

# A RESEARCH METHODOLOGY FOR SOCIAL SCIENCES

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Human behaviour can be understood from both paradigms i.e., quantitative and qualitative. The former is based on objective facts and the later is more concerned with understanding the social phenomenon from actors' point of view. The research process is overall scheme of activities in which scientists engage in order to produce knowledge; it is the paradigm of scientific inquiry. Two kinds of sampling techniques are used in this context. Probability sampling is based on the idea that the people or events that are chosen; non-probability sampling, on the other hand, is conducted without such knowledge about whether those included in the sample are representative of the overall population.

## ISSUES OF RESEARCH METHODOLOGY

Any discipline or branch of social science deals with human behaviour in its social and cultural aspects. In order to understand social phenomena social research methods can generally be subdivided into two broad categories. The 'positivist' ('post-positivist' and 'empiricist') paradigm which holds that behaviour can be explained through objective facts often denote the same fundamental approach as quantitative', while 'phenomenological' ('naturalistic' field research, 'ethnographic', 'interpretivist', 'subjectivist' and 'constructivist') paradigm is sometimes used instead of 'qualitative' which is more concerned with understanding (verstehen) the social phenomenon from the actors' perspectives through participation in the life of those actors. While very different in many aspects, both qualitative and quantitative approaches involve a systematic interaction between theories and data. From both perspectives the article attempts to explicate the research process.

### Research Process

Scientific knowledge is knowledge grounded in both reason and experience (observation). Scientists employ the criteria of logical validity and empirical validation to evaluate claims for knowledge. These two criteria are translated into the research activities through the research process. The research process is overall scheme of activities in which scientists engage in order to produce knowledge; it is the paradigm of scientific inquiry. In the light of the discussion, this section, discusses the research process based on conceptual, empirical and analytical phases in brief.

### Conceptual Phase

**Formulation of research problem:** Research problems need to be researchable and can be generated from practice, but must be grounded in the existing literature. They may be local, national or international problems that need addressing in order to develop the existing evidence base.

**Literature review:** A thorough search of the literature using data bases, internet, text and expert sources should support the need to research the problem. This should be broad and in depth,

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showing a comprehensive search of the problem area. A critical appraisal framework should be employed to review the literature in a systematic way.

**Formulating hypothesis:** A more specific research question and /or hypothesis may be developed from the literature review that provides the direction for the research, which aims to provide answers to the question/hypothesis posed. The research may employ a theoretical base to examining the problem, especially seen in Master's level research and in many research studies. In the population studies field this might come from the social sciences, psychology or anthropology.

### **Empirical Phase**

**Research design:** The research design is the blueprint that enables the investigator to come up with solutions to these problems and guides him or her in the various stages of the research. Quantitative research design is the standard experimental method of most scientific disciplines. These experiments are sometimes referred to as true science, and use traditional mathematical and statistical means to measure results conclusively. They are most commonly used by physical scientists, although social sciences, education and economics have been known to use this type of research.

**Sample size:** Sampling is the method for selecting people, events or objects for study in research. Non-probability and probability sampling strategies enable the researcher to target data collection techniques. These may need to be of a specific size (sometimes determined by a power calculation) or composition.

**Collection of data techniques:** These are the tools and approaches used to collect data to answer the research question /hypothesis. More than one technique can be employed, the commonest are questionnaires and interviews.

### **Analytical Phase**

**Data Analysis:** Data analysis is a process of gathering, modelling, and transforming data with the goal of highlighting useful information, suggesting conclusions, and supporting decision making. Data analysis has multiple facets and approaches, encompassing diverse techniques under a variety of names, in different business, science, and social science areas.

**Hypothesis testing:** Setting up and testing hypotheses is an essential part of statistical inference. In order to formulate such a test, usually some theory has been put forward, either because it is believed to be true or because it is to be used as a basis for argument, but has not been proved, for example, claiming that a new drug is better than the current drug for treatment of the same symptoms. In each problem considered, the question of interest is simplified into two competing claims / hypotheses between which we have a choice; the null hypothesis against the alternative hypothesis. These two competing claims / hypotheses are not however treated on an equal basis: special consideration is given to the null hypothesis.

