

Chapter 1

Introduction

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For much of the twentieth century, as geographers' concerns ranged over contemporary physical and human space and into their past arrangements in so far as they could be documented, the methods they used to explain, model, and predict different aspects of the human and physical worlds became progressively more quantitative. But the new technologies and theoretical perspectives that emerged in the latter decades of the twentieth century helped to redefine the objects of geographers' inquiry and extend the methods in use for collecting and analyzing data and evaluating research. They also raised concern about the criteria, norms, and values for human action and conduct (ethics); how we position ourselves and are positioned by others (positionality); and the relationship we, as researchers, have with the world (reflexivity). In physical geography, data availability increased dramatically after Earth observation satellites were launched in the 1970s. At about the same time some human geographers began to seek alternatives to using spatial analytic (that is, quantitative, objective, and scientific) methods to explain, represent, and understand human actions and landscapes. Among the enduring approaches developed since the 1970s are humanistic, Marxist, feminist, and poststructuralist geography. Nevertheless, for many students research methods remain grounded in the traditional canons of spatial analysis and quantitative techniques, and methods instruction are, we feel, too often structured according to the prevailing divisions between human and physical geography.

This book is an introduction to research methods in geography. A research method is a way of collecting and analyzing data. This sounds very “nuts and bolts,” but there is no way to properly engage in research – or in methods – without also tackling some of the

fundamental theoretical questions facing both human and physical geographers. These “philosophical” questions concern the nature of reality (ontology) and how we go about understanding it (epistemology). Such philosophical concerns tend to get sorted out into “paradigms” – bodies of theory that groups of researchers follow as part of their everyday scientific practice. Nested within the theoretical coordinates of paradigms are a set of “middle level” decisions one has to make about methodology: the selection of research objects, the questions directed toward them, the design of a study, and the implications that our objectives have for carrying out research. Finally, at the most concrete and practical level we find research methods: the ways we go about collecting and analyzing data, and the conclusions we draw from these processes.

The intent of *Research Methods in Geography* is to provide a foundation for geography students, beginning with the big picture, moving through methodology, and finally introducing a number of commonly used methods in data collection and analysis. *Research Methods in Geography* therefore covers theory while providing a solid basis for engaging in concrete research activities. Schematically, the entire framework can be viewed like this:

Epistemology and Ontology

↓↑

Paradigms

↓↑

Research Methodology

↓↑

Research Methods

That the arrows work in both directions indicates that theory needs to be responsive – constantly amended and reworked – in light of the surprises and contradictions that emerge in concrete research activities.

Chapter 2 gives an overview of the essential philosophical issues surrounding ontology and epistemology. It also describes the broad contours of four important paradigms – or theoretical frameworks – operating in geography today (spatial science, humanism, critical realism, and poststructuralism). Before turning to that chapter, it might be helpful to further consider the questions of research methodology and their distinction to research methods. These are the two domains that constitute most of the content of the book.

Research Methodology and Methods

Research methodologies are always situated within larger theories of the world. Many of the most creative aspects of the research process involve questions that translate those theories into more precise research objectives, questions and tasks. To these ends, it can be helpful to formulate a research methodology in terms of a series of questions, the most basic of which include the following:

- What objects or events should I select to analyze?
- How should I theorize their domain of operation?
- How should I theorize their relationships to other objects and events?
- What research questions are appropriate for explaining or understanding them?
- How should I collect data for answering those questions?
- What procedures should be used to analyze that data?
- What safeguards should I rely upon to ensure the validity and reliability of my account?
- What are the grounds for evaluating competing accounts?
- How are my findings influenced by the “theoretical priors” I brought to the research?
- What is the purpose of the research (e.g., the production of scientific knowledge, saving the Earth, transforming society, something else)?
- What ethical safeguards have been followed or need to be addressed?

Having posed these and other questions about the world and the intended research activity, a number of obvious connections to specific research methods may emerge, not least because some research methods tend to be tied very closely to specific objects of analysis (consider for example, the different methods required to analyze the physical landscape and travel writing). However, some methods are more utilitarian than others (for example, scientists, humanists, critical realists, and poststructuralists can all conduct interviews), and some approaches support multiple methods (consider, for example, the different methods used to describe and analyze physical landscapes). *Research Methods in Geography* covers a wide range of topics in data collection and analysis within the field of geography.

Why Research Methods in Geography?

