

CHAPTER

METHODOLOGY

“What makes science morally, and rationally, compelling is that it is a public enterprise.”

Silbey (2003)

4.1. INTRODUCTION

Listing the components of a valid research study, Buckley *et al.* (1975) state that they include addressing a distinguishable problem, providing authentic evidence from literature, forming coherent reasoning, drawing relevant conclusions, providing practical implications to its field, and doing all this with the help of a suitable methodology that keeps in consideration the specific needs of the study. Therefore, it can be argued that the importance of selecting the appropriate methodology for a research study is one of the fundamentals of a valid market research (Amaratunga *et al.* 2002). In this regard, it becomes important to be able to define research methodology, which in the words of Remenyi *et al.* (1998) is the structure on which a research study's methods are founded.

The foundation of the methodology of this research is based on the research objectives of this study. These objectives are focused on the acquisition of knowledge regarding how two of the most-polluted countries have emerged in the European region with some of the most effective policies for air pollution reduction in a considerably short span of time. To achieve this aim, the researcher is to study the secondary data available on the accessible media (Print and the Internet) in order to collect sufficient data with regard to relating economic and institutional factors of the Polish and the Czech Republic's policies with indicators of air quality, effect of market forces on policy effectiveness in these countries, the influence of EU demands and standards for membership on these countries' effective policy making and implementation with regard to pollution control, and presenting an industry within the studied countries as an epitome of effective pollution policy implementation.

- The chapter of Methodology describes the methodological details and parameters of the research and its report. This chapter informs the reader what methods were used in the study and explains how they were appropriate. It is usually given **15-20% of the total count**, and usually contains the following sections:
 - Introduction
 - Research Philosophy
 - Research Approach
 - Primary Research (if included)
 - Presentation Methods
 - Analysis Techniques
 - Research Limitations
 - Ethical Considerations
 - Summary
- Introduction section tells the reader what to expect in the chapter in terms of content and begins to develop the background of the concept of Methodology providing definitions developed by scholars.
- Every Methodology is written keeping in mind the study's objectives, which are often stated as questions usually for clarity. For this one, the following questions were used:
 - How did selected critical policy, economic and institutional factors such as rising incomes (e.g., GDP per capita), regulatory structure (i.e., environmental expenditures to GDP) and the structure of the respective country's economy (i.e., index of small-scale privatisation) relate to improvement in the indicators of air quality such as CO₂, SO₂ and solid particulate levels?
 - Why did market economy prove to be one of the most effective ways to initiate environmental regulation?
 - What was the influence of accession in the European Union on facilitating improvements in environmental standards of Poland and the Czech Republic?

4.2. RESEARCH PHILOSOPHY

Methodology designing for market or social research is a complex process, which begins with the selection of the philosophy the study is to follow. However, as this phase of method selection is embedded in the nature of the study, a researcher has in fact to identify the right philosophy among those already identified by scholars. Saunders *et al.* (2003) provide a comprehensive presentation of the orthodox methods employed in research in the form of layers of an onion, named *the Process Onion* (figure V).

It should be noted, at this point, that though *the Process Onion* was designed purposefully for business studies, its elements are capable of being used for other fields of research with harmony as well. The first layer of the Onion depicts approved philosophies established by scholars.