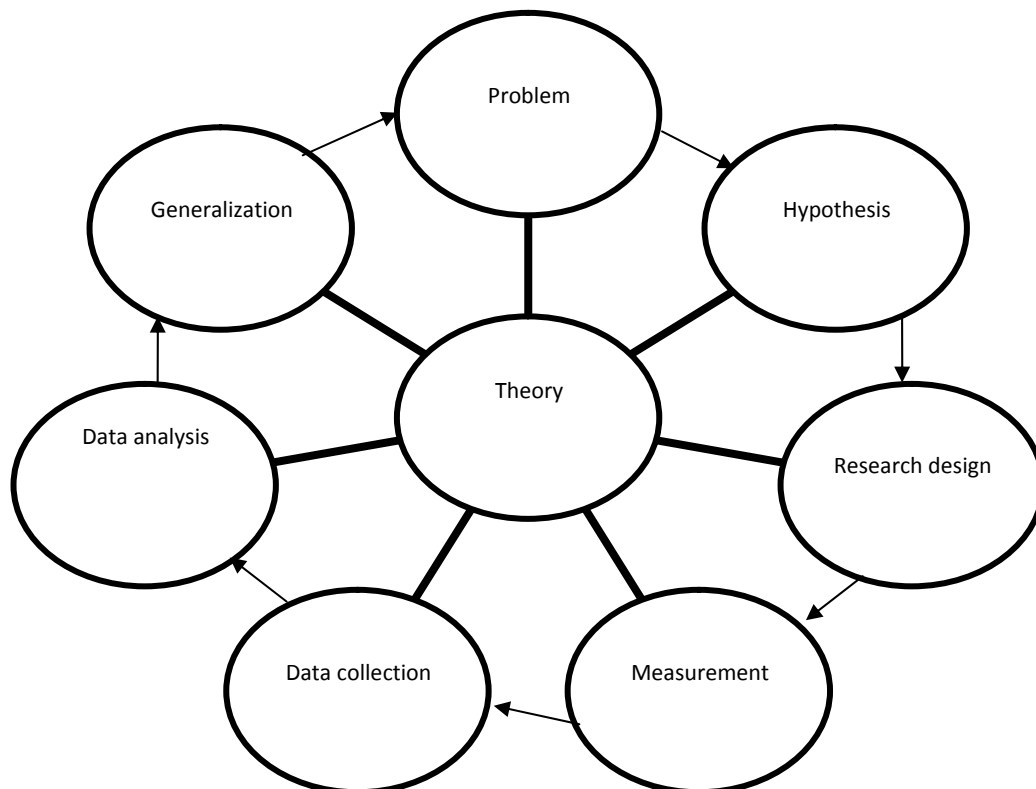
**Generalization and interpretation of conclusion:** The results are interpreted, drawing conclusions and answering the research question /hypothesis. Implications for practice and further research are drawn, which acknowledge the limitations of the research.

**Preparation of reports and presentation of result:** The research and results can be presented through written reports, articles, papers and conferences, both in print and electronic forms.

### Research Process in Quantitative Inquiry

As illustrated in Figure 1, the research process consists of seven main stages: problem, hypothesis, research design, measurement, data collection data analysis, and generalization. Each stage affects theory and is affected by it as well. The most characteristic feature of the research process is its cycle nature. It usually starts with a problem and ends with tentative empirical generalizations (Nachmais and Nachmais, 1996). The research process is also self-correcting.

Figure 1: Research process in quantitative inquiry



The seven-step research process shown in Figure 1 is not strictly linear; it may flow in several directions before reaching at end. Research does not abruptly end at step 7. It is on going process, and the end of one study often stimulates new thinking and fresh research questions.

Trochim (2006) coins two typologies- Yin-Yang map and Road map -for the explanation of the main stages of the research process for quantitative inquiry. Yin-Yang map separates the theory of research from the practice of research and shows how theory and practice are related. This might be an especially useful launch pad for an advanced research method because of the strong emphasis on the link between theory and practice.

The yin-yang figure in the centre links us to a *theoretical* introduction to research on the left and to the *practical* issue of how we formulate research projects on the right. The four arrow links on the left describe the four *types of validity* in research. The idea of validity provides us with a unifying theory for understanding the criteria for good research. The four arrow links on the right point to the *research practice areas* that correspond with each validity type. For instance, external validity is related to the theory of how we generalize research results. Its corresponding practice area is sampling methodology which is concerned with how to draw representative samples so that generalizations are possible.