We developed the idea for this book after having taught many courses in our substantive areas in human and physical geography, respectively. What was lacking, we felt, was an introductory level textbook that spoke to theoretical issues but that also covered concrete aspects of methods as well as specific methods and techniques that geographers use to conduct research. *Research Methods in Geography* is intended primarily for second or third year undergraduates embarking on a more focused course of study in human or physical geography, in human–environment relations, or in geographic techniques. Most second and third year students won’t yet have taken many substantive courses, and our thought is that surveying a book like this will help improve their ability to conduct the sort of research projects that they might be expected to undertake for a senior thesis or undergraduate dissertation and improve their understanding of the research papers they might encounter in courses on, say, population, economic, and urban geography, or on geomorphology, climatology, and biogeography, to name but a few. Some students will have already taken a technical course or two, or intend to specialize in geographical information systems, remote sensing, or spatial statistics, but even they probably haven’t encountered the breadth of methods and techniques that geographers use, or that are represented in this book.

Research Methods in Geography is intended to assist students as they move forward in geography towards completion of their undergraduate degree. Its overarching objectives are to help them to understand and to begin to assess the research of others, and to assist

them in the development and conduct of their own high quality research projects. If students find that research turns them on, then perhaps they will seek out more advanced training at the masters or doctoral level in geography. Some of the chapters in this volume might be profitably read by students at those levels, particularly those just starting out in the world of research, but our intention is, first and foremost, to assist undergraduates in the discipline.

Geography is a tremendously wide ranging field; most geographers have a difficult time just keeping up with their own area of research, much less staying abreast of developments in areas far from their domain of interest. Thus it would be almost impossible for a single author to have written with the level of depth and breadth represented in this book. Situations like this call for an edited volume. There are several excellent recent and competing texts that converge on the topic of research methods in geography, but several things set this book apart from those texts.

First, each chapter was authored by accomplished researchers, many of whom are leaders in their field. Second, while necessarily offering in-depth details in particular areas, *Research Methods in Geography* also includes several important cross-cutting chapters – including those on observing our world (Chapter 3), measurement and interpretation (Chapter 4), and operational decisions (Chapter 5) – which are co-authored by geographers of different theoretical and substantive backgrounds. The intention in these foundational chapters is to deliberately cross some of the divides that have emerged within the discipline of geography. Some divisions have arisen over theory, i.e., how geographers theorize how the subject works; some are over methods, for example, whether geographers should use qualitative or quantitative data; and sometimes a line of separation is drawn between human and physical geography. Such divisions may be inevitable within a discipline that is as diverse as geography, but that does not mean that there are no common denominators, or that geographers can't engage in dialog about those divisions. The fact that this book is co-edited by a physical geographer (BG) and a human geographer (JPJ) is a testament to our desire to peer over divides to see what lies on the other side, and to try to determine how they might be negotiated or bridged.

The fact that no single geographer would be likely to attempt to write a volume that includes such a range of material drawn from human and physical geography and closely related disciplines, as well as such a diversity of theory and methods, should suggest to students that the faculty instructor for their particular course on “research methods” will doubtless have more of a background in some of the chapters than in others. This means that individuals will have to step up to the plate, so to speak, and take some responsibility for their own education as a geographer. With that in mind, each chapter in *Research Methods in Geography* includes sections that contain “Additional Resources” and “Practical Exercises.” These sections are provided to help students plant their feet and dive more deeply into the areas that most interest them, and provide instructors who come across unfamiliar content some direction and ideas about how to develop particular topics.

Research Methods in Geography is divided into four Parts. The first comprises five chapters that address overarching issues of theory and research methodology, including research design. In Part II the focus moves to the methods used to collect specific types of information, for example, about physical and cultural landscapes. Part III addresses the issues of how geographers represent and analyze different types of data. The final Part of the book

concerns a researcher's obligations in terms of ethics and the important role of disseminating their work to others.

Conclusion

Learning about research should be a rewarding experience that allows students to pursue their own interests, learn more about a chosen topic and, above all, examine a subject from different perspectives. The best reason for researching a topic in depth is that *you* find it stimulating and important. But students should also be encouraged to approach the eclecticism of their chosen discipline with a broad mind and an ecumenical spirit. Many prominent geographers have been attracted to the field precisely because of its wide remit, and some topics that are now considered mainstream were, as recently as a generation ago, not considered to be part of the discipline. So we encourage students to let their imagination run free as they select objects of analysis and ways to study them. Finally, while all research is constrained by such basic considerations as the amount of time available or the presence of supporting equipment, facilities, or funding, it is *your* curiosity about questions and *your* commitment to finding answers that are most important in influencing your success.