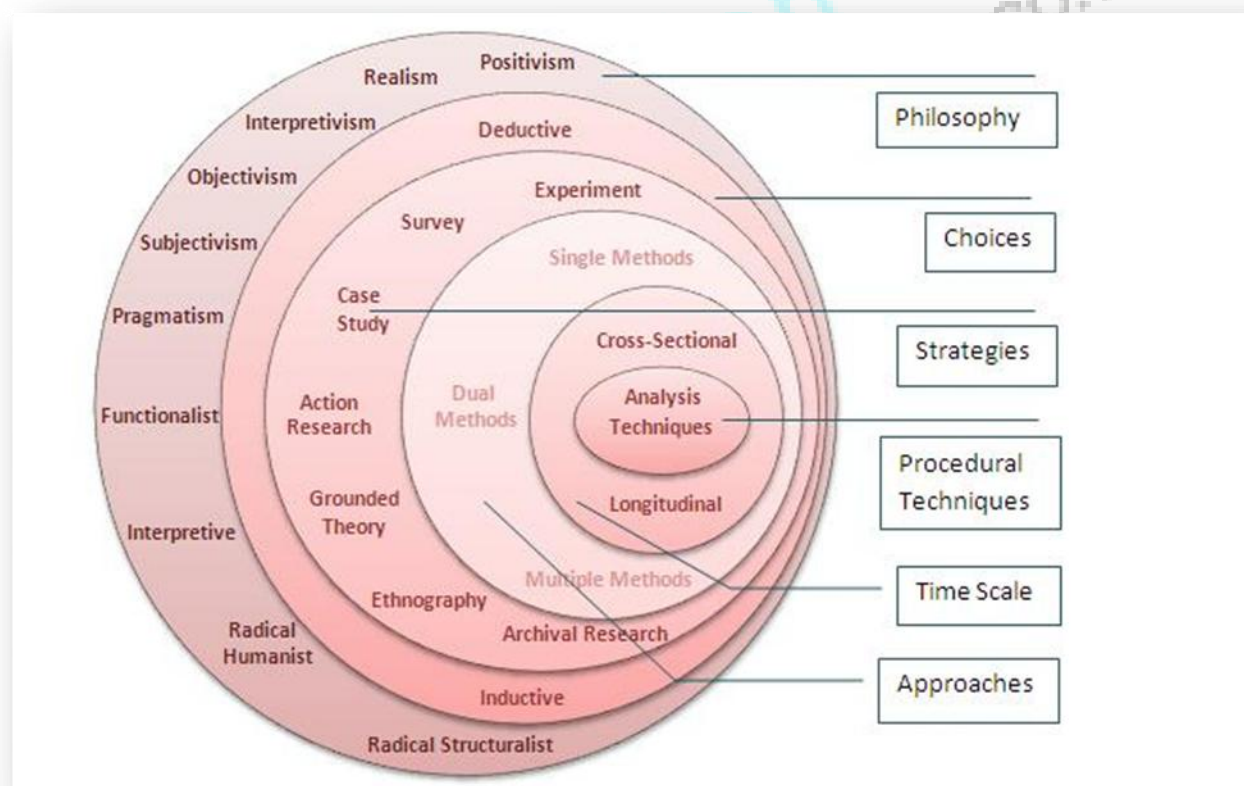


Figure V: *The Process Onion* (Source: Saunders *et al.* 2003)

It is known that two quite differentiating schools of thought have developed with regard to methodology development in academic research. Despite the fact that a number of philosophies exist for research, as shown in figure V, the two belonging to these schools of thought have taken precedence over others in significance and practical application. It can be said that Positivism and Phenomenology have become the two most commonly adopted philosophies in academic research.

Objectivity and Subjectivity are the two opposite ends of vantage points in research. Whereas Positivism demonstrates the objectivity of the world insisting there exists a generalisable perspective about the object of study which can be utilised by observers of varying viewpoints to assess the object similarly, Phenomenology suggest that on the contrary, it is the eye of the beholder that beauty exists, so to say (Chung and Alagaratnam 2001). As a matter of course, this division of opinions with regard to perspective of researchers has also established the various assumptions regarding nature of science itself (Morgan and Smircich 1980). As a result, these differentiating ideas have been utilised by Burrell and Morgan (1979) in forming a set of four paradigms of research perspective, comprising of functional, radical-structuralist, interpretative, and radical-humanist (Chung and Alagaratnam 2001). Each of these paradigms has formulated their own sets of metaphors, which are employed in research for studying organisations of varying nature and size (Morgan 1980).

Phenomenology is considered part of the constructive sciences, and its theory suggests employment of inductive research techniques and qualitative methods for data collection and analysis to interpret the studied phenomenon usually disregarding the underlying generalisable laws and explaining them in the study's context (Remenyi *et al.* 1998; Easterby-Smith 1991; Amaratunga *et al.* 2002). Contrary to phenomenology, Positivism takes a rather stern position in using research studies for the purpose of explaining fundamental laws and test theories, employing deductive methods paired with quantitative approaches for collecting mathematical data through pre-determined data collection techniques and instruments (Easterby-Smith 1991; Remenyi *et al.* 1998; Silverman 1998; Amaratunga *et al.* 2002).

The identification of one suitable philosophy is not possible for this study, as though the study is fundamentally related to phenomenology (in the sense that we study the implementation

- Discussing research philosophy, available choices are discussed with details of which choice was the best of the present study and how it was deemed the best.

- Detailed arguments are presented to provide reliable evidence from literature, each in a separate paragraph, following rules of essay-writing.

of the policies with regard to air pollution control in the studied countries as a phenomenon), we require statistical quantitative analysis for one of the objectives of this study (Research Question 1). Hence a mixed methodology is the solution, as has been employed before in social research in a similar situation (Gilbert and Mulkay 1984). Scholars approve of employing mixed methods in a research where the need arises (Becker 1977; Bryman 2008; Gilbert and Mulkay 1984; Greene *et al.* 1989; Niglas 2004).