The road map also shows the stages in research process. It uses the metaphor of research as a journey down the research road from initial conceptualization and problem formulation through the write-up and reporting.

### Research Process in Qualitative Inquiry

A qualitative "approach" is a general way of thinking about conducting qualitative research. It describes, either explicitly or implicitly, the purpose of the qualitative research, the role of the researcher(s), the stages of research, and the method (technique) of data analysis. In the following section the components of research process in quantitative inquiry will be discussed succinctly.

It has been argued that quantitative and qualitative research are based on fundamentally different epistemological assumptions, and that making a choice commits us to a particular way of understanding social science, and studying human being. These debates go back a long way, and are set out most clearly in the writings of Emile Durkheim and Max Weber. Their two most famous studies –Durkheim’s Suicide (1951) and Weber’s The Protestant Ethic (1958) – can be used to describe the key assumptions, why this remains an important debate.

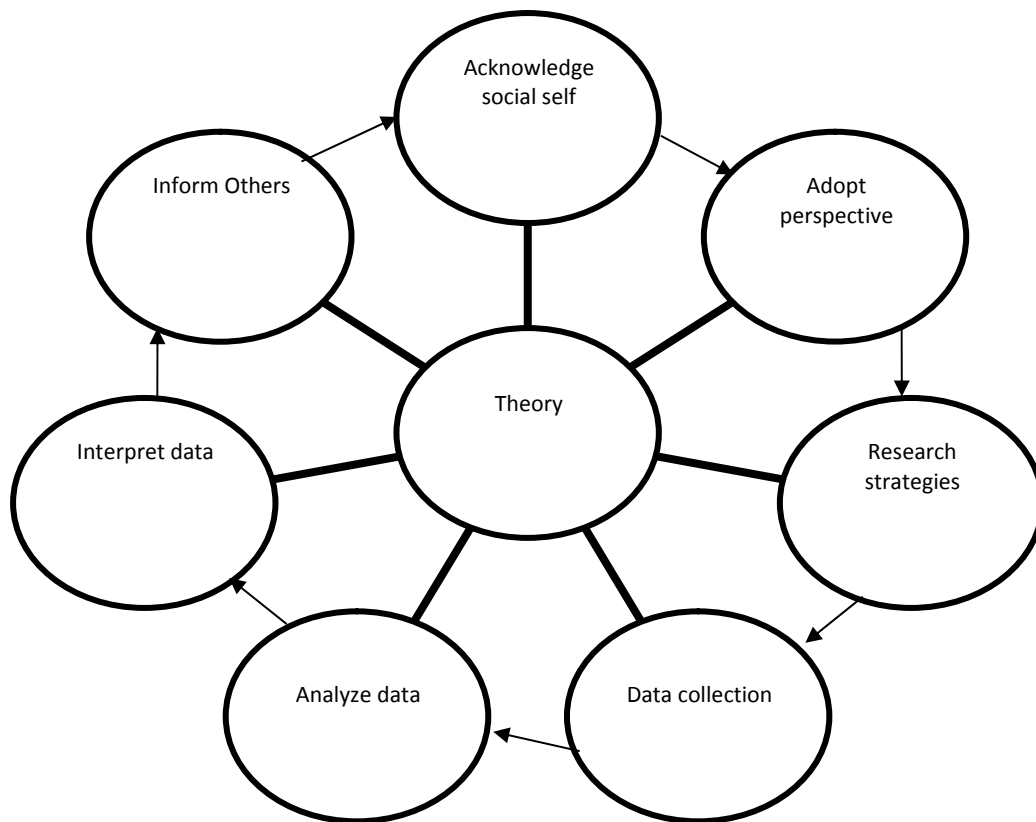
Durkheim’s best known study –suicide –is worth looking at as an example of how quantitative methods (what we now call variable or multivariate analysis) can be used in addressing a research problem. It is based on comparing official statistics of suicide rate in different European countries and relating these to other variables like type of religion or family structure. From this data, Durkheim derives causal laws, with a similar form to natural scientific laws, which explain why different groups commit suicide.

