

# Geography: The *Essential* Skill for the 21st Century

Paul Nagel

**As we head further into the 21st** Century, we are living in an every changing and interdependent world. The toys that our children play with are made in China. The clothes we wear or the shoes on our feet, the bedding we sleep on, or the drapes over our windows are made as far away as Pakistan or the Commonwealth of the Northern Mariana Islands. Students need a global awareness that includes familiarity with different cultures, beliefs, and lifestyles in order to understand and address global issues. Geography can help students understand these issues.



Courtesy of the author

Social studies teachers use GPS technology to find an EarthCache in Lafayette, Louisiana.

## 21st Century Skills

Three essential learning and innovative skills can help students with geography for confronting the challenges of tomorrow: creativity and innovation; creative thinking and problem solving; and communication and collaboration skills. One simple way to stimulate student creativity might be a walking tour of the school or campus. Teachers might challenge

students to create a musical composition based on items they observed or heard on their tour. Have the students explain what the sound from their composition represents and discuss the difficulty of representing these sounds. Another way to stimulate creativity with geography is to use a poem as a springboard for having students write their own poems describing physical or human sounds in the

environment. There are four important features of creativity: using imagination; pursuing purpose; being original; and judging values.<sup>1</sup> Imagination involves looking at a situation from a different perspective or thinking of alternatives. Pursuing purpose and being original encourages the student to have a set action or intention while conceiving of new ideas. Creative thinking involves trying new possibilities and rejecting those that do not work. Creativity does not happen in isolation; as Stephen Scoffham notes, “It is a way of thinking about the world and in many ways mirrors the process of learning itself.”<sup>2</sup> Geography provides students an inexhaustible context for creativity in an interdependent world.

One invaluable asset for 21st century teachers is the availability of global positioning systems (GPS) and geographic information systems (GIS). GPS, first created by the Defense Department, is today being increasingly integrated into the curriculum. EarthCache, developed by the Geological Society of America and the National Geographic Society, builds on the popularity of Geocaching—which invites users of GPS units to search for hidden or virtual caches around the world.<sup>3</sup> The EarthCache curriculum can be teacher created, and students then follow, investigate and learn how geography can be applied in a real setting. Students can then use creativity and critical thinking skills to create their own EarthCache.

Besides being outdoors and being a “detective,” part of the adventure of

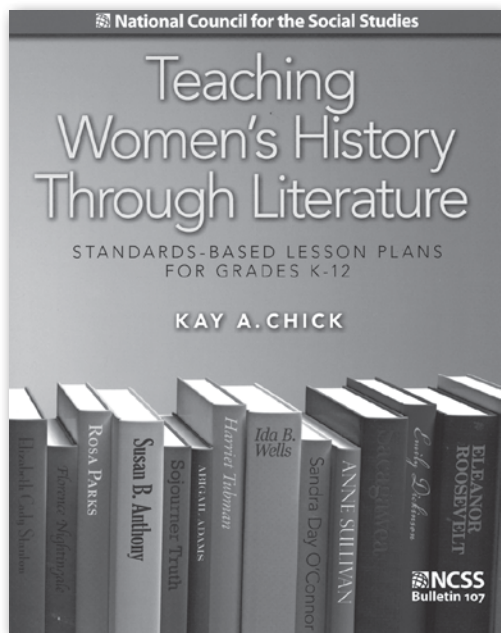
finding a Geocache or an EarthCache is being able to read and use a map with the GPS units. The Garmin and TomTom GPS units use GIS.<sup>4</sup> GIS allows users to visualize data (such as the location of fire hydrants in a community) and display this information on an interactive map. Google Earth is an example of interactive GIS.<sup>5</sup> Students can pinpoint locations, determine patterns, and use problem-solving skills to answer such questions as “How can land use changes in Dallas over the last 50 years be shown?” Students with GIS can also predict what might happen in the future with land use patterns.<sup>6</sup>

### Hurricane Katrina

An essential skill that fits nicely with geography is problem solving. Problem solving involves six key steps: what is the problem; examine the potential causes of the problem; identify alternatives to solve the problem; select an approach to solve the problem; implement the solution and

verify that the problem has been resolved. Examples in geography can be found interwoven throughout the 18 National Geography Standards. When Hurricane Katrina struck southeast Louisiana in 2005, residents faced a host of challenges. As residents fled, they had to use either a mental map or an actual map to formulate an evacuation route (GFL standards 1, 2, and 3). As Hurricane Katrina went through south Florida, many residents from Brownsville, Texas, to Pensacola, Florida, had to determine if the storm was going to make landfall near them. Within the Gulf Coast of the United States, residents chose these places and regions (GFL standards 4, 5, and 6). How did past hurricanes in the Gulf of Mexico influence residents’ decisions to leave early, leave at the last minute, or stay put? Did these decisions influence thoughts about an alternative to the approaching storm? As residents of the Gulf Coast decided what to do, they settled on a solution. Human systems