4.3. MIXED APPROACH

The next choice is of the paradigms in methodology. Usually, a study follows the inductive paradigm or the deductive paradigm. Using these paradigms a research study is enabled to provide new knowledge, which works as a contributing factor to the particular field of study (Hyde 2000).

It has been criticised that researchers often adhere to employing deductive techniques, testing established theories and assumptions while such an important purpose of research as establishing theory is often ignored (Deshpande 1983; Bonoma 1985; Wells 1993; Hyde 2000).

As stated in the previous section, this study employs both inductive and deductive techniques due to the mixed nature of the study objectives. The study is majorly inductive, as the fundamental idea is to study the phenomenon of effective policy making and implementation with regard to control of air pollution in the two studied countries. The study provides explanation of the phenomenon by critically analysing the development of these policies and the way they are practised in Poland and the Czech Republic. However, the deductive aspect is added in order to quantitatively study the relationship between economic and social policies implemented in the studied countries, and the progress in pollution control. The need for quantitative assessment of this research objective emerges from the realisation that studying this relationship requires assessment of mathematical data while the effect of one variable on the other can be identified through statistical analysis techniques, such as multiple linear regression.

- **Formatting Tip:** When multiple works are cited in support of one argument, they are either listed alphabetically or chronologically. Remember to select either way and use it throughout the report.

- In lieu of research paradigm selection, Inductive and Deductive approaches are discussed in considerable detail in this section with emphasis on explaining how a combination of quantitative and qualitative methods was the best choice for this study.

4.4. RESEARCH RESOURCES

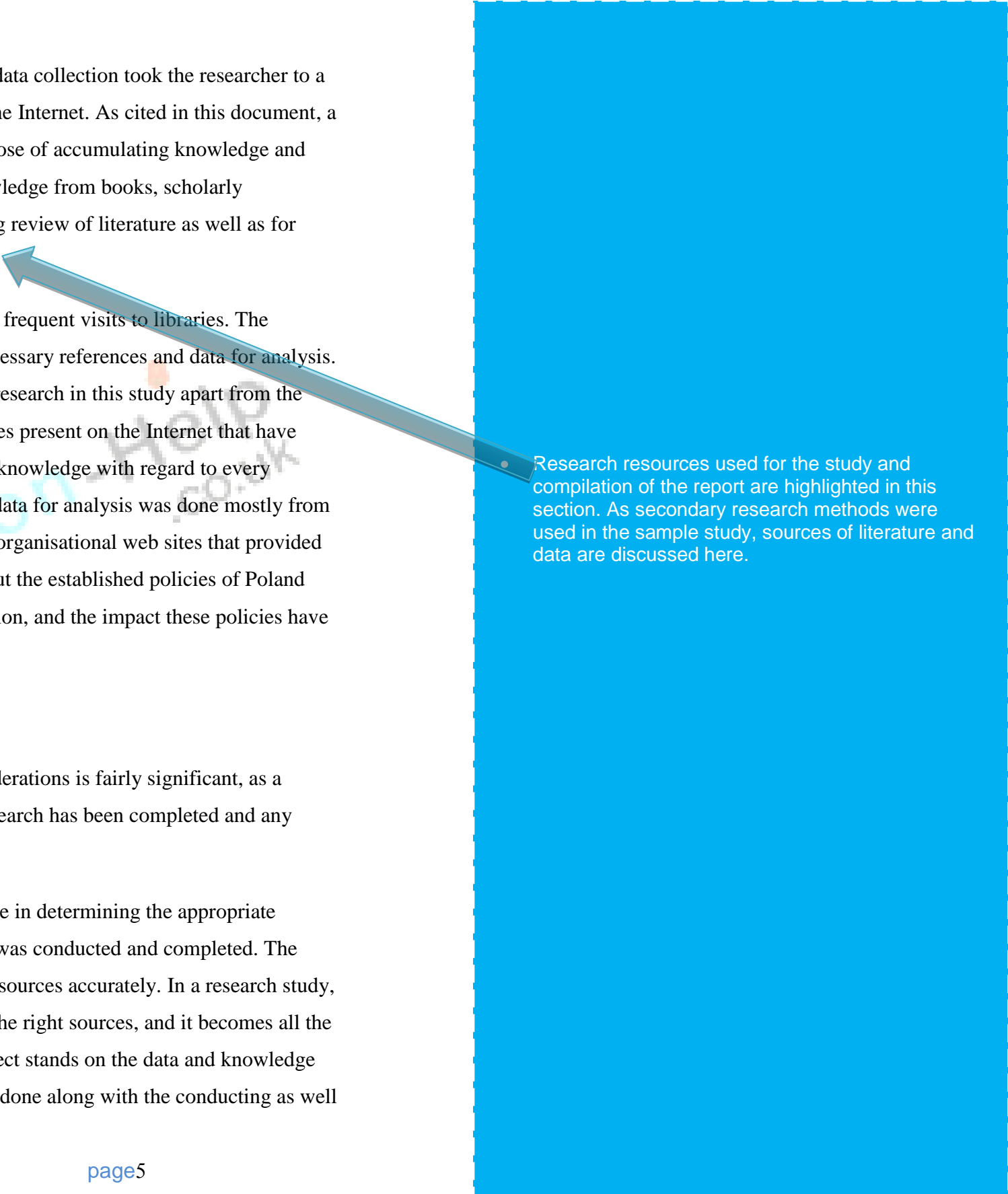
The study is archival in nature and the process of data collection took the researcher to a number of resources both in the print as well as through the Internet. As cited in this document, a number of relevant publications were studied for the purpose of accumulating knowledge and information for this study. The researcher employed knowledge from books, scholarly periodicals, and Internet databases and web sources during review of literature as well as for collection of data.

