

# Chapter 1

## Research Methods for Urban Planning in the Digital Age

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### ABSTRACT

*The chapter provides an overview of online research methods for urban and planning research. In examining different digital technologies and Web-based research methods, applied in different stages of the research process, in particular during data acquisition and data analysis, the chapter discusses critical differences and similarities between conventional paper-and-pencil research settings and online research environments. In this outline, the chapter addresses methodological procedures and ethical concerns in research conducted online with respondents or human participants, and ends looking to future directions for online research methods in the field of urban and planning studies.*

### INTRODUCTION

Conventional research methods have been complemented or replaced little by little by similar or comparable Web-based research methods, supported by increasingly sophisticated Internet technologies, at the same time as new methods, techniques and digital tools are being tested or are already well established in the social sciences, as the following chapters in this book illustrate.

This was in part the result of opportunities opened by the expansion of Internet, by innovations in the software for quantitative and qualitative research, and by the use of new visual sources and visual methods. These digital technologies, available for urban and planning research, in or via online environments, stimulated diversification of data collection and data processing methods and provided urban researchers with the capacity to work in larger research projects, for example with bigger samples and databanks, and offered new possibilities for data collection, as is the case

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in cities and megacities in the developing world, punctuated by huge slum areas, as exemplified in Chapter 20 of this book.

If at the beginning of this process the software available for conducting Internet-mediated urban research was comparatively limited, the past two decades have witnessed an increasing sophistication in most of these digital technologies, a shift responsible for new opportunities for online research in urban and planning studies, a trend emphasized by consecutive methodological cross-fertilization within the social sciences and between these and information sciences. While most traditional research methods and tools have been transformed into digital versions, and when feasible also applied online, the digital revolution and the widespread use of the Internet were also responsible for the development of new methods and research tools, as is the case of Web-based geographic information systems, as a tool for data collection and data analysis in urban and planning studies.

This chapter offers an overview of online research methods and digital technologies applied, or with the potential to be applied, in urban and planning studies, and looks at ethical issues raised by the application of these online methods. However, in no way does the chapter intend to be an exhaustive account of these methods. In the first section, the chapter provides examples of how online research affects data collection and data analysis methods and compares these new methods with conventional paper-and-pencil offline research practice. In the following section, the chapter examines ethical concerns raised in digital and online research settings. Finally, the chapter presents a summary of main conclusions and points to some future directions in this field.

## **DIGITAL TECHNOLOGIES AND ONLINE RESEARCH METHODS**

Research designs for Web-based environments are not essentially different from conventional research designs, although the way it is implemented and the ethical issues concerned can eventually be different. The classical experimental design or quasi-experimental designs, longitudinal or cross-sectional designs, described in numerous publications (e.g., Lavrakas, 2008; Silva, 2008a; Creswell, 2002; Newman, 2000; Frankfort-Nachmias et al., 2000), have the same types of structure and components, sampling designs, causal inferences, and control measures, independently of the research setting, conventional face-to-face or online research.

Qualitative and quantitative conventional research strategies, or even triangulation strategies that make use of mixed research designs and research techniques, also extensively described in the literature (e.g., Marshal et al., 2006; Creswell, 2002; Limb & Dwyer, 2001; Frankfort-Nachmias et al., 2000; Patton, 1999), do not differ in essence when applied to a Web-based research environment, even though some physical constraints and ethical issues may perhaps be online specific. The same happens with data collection methods, data processing, data analysis, research writing, publishing and diffusion of research results.

Online research is frequently easier and less expensive to implement than non digital and offline research and can allow a more flexible application of research designs, mixing interactively qualitative and quantitative methods and blending web-based questionnaires surveys with in-depth computer-assisted web interviews, as Lobe and Vehovar (2009) exemplify. Besides that, the use of the World Wide Web can improve sample recruitment and produce research outcomes that are more reliable and more convincing, if certain conditions are met (Dever et al., 2008; Ganassali, 2008; Porter & Whitcomb, 2005), as some of the following chapters also show. Nonetheless, they

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