(GFL standards 9, 10, 11, 12, and 13) became an important influence. Can I stay with family or friends within a close proximity to the coastal area? Or do I go thousands of miles away? How did cooperation or conflicts help or hinder a solution to Katrina (GFL standards 9, 10, 11, 12, and 13)? If residents chose to stay within the area where Hurricane Katrina came ashore, was this the best implementation of the solution to the problem? Gulf Coast residents had heard the warnings in the past with hurricanes Camille in 1969, Andrew in 1992, and Ivan in 2004.<sup>7</sup> Both of these actions: staying within the zone where Hurricane Katrina made landfall or ignoring the history of hurricanes in the Gulf of Mexico encompass GFL standards 14, 15, 17, and 18. As Hurricane Katrina progressed across the warm waters of the Gulf of Mexico, did residents along the Texas Gulf Coast verify that Katrina was no longer a threat? Did residents in southeast Louisiana, southern Mississippi, and



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Alabama have to rethink how they react and deal with hurricanes after Katrina struck (GFL standard 18)? Finally, with any problem solving activity, what can be learned from the experience? What have the three levels of government—federal, state, and local—done to prepare for the next hurricane?

## Geography and Economics

In an ever-changing world, where the shirt off your back can come from a tiny island in the western Pacific, knowledge plays an integral part. But if students (or adults) cannot communicate or collaborate—both of which are essential learning skills for the 21st century—then

how will they develop a global awareness? Geography can accomplish both of these tasks. Intertwined with economics, geography can help explain how a major retailer (understanding the economy of distance) can instantly communicate with a factory in China and change the latest fashion designs for the fall.<sup>8</sup>

Table 1: **10 Key Ways in which Geography and Economics Work Together**

| Factor                                       | Geography Connection— Example  | Economic Connection  |
|--|--|--|
| Lower Communication and Transportation Costs | As communication and services are intertwined in a global network, distance shrinks, resulting in an interdependent world (GFL 11). UPS or FedEx being able to send packages around the world.   | Consumers benefit from cheaper costs with movement of goods and information.   |
| Better Production Functions                  | The geographically informed person, a production manager, knows and understands concepts like distance and direction. These are the building blocks for location and distribution (GFL 3). Location of a distribution hub for Wal-Mart or Target.  | Manufacturers are better able to develop and manage production at any time or place with reduced communication and transportation costs.   |
| Stronger Competition                         | Changes that occur in the meaning, use, distribution and importance of resources. Manufacturers and firms seek to optimize the use of resources in production to reduce costs (GFL 16). J.C. Penny utilizing the Internet to speed the production and distribution of new clothing.  | Increased competition makes firms and manufacturers find better ways to produce their goods and services. Production is transformed to be more efficient.  |
| Greater Specialization                       | The geographically informed person understands the spatial variations in the social, cultural, and lifestyle characteristics of human populations (GFL 9). The restaurant chain Chick-fil-A, which only sells chicken sandwiches.  | Firms, manufacturers, people and nations become more efficient when they concentrate on what they do best. Specialization focuses on specific tasks, leading to improved production.             |
| Larger Market Size                           | An interconnected world is complex and made up of a mosaic of different regions. Having a global understanding helps people make connections about these regions in which they share similar characteristics (GFL 5). Exxon Mobil, an international oil and gas company that has operations in 40 nations around the world.  | The bigger the market, the greater the potential sales and profits. Market size stimulates innovation and business growth.   |
| Extended Economies of Scale                  | People, firms, or manufacturers understand the process, patterns and functions of human settlements. People around the world congregate in settlements of different sizes. The forms and functions of these settlements (ranging in different sizes from New York City to Natchitoches, Louisiana) are determined by their economic base and their political and military importance (GFL 12). Cell phone companies such as AT&T or T-Mobile expanding to the market in Guatemala. | A larger market allows producers to reach more consumers, lower costs in production and lower prices for the consumer.   |
| Broader Capital Markets                      | The geographically informed person, firm or manufacturer understands where a place is located and they begin to associate physical and human characteristics with that location (GFL 4). Toy manufacturer Mattel, the maker of Thomas the Tank Engine or Dora the Explorer toys making them in China.  | An interconnected world allows firms and manufacturers to shift production to areas with the highest returns.  |
| More-contestable Markets                     | An understanding of the contemporary world requires an understanding that physical and human systems drive world events (GFL 18). Toyota Motor Corporation realizing that they need production in different nations—26 in all.   | In an interconnected world and economies, producers everywhere are in competition and striving to stay in business.  |
| Greater Knowledge Spillovers                 | When people, firms, or manufacturers share production knowledge, they understand how culture and experiences influence people's perceptions of places and regions (GFL 6). Oprah Winfrey airing her show in 126 countries across the world has led to other television producers thinking globally (e.g., ESPN).   | The communication and sharing of production knowledge helps make production and economies more efficient.  |
| Spread of non-rivalrous Consumption          | The geographically informed person understands the changes that occur in the meaning, use, distribution and importance of resources (GFL 16). Movie production studio, Universal Pictures, releasing the movie King Kong in 2005, grossing over \$549 million worldwide.   | Products are non-rivalrous, such as TV, movies, or the Internet doesn't diminish another's consumption of that product, and can serve additional consumers without significant additional costs. |