The books and periodicals that were used required frequent visits to libraries. The researcher took several weeks for the collection of the necessary references and data for analysis. As said earlier, the other resource for data collection and research in this study apart from the print sources is the Internet. There are specialised databases present on the Internet that have helped the researcher immensely in collecting significant knowledge with regard to every important step of this study. Especially, the collection of data for analysis was done mostly from the web sources, such as government web sites and other organisational web sites that provided the researcher the much-needed information and data about the established policies of Poland and the Czech Republic with regard to reducing air pollution, and the impact these policies have had and the extent to which they have succeeded.

4.5. ETHICAL CONSIDERATIONS

In archival researches, the burden of ethical considerations is fairly significant, as a number of discrediting elements may emerge once the research has been completed and any discrepancy is found in its ethical considerations.

In this regard, the researcher took considerable care in determining the appropriate considerations throughout the process wherein this study was conducted and completed. The primary most focus has been on the matter of referencing sources accurately. In a research study, it is critically important for referencing the right ideas to the right sources, and it becomes all the more important in archival research where the whole project stands on the data and knowledge collected from secondary sources. Referencing was, thus, done along with the conducting as well



Research resources used for the study and compilation of the report are highlighted in this section. As secondary research methods were used in the sample study, sources of literature and data are discussed here.

as the documentation processes of this study so that no mistake would be made in the referencing of sources.

The researcher also established a standard for purpose of citing authentic and reliable works in the study. It is usually considered sufficient to cite works that have been published from a reliable source, such as a scholarly journal. However, the standard used by the researcher was to use only such works in this study that have been cited before in other scholarly works. This not only ensured that those ideas were included in the works that have been cross-checked by peers of the authors but also provided the researcher to understand these concepts from two perspectives of the author and the peer, giving the researcher greater comprehension.

4.6. PRESENTATION & ANALYSIS

Another important aspect of a research report is the manner in which data findings are presented. Due to the fact that the data collected in this study is secondary in nature and demonstrates the changes the two studied countries have seen with regard to air pollution control in the past two decades, especially the later one, the presentation style used is graphical. The researcher shall provide findings with the help of graphs and table so that convenient reading can be provided for the reader ensuring at the same time the inclusion of all the important information about any presented part of the collected data.

The analysis techniques used for the data need a bit more explanation. As has been explained earlier, the data collected is mostly of graphical nature and shall be presented so. However, the data collected with regard to the first research question of the study is mathematical in nature. It will also be presented in graphical form but its analysis is done using statistical methods, namely Multiple Regression. The rest of the analysis, done for the other data, shall be done in an elaborative manner, discussing the changes that have been observed in the two studied countries with regard to control of air pollution in light of the policies and figures found during the research.

- Details are provided for how the used data and results of statistical analyses conducted for the study are presented in the next chapter.

4.7. SUMMARY

The chapter gives a detailed view on the methods involved in this study and the background of the methodology employed. The significance of choosing the appropriate methodology for a research study is crucially important for the achievement of the study goals. Hence, the researcher considered and weighed the arguments of the scholars attesting to both inductive and the deductive schools of thought as well as that of the scholars who encourage mixed methods. The argument that mixed methods should be applied, giving greater importance to the natural requirements of a particular research study instead of obstinately clinging to any one philosophy was found cogent and, hence, adopted for this study as the nature of research demanded.

The explanation done in this chapter separately discusses all the important aspects of the methods employed in this study along with a detailed and thorough account of the documentation procedures used in the reporting of this study.

The next chapter provides presentation of the findings of this study as well as the analysis of the collected data.