

## Book Review

Sharma, M.B., and Elbow, G.S. 2000. *Using Internet Primary Sources to Teach Critical Thinking Skills in Geography*. Westport, CT: Greenwood Press. ISBN 0-3133-0899-3. Price: US \$44.95.

According to some technology enthusiasts in higher education, the Internet is simultaneously the most significant innovation since Gutenberg's printing press and an educational godsend. Web sites for courses have proliferated as college administrators encourage faculty to incorporate Internet technology in their teaching. On-line degree programs are spreading rapidly and allowing institutions to market themselves — and their faculty — to a global student body. Many scholars believe that the Internet is promoting widespread educational change by decentralizing instruction, internationalizing curricula, and providing students with unprecedented access to information sources.

Yet some professors fear that the Internet threatens traditional educational values and culture. As more students begin to work and study exclusively in on-line environments, less time is spent learning face-to-face with classmates and instructors in the same physical learning environment. Even more worrisome for many professors is the proliferation of biased, unscientific propaganda that can easily pass for reputable sources in the minds of some students.

In geography, teaching over the Internet introduces some very interesting challenges and problems. Sui and Bednarz (1999) believe the Internet can potentially inspire a new era of rigorous, relevant, and captivating instruction. Other geographers are less sanguine in their views. Gober (1998), for example, doubts that students can appreciate the meaning and essential character of geographic landscapes in virtual environments. O'Tuathail and McCormack (1998) warn of an encroachment of technical, non-scholarly content in geography and bemoan the tendency of some Internet proponents to dismiss traditional, non-technical forms of instruction as quaint at best, irresponsible at worst. This type of skepticism has caused a significant number of geographers to resist using the Internet in their teaching (Solem 2001).

So far, researchers have provided few answers to questions about the Internet's educational advantages and disadvantages. Yet, as we know, many geographers are using a wide variety of on-line sources in their teaching. Much of this activity has been concentrated and reported at the college level (Foote 1999). Interestingly, there has so far been less effort to encourage

on-line teaching at the school level even though most work in geography education of late has focused on the reform and improvement of K-12 curriculum and instruction.

Martha Sharma and Gary Elbow's book is the first work by geography educators on the subject of Internet-based teaching and learning to be targeted at secondary school teachers. By carefully identifying manageable and credible sources, the authors guide teachers through an on-line minefield of learning activities and informational sites. Finding authoritative Internet sources for teaching critical thinking skills in geography was the authors' *modus operandi*.

The book begins with an overview of the by now familiar history of geography's progression from a classical Greek philosophical enterprise to an invisible, neglected school subject to its newfound relevance in American education. Pattison's Four Traditions, the Five Themes, and the National Geography Standards receive their due attention. But Sharma and Elbow freshen the story by continually reminding the reader that each step in the evolution of geography's renaissance opened new doors of opportunity for teaching critical thinking skills, and with the advent of new computer technologies in geography our ability to engage students in critical thinking has never been greater.

Critical thinking, in the authors words (p. 2), is "disciplined, reflective thinking . . . that directs the habits of mind particular to a discipline, such as geography, to the issue or problem at hand." Sharma and Elbow maintain that school children must learn critical thinking skills to become a geographically informed person, an individual who, according to *Geography for Life: National Geography Standards 1994* (GESP 1994, 34), "sees meaning in the arrangement of things in space; sees relations between people, places, and environments; uses geographic skills; and applies spatial and ecological perspectives to life situations." With the placement of geography standards in many state curriculum frameworks and a strong national infrastructure of Geographic Alliances and academic geography programs, teachers and schools are increasingly well-positioned to teach students how to ask geographic questions, acquire and analyze data, and reach conclusions and generalizations through a process of scientific discovery — the very skills that are the hallmarks of critical thinking in geography.

What tools do students need to think and work critically and geographically? Chapter 2 reviews the variety of information sources available to and used by geographers for research. Sharma and Elbow classify information sources as primary, original, and secondary. Primary sources are essentially non-processed (i.e. raw) data, and can be either original documents or reproductions. Secondary sources are data that have been manipulated or interpreted in some fashion. Although geographers rely on both primary and second-

ary sources in their research, the authors focus their discussion on the benefits, limitations, and potential applications of primary sources such as field notes and maps, travel diaries, topographic maps, censuses, statistical reports, surveys, environmental databases, photographs, and remotely sensed images.

Beginning in Chapter 3, the authors use the Six Essential Elements of Geography (cf. GESP 1994) as the organizational framework for the book. In this chapter, the authors identify examples of on-line primary sources that provide information on (1) Maps and Spatial Relationships; (2) The Distinctive Character of Places and Regions; (3) Landforms, Climate, Vegetation, and Other Physical Systems; (4) Culture and Economy; (5) Human Interaction with the Environment; and (6) Geography Applied to Practical Problems.

Having reviewed a variety of primary sources for on-line research, the authors present next a series of learning activities that use primary sources for teaching critical thinking skills in geography. The authors carefully evaluated the affiliation, bias, clarity, and documentation of each site for its reliability as a primary source. In doing so, the authors performed a great service to teachers and librarians, many of whom spend hours searching for scientific, authoritative data on the Internet. The Web sites and suggested critical thinking activities are grouped by Essential Element, and the authors provide an additional statement of context that describes the type of data found on the site and explains its potential role as a source for geographic research.

I have some minor quibbles about the book's format and presentation. First, the book contains no illustrations, but instead refers the reader to various Internet sites whenever a figure or graphic would normally appear in the text. I believe picture inserts, especially for the primary sources reviewed in Chapter 2, would have been of great assistance to geographic neophytes who are unfamiliar with the tools of the trade. Second, the authors run into trouble by relying on primary sources for their critical thinking activities. Many of the book's activities, in fact, use secondary sources (e.g., thematic maps), even though the authors present the material as primary sources. This should not be problematic for most purposes because geographers regularly use secondary sources. A greater problem with the activities lies in their wording. The authors provide four critical thinking activities per primary source, yet each activity description is only one paragraph long. Consequently, many activities are somewhat vague, and most would require a great deal of preparation, planning, and elaboration on the part of the teacher prior to and during classroom implementation. As such, the activities might best be thought of as starting points for developing full lesson plans.

Overall, my criticisms are outweighed by the authors' imaginative suggestions for using the Web to support critical thinking and their careful screening of Internet sources. Sharma and Elbow effectively tame the oft-times Wild West

qualities of the Internet by presenting primary sources in a clear, teacher-friendly structure. Their book is exceedingly well-written, indeed eloquent at times, and is especially persuasive in its advocacy for using the Internet to transform intellects and release imaginations. I believe this book will prove to be an essential reference for teachers and librarians for many years to come, even though, as the authors themselves recognize, Internet sites continually appear, move, or vanish altogether. The authors should be commended for a work that, if used properly, can direct students toward Internet sources that stimulate interest in, rather than distract them from, their rapidly changing world.

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