The designer makes use of knowledge of the different time zones, distance, and production while also utilizing communication, collaboration, and a global understanding. There has been an exponential growth in the sharing of such knowledge since 1980. There are more than 212 million college degree holders in the world today, compared to just 82 million, 17 years ago.

The explosion of e-mail accounts highlights the increase in global understanding and communication. In 1985, there were no e-mail accounts, but today there are over 1.4 billion accounts that can be hit with spam. Since 1990, Internet users worldwide have increased from 2.6 million to more than 1.02 billion. The ability to communicate via the Internet and e-mail has also been joined by the rise in cellular phone use. In 1990, only 11.2 million cell phones were in use, now there are more than 2.7 billion, with many countries in the world, such as Guatemala having more cell phones than land lines.<sup>9</sup>

Cell phone company executives, when deciding to go into a burgeoning market, such as India or China, must have an understanding of that country's cultures, GFL standard 6: How Culture and Experience Influence People's Perceptions of Places and Regions, and **NCSS Standard III, People, Places, and Environments**. By understanding cultures, cell phone executives are able to market their products with local advertisements or celebrities. Oprah Winfrey, whose celebrity extends well beyond U.S. borders (her talk show airs in 126 countries), has launched a global awareness campaign for both students and educators to increase knowledge of world issues. Oprah's campaign and an understanding that she has viewers around the world are not limited to Harpo Productions.<sup>10</sup> MTV networks can be seen in 496 million homes; the Discovery network in over 450 million homes; and Fox News can be seen in more than 350 million homes around the world.<sup>11</sup>

The globalization of knowledge or an awareness of global issues intertwines geography and economics in 10 key ways that will help students in the 21st century: lowered communication and transportation costs; better production functions; stronger competition; greater specialization; larger market size; extended economies of scale; broader capital markets; more-contestable markets; greater knowledge

spillovers; and spread of non-rivalrous consumption.<sup>12</sup> These 10 factors can benefit consumers—students—with lower costs, as the world becomes interdependent (Table 1).

### Thinking Geographically

As we progress into the 21st century with a global economy, cultural migration, and environmental challenges, geography provides the vehicle and

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tools for adapting to these changes. A way to meet these challenges is to think geographically. Thinking geographically is not a research-oriented approach to investigating the world; rather it is a way to know where something is, how its location influences its characteristics, and how its location influences relationships with other phenomena. There are five steps to thinking geographically: (1) Ask geographic questions; (2) Acquire geographic resources; (3) Explore geographic data; (4) Analyze geographic information; (5) Act upon geographic knowledge.<sup>13</sup>

Thinking geographically, accompanied by the geography tools of GPS and GIS, will help students, parents, educators, and business leaders for the next 92 years and beyond. As one of nine core subjects that are essential for students to succeed, geography can help students better develop a global awareness and allow them to be creative and innovative. Additionally, creative thinking and problem solving

remain essential within geography. When the 2004 Indian Ocean tsunami hit, it was a young British girl, using her geography problem solving, who understood that the retreating ocean was a sign that a tsunami was about to hit. Her call to evacuate a beach in Thailand saved hundreds of lives. Finally, as business leaders, firms, and manufacturers realize that to compete in the 21st century they need global awareness, geography is essential combined with communication and collaboration skills. 🌐

#### Notes

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