There are two reasons why Durkheim’s study poses a challenge for qualitative researchers. Firstly, it argues that sociology should be concerned with large-scale “macro” processes or phenomena; and, to this day, qualitative studies are criticized for only dealing with local or “micro” social settings, which make only a limited contribution to our understanding of society as a whole. More fundamentally, it suggests that sociology should not be concerned with common-sense knowledge: what people understand about their own activities should be more or less for the sociologist. In contrast to Durkheim, Weber argued that the sociologist had to get inside to the heads of those being studied. *Verstehen* or understanding, rather than quantitative techniques used by natural scientists, should be the principal method used in social science.

Weber’s the most famous study (1958)-The Protestant Ethic and the Spirit of Capitalism-illustrates how this method can be used in researching the social world. The first part of the study is an attempt to address what is meant to a member of a Protestant religious sect in the seventeenth century, drawing on historical records. This might be seen as equivalent to a contemporary ethnographic study in which one tries to understand what it means to be a

member of a particular social group, by conducting interviews, or becoming a participant observer. The methodological argument is that the inner life of the Protestant is only available using interpretive methods. Denzin and Lincoln (2005: 23) describe a slightly different set of steps for qualitative inquiry under the five headings or phases of qualitative research as process (Figure 2).

Figure 2: Research process in qualitative inquiry



Phase I: The Researcher as a Multicultural Subject

- History and research tradition
- Concepts of self and the other
- The ethics and politics of research

Phase II: Theoretical Paradigm and Perspectives

- Positivism, post-positivism
- Interpretivism, constructivism, hermeneutics
- Feminism(s)
- Racialized discourse
- Critical Theory and Marxist models
- Cultural studies models
- Queer theory

Phase III: Research Strategies

- Design
- Case study
- Ethnography, participant observation, performance ethnography
- Phenomenology, ethnomethodology

Grounded theory  
 Life history, Testimonio  
 Historical method  
 Action and applied research  
 Clinical research

Phase IV: Methods of Collection and Analysis

Interviewing  
 Observing  
 Artifacts, documents, and records  
 Visual methods  
 Autoethnography  
 Data management methods  
 Computer-assisted analysis  
 Textual analysis  
 Focus groups  
 Applied ethnography

Phase V: The Art, Practices, and Politics of Interpretation and Evaluation

Criteria for judging adequacy  
 Practices and politics of interpretation  
 Writing as interpretation  
 Policy analysis  
 Evaluation traditions  
 Applied research

**Phase I:** The applied qualitative research perspective has always been characterized by diversity and conflict; these are most enduring traditions. As a carrier of the complexity and contradictory history, the researcher must also confront the ethics and politics of research. Researching the native, the indigenous, others while claiming to engage in value-free inquiry for the human disciplines are over. At present researchers struggle to develop situational and transsituational ethics that apply to all form of the research act of it human-to-human relationship.

**Phase II:** A paradigm is a set of beliefs that guide action. The Oxford English Dictionary defines paradigm as "a pattern or model, an exemplar". Historian of science Thomas Kuhn (1970) gave this word its contemporary meaning when he adopted it to refer to the set of practices that define a scientific discipline during a particular period of time. Kuhn himself came to prefer the terms exemplar and normal science, which have more exact philosophical meanings. However, in his book - *The Structure of Scientific Revolution*- Kuhn defines a scientific paradigm as:

- i. what is to be observed and scrutinized
- ii. the kind of questions that are supposed to be asked and probed for answers in relation to this subject
- iii. how these questions are to be structured
- iv. how the results of scientific investigations should be interpreted

**Phase III:** A strategy of inquiry describes the skills, assumptions, enactments, and material practices that researchers-as-methodological-bricoleurs use when they move from a paradigm and research design to the collection of empirical materials. Strategies of inquiry connect researchers to specific approaches and methods for collecting and analyzing empirical materials. For example, the case study relies on interviewing, observing, and document analysis. Research

strategies locate researchers and paradigms in specific empirical, material sites and in specific methodological practices, for example, making a case an object of study.

