

## Chapter 4

# VGI in the Geoweb: An Experiment to Test Data Reliability

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### ABSTRACT

*The advent of user-generated content, crowdsourcing and other forms of lay data generation have led to opposing arguments about the quality and reliability of data in the geoweb,. The main focus of this chapter is an ‘experiment’ to test the quality, validity and lay monitoring of volunteered geographic information (VGI) data. Given the growing importance of VGI, in particular its very different sources and potential uses, it is important that we also consider how this movement affects the ways in which we re-envision the pedagogy of geographic education. Accordingly, a sub-theme of this paper focuses on the manner in which the VGI experiment is undertaken: the experiment is run with students as a means of complementing their otherwise technical GIS training with primary research that exposes them to the wider social issues and debates relating to geographic data. We discuss the implications of this research project both for observers of the development of VGI and the pedagogy of GIS teaching and learning.*

### INTRODUCTION

This chapter is situated within a broad context of rapidly changing spatially referenced data infrastructures and technologies that substantially alter our conception of geographic information systems (GIS). A fundamental characteristic of these developments is that GIS have expanded beyond the expert domain and into everyday use. For example, ‘locative media’ forecast elections in near-real-time via web-based interfaces. Geographic location can now inform the search and purchase of products and services. And in the Web 2.0 world, georeferenced peer-to-peer content such as still images and video are continuously generated and exchanged. In general, geographic information is increasingly produced, accessed, disseminated and used via the Internet by lay citizens.

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Of particular interest in this chapter is the rise of volunteered geographic information (VGI) in the geoweb because it fundamentally calls into question the ‘authority’ with which data is traditionally provided; by the state or other legitimate authority. The emergence of VGI - - information or data provided by ordinary citizens - - raises expert-or-lay tensions surrounding the origin, exchange, use and maintenance of geographic data. The main question of this chapter is: can we rely on the lay public to provide, maintain and monitor quality data, including geospatial data, in the Web 2.0 world? The main focus of this chapter is to address this question with an experiment of user-generated content in the Wikimapia web-mapping site. In answering this question, we recognise that the rise of VGI and related movements in the geoweb may be generating a ‘neogeography’ that necessitates a rethinking of GIS education. To address this issue, a secondary theme of this chapter is the pedagogical exercise used to undertake the main experiment. The pedagogical exercise is undertaken via a student-led project in which the pedagogy of GIS education is tooled to meet the new and qualitatively different nature of VGI. We conclude the chapter with a discussion of our experiment findings and what these signal for the ways in which we may reimagine GIS teaching and learning.

## VGI IN THE GEOWEB: A DEBATE

VGI, a movement encompassing user generated content for the Internet, crowdsourcing and other forms of lay data and information generation, is both mirror and molder of wider social movements (Sui et al, 2012). We appear to be on the cusp of a fundamental shift in information collection and dissemination that increasingly incorporates volunteers or citizens as key actors (Elwood, 2011; Haklay, 2012). However these movements evolve, we argue that their importance will pivot around a key point: the extent to which volunteered data and information is ‘reliable’ in the broadest sense (Goodchild and Li, 2012). One side of this debate says that lay-volunteered data in the geoweb is championed by citizen sensors (Goodchild, 2007) who represent an opportunity for the geoweb to facilitate data provision, quality monitoring and citizen cartography. By contrast, others see the advent of user-generated data on the Internet as the rise of the ‘the cult of the amateur’ (Keen, 2007). This view refutes the ‘wisdom of the crowd’ and suggests that the lack of authority may usher in poor data quality and uncertainty around lay collection, dissemination and use of geodata.

We have begun to see examples of the kinds of answers that may arise in relation to our core question of VGI data quality and reliability. For instance, user-generated geoweb content may occasion mischief for some (Coleman et al., 2009). If true then there may be a need for some form of authority or official validation of volunteered data (Flanigan and Metzger, 2009). Yet as Cha et al. (2007) argued in relation to Youtube, it may be too soon to judge the reliability of user generated content given its novelty. Perhaps only the historian will be able to discern if and when volunteered information will have achieved widespread acceptance. We acknowledge that this might be true of Wikimapia (<http://wikimapia.org/#lang=en&lat=43.650000&lon=-79.380000&z=11&m=b&search=toronto>), the resource used here to test the sensor-versus-amateur debate, though we also argue as Elwood (2008) did several years ago that the advent of VGI bears ongoing research and interpretation.

Ever since Goodchild (2007) identified VGI, researchers have taken up the issue of data quality and reliability in various ways. Among the earliest examples is Haklay (2010) who undertook an analysis of data quality in the OpenStreetMap (OSM) system. By comparing OSM data with the Ordnance Sur-

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