcher will resort to another method *to fill in the gaps*, or use the methods from the other tradition in a complementary way. For example, after having conducted qualitative interviews, the researcher may gather background data on participants with the help of a questionnaire. Here, the researcher must make a decision about what method will be her principal method of study (qualitative or quantitative), and which method will be complementary. Second, the researcher must decide whether the primary method will be used first, or follow the complementary method. However, sometimes no single method is dominant in a research project, or the sequence of methods cannot be easily decided.

Complementarity can also help to fulfil the following goals of social research:

- To illustrate *static and process features* of a social phenomenon: Here, the regularities (static patterns) found during quantitative research can be used to examine the development (process) of the issue using a qualitative method.

- To collect data *at different levels*: For example, a project can not only collect individual-level qualitative interviews with participants, but also gather quantitative data at the level of communities, organizations, or institutions. Data collected at different levels is more likely to be complementary.
- To test the *generality* of findings encountered in qualitative research by using quantitative data gathered from random samples: This way the findings from qualitative research are tested to see whether they are generalizable to a larger population.
- To *interpret the relationship between variables* found in quantitative research: Sometimes the quantitative research can establish the pattern of relationship between variables but not be able to describe *the mechanism* of how variables influence each other. In this case, qualitative research sheds light on the relationship among variables and provides additional data for explaining the mechanism of influence.
- To *study different aspects of a phenomenon*: The two methods can be used from the start to answer two different sets of questions, as in Nowicki et al.'s (2014) study of children's views on learning difficulties, where the qualitative method found that children at age 9 had limited "explicit" knowledge about learning difficulties, but the quantitative follow-up showed that children had a much better "implicit" understanding of what the learning difficulties entailed. This kind of research requires previous planning of which kinds of questions are best to address with which methods. The interweaving of methods might be difficult in practice, because the outcomes of different strands of research are not always compatible. They might lead the researchers to revise their initial hypotheses, conduct further research, or altogether abandoning inconsistent results.

Reflections on Multi-strategy Research

Multi-strategy research is becoming more common. There two key reasons for this are that methods are now seen more as simply a technique of data collection; and there is a softening in the feminist position against quantitative methods. However, multi-strategy research is not always superior to single-method research. Where multi-strategy research is being considered the following issues must be addressed:

- The research must be competently designed and conducted.
- The choice of methods must be appropriate for the research questions asked. More methods are not necessarily better.
- The costs in time and money from using multiple methods may be considerably higher. Spreading resources too thinly can dilute the effectiveness of research.
- Different skills and training are required for different methods, as well as for analyzing the data gathered by different methods. Researchers might be better trained in one method than the other, and such "trained incapacities" may prevent them from effectively integrating the methods.

In short, the use of mixed methods should be carefully considered: mixed methods are not a panacea, and, just like single-method studies, they raise issues in conducting effective research.

Learning Objectives

In this chapter, you should learn to do the following:

- Understand that the qualitative/quantitative divide in social research methods should be approached critically in the practice of research, since the connection between specific methods and philosophical assumptions behind them is not absolute
- Appreciate the relativism in the divide between qualitative and quantitative approaches

- Summarize two arguments against the multi-strategy research: the *embedded method argument* and the *paradigm argument*
- Differentiate among three types of mixed-method research: *mutual analysis*, *quantification in qualitative research*, and *multi-strategy research*
- List the three different approaches to multi-strategy research: *triangulation*, *facilitation*, and *complementarity*
- Understand the notion of triangulation as a way to combine multiple methods, multiple theoretical perspectives, multiple observers, or multiple sources of data to cross-check results of the research
- Specify and discuss the advantages of complementarity in multiple strategy research

Media Resources

Kelley, D. (1984). A theory of abstraction. *Cognition and Brain Theory*, 7(3,4): 329–357.

<http://www.atlassociety.org/sites/default/files/TheoryofAbstraction.pdf>

- What is objectivism?
- How does it fit with empiricism?
- What is the relationship of these two concepts to quantitative research methodology?
- What is the relationship of these two concepts to qualitative research methodology?
- How do those relationships change with multi-strategy approach?

Social Constructionism

<https://www.youtube.com/watch?v=gVCk7jLnz0&feature=youtu.be>

What Does “The Social Construction of Reality” Mean? Dr. Dennis Hiebert

<https://www.youtube.com/watch?v=SqFhd-Igs6w&feature=youtu.be>

- What is constructivism?
- What is its relationship to quantitative research methodology?
- What is its relationship to qualitative research methodology?
- How do those relationships change with multi-strategy approach?

Interpretivism

<https://www.youtube.com/watch?v=DRCQZBi3Jgw&feature=youtu.be>

- What is interpretivism?
- What is its relationship to quantitative research methodology?
- What is its relationship to qualitative research methodology?
- How do those relationships change with multi-strategy approach?

Newman, I., Shell, D.F., Ming, Q., Jianping, X., and Maas, M.R. (2006). Adolescent alcohol use: Mixed methods research approach. *Educational Psychology Papers and Publications*. Paper 92.

<http://digitalcommons.unl.edu/cgi/viewcontent.cgi?article=1091&context=edpsychpapers>

Nowicki, E.A., Brown, J., and Stepien, M. (2013). Children’s structured conceptualization of their beliefs on the causes of learning difficulties. *Journal of Mixed Methods Research*.

<http://mmr.sagepub.com/content/early/2013/06/09/1558689813490834>

- What challenges did the authors experience in the respective research?

- What difficulties can you expect when implementing a multi-strategy methodology?
- How can a researcher overcome those difficulties?
- What are the advantages to employing a multi-strategy methodology?
- What types of quantitative and qualitative research techniques would be best suited to be used together with a complimentary analysis strategy?