**Phase IV:** Research involves a complex politics of representation. There are several qualitative methods for collecting empirical materials: interviewing, direct observation, the analysis of artifacts, documents, and cultural records, the use of visual materials, and the use of personnel experience. These methodological practices represent different ways of generating and representing empirical materials grounded in the everyday world.

**Phase V:** The qualitative interpretations are constructed. The researcher assesses, analyses, and interprets the empirical materials that have been collected from field. The writer-as-interpreter moves from field text to a research text, notes and interpretations. This text then re-created as a working interpretive document that contains writer's initial attempt to make sense of what he or she has learned. This process, conventionally conceived, implements a set of analytic procedures that produce interpretations, which are then integrated into a theory or put forward as a set of policy recommendations. The resulting interpretations are assessed in terms of a set of criteria, from positivist or post-positivist tradition, including validity, reliability, and objectivity. Those interpretations that stand up to scrutiny are put forward as the findings of the research.

### **Types of Sample Techniques**

For quantitative analysis, generalizations are not based on data collected from all the observations, all the respondents, or all the events that are defined by the research problem. Instead, investigators use a relatively small number of cases of (a sample) as the basis for making inferences about all the cases (a population). As for example, election polls are based on the responses of a relatively small group of respondents. Pollsters, then, forecast how the entire population of voters would vote if the election were held at the time the poll was taken; they also attempt to predict how those voters will vote when the actual election is held. Social scientists, as well as pollsters, apply various criteria in selecting their sample. These considerations in turn influence how they make inferences from a sample to a population.

Basically, there are two kinds of sampling techniques. Probability sampling is based on the idea that the people or events that are chosen as the sample are chosen because the researcher has some notion of the probability that these will be a representative cross-section of people or events in the whole population being studied. The principle of simple random samplings is a foundation for statistical inference. The other sampling procedures are systematic sampling, stratified sampling, and cluster sampling (Kish 1965). Non-probability sampling, on the other hand, is conducted without such knowledge about whether those included in the sample are representative of the overall population. Social scientists use non-probability samples (Miles and Huberman, 1994; Patton, 1990; Subedi, 2010) when a sampling population cannot be precisely defined or when a list of the sampling population is unable. The major non-probability samplings are listed in the Table 1.

The main strengths of non-probability sampling are convenience and cost. However, with non-probability samples, we cannot make probability statements about our sample statistics. For example, we cannot compute a confidence interval for an estimation problem or a region of acceptance for a hypothesis test. Probability samples are required to compute those measures.

Table 1: Non-probability sampling designs

Type of sampling	Purpose
Maximum variation	Documents diverse variations and identifies important common patterns.
Homogeneous	Focuses, reduces, simplifies, facilitates group interviewing.
Critical Case	Permits logical generalization and maximum application of information to other cases.
Theory based	Finding examples of a theoretical construct and thereby elaborate and examine it.
Confirming and disconfirming cases	Elaborating initial analysis, seeking expectations, looking for variation.
Snowball or chain	Identifies cases of interests from people who know people who know what cases are information-rich.
Extreme or deviant case	Learning from highly unusual manifestation of the phenomenon of interest.
Typical case	Highlights what is normal or average.
Intensity	information-rich cases that manifest the phenomenon intensely, but not extremely.
Politically important cases	Attracts desired attention or avoids attracting undesired attention.
Random purposeful	Adds credibility to sample when potential purposeful sample is too large.
Stratified purposeful	Illustrates subgroups; facilitates comparison.
Criterion	All cases that meet some criterion; useful for quality assurance.
Opportunistic	Following new leads; taking advantage of the unexpected.
combination or mixed	Triangulation, flexibility, meets multiple interests and needs.
Convenience	Saves time, money, and effort, but at the expense of information and credibility.

Source: Patton, 1990: 182-83; Miles and Huberman, 1994: 28.

## CONCLUSION

Research process is self-correcting, which tests tentative generalization, or hypotheses, about research problems logically and empirically. The most characteristic feature of the research process in social sciences encompasses three phases (conceptual, empirical and analytical). Quantitative analysis, in general, is based on probability sampling whereas qualitative on non-probability sampling. Social sciences can be viewed from both quantitative and qualitative perspectives, but social theories must be integrated into the study on other disciplines as Denzin and Lincoln (2005) viewed in five phases.

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