Get Up, Get Out with Geocaching:  
Engaging Technology for the Social Studies Classroom

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This article gives an overview of using global positioning systems (GPS) in a popular activity, geocaching, as a teaching and learning activity. The authors provide background information and an overview of one social studies teacher’s first use of geocaching and share perspectives from the teacher and her students on its value in the classroom.

Introduction

The activity known as geocaching has gained popularity among educators within the past few years. Originally established as an activity geared toward the outdoor enthusiasts and treasure seekers, geocaching has broadened its appeal to the classroom. Teachers are implementing this emergent technology into their course curriculum and taking students to the larger classroom outdoors. This article details one teacher’s activity in using geocaching to enhance teaching and learning for a secondary social studies classroom.

Geocaching: A Brief History

In geocaching, a network of satellites, the Navigation Satellite Timing and Ranging Global Positioning System, transmits positional data to individual, handheld, global positioning system (GPS) units. In May 2000, the Department of Defense discontinued the jamming signal affecting civilian GPS units, thus improving the accuracy of transmitted data from 300 feet to 30 feet (Schlatter & Hurd, 2005). A few days after the jamming signal ceased, engineer David Ulmer “hid a treasure near his home, posted the coordinates on the web, and challenged people to find it” (Schlatter & Hurd, p. 28). People found the treasure, and geocaching was born. A few months later, computer programmer Jeremy Irish built a website to manage the treasure hunting game, Geocaching.com, (Austin, 2001); as of this writing, over half a million caches are hidden around the world.

What is Geocaching?

According to Lary (2004), geocaching is essentially a highly technological, world spanning game, similar to a treasure hunt, in which a person hides a cache for others to find. Accordingly, Geocaching.com likens geocaching to an “adventure game for gps users” (Groundspeak, Inc., 2007, p. 1). Geocaching, pronounced “geocashing,” involves individuals or groups hiding items anywhere in the world, recording the GPS coordinates, and then posting those coordinates on the Internet so that other individuals or groups can find the hidden items. The treasure, usually placed within waterproof and camouflaged containers, generally consists of items such as key chains, toys, stickers, musical recordings or small...
trinkets (Lary, 2004; Nickelson, 2007; Shau nessy & Page, 2006). Trackable items such as geocoins and travel bugs are alternatives to the traditional cache, as these items are designed to be carried person-to-person to different cache hiding spots around the world (Groundspeak, Inc., 2007; Lary, 2004).

Though geocaching sounds simple, three comprehensive rules apply to the traditional form of geocaching: 1) take an item from the cache once the cache has been located, 2) leave another item in the cache container in the old item’s place, and 3) record your information in the accompanying log book within the cache container (Groundspeak, Inc., 2007, p. 1). However, variations to the traditional geocache exist in the form of multi-caches and virtual caches, though new variations of geocaching are constantly evolving. In multi-caching, coordinates are given directing geocachers to hidden items containing a written clue or problem to solve; geocachers must use the clue or solve the problem to go to the next cache, which also contains a clue or problem. Virtual caches focus on landmarks or historical locations, whereby a geocacher must locate the landmark and then let the owner of the cache know the landmark has been found by answering a question. Anyone interested in participating for the first time can visit a geocaching site, such as Geocaching.com, create an account, and begin looking for caches hidden around the world by address, zip code, state, or country.

Who is a Geocacher?

When geocaching began, the game appealed primarily to outdoor enthusiasts and treasure seekers. However, the sport has since broadened its appeal to include children, adolescents, college students, moms, dads, and grandparents (Nickelson, 2007). Geocachers have cited many reasons for pursuing the activity including creating travel opportunities, engaging in exercise, spending time with grandchildren, and even changing how they view the world through other geocacher eyes (Enkoji, 2007; Nickelson, 2007; Owen, 2006; Sullivan, 2006). Educators are getting into the geocaching act as well. Instructional technology specialist, Lynn Lary, guest taught at a two-day Oregon “outdoor school” focusing on science (Lary, 2004). Lary used the GPS units to review the diameter and circumference of Earth, as well as Earth’s latitude and longitude coordinates. The actual geocaching activity created by Lary encouraged students to recall mathematical concepts and to use problem solving skills to discern the meanings of the various clues. Through geocaching, science teacher Gerry Swingle (2007) encouraged his students to research and visit historical landmarks in the surrounding area. Students researched a topic, visited the area, interviewed people familiar with the topic, wrote a story, and “made a map based on their GPS coordinates” (Swingle, 2007, 4).

In the literature, empirical research on geocaching, particularly as it connects to social studies, is noticeably absent. Lesson plans incorporating geocaching, from all grade levels and content areas, can be found on the Internet. In content areas such as reading and language arts, geocaching can help students learn proper story sequencing, identify nouns surrounding the cache, and develop and enhance vocabulary (Garner, 2007; Smith, 2007; White, 2007). Science teachers use geocaching to explore geological formations, practice navigation and map reading, and observe their natural surroundings such as plant and animal life (Geological Society of America, 2006; Trimpe, 2005). Math teachers use geocaching to help students solve logic problems, recall and use mathematical concepts, and study angles and distances (Lary, 2004; Kerski, 2006; Trimpe & Hughes, 2005). Social studies teachers use geocaching to encourage students to research and visit important local historical landmarks, learn longitude and latitude, and connect content learned in the classroom to actual places and people (Kerski, 2006; Swingle, 2007).
Why Geocaching in the Social Studies Classroom?

The GPS receivers employed for geocaching are considered an emerging technology. As a result, little, if any, research has been conducted on the effectiveness of this emerging technology in the classroom. However, a rationale for employing geocaching based on constructivist theory can be made (Christy, 2007). Pedagogical activities designed for geocaching and based on constructivist theory promote new learning connected to prior knowledge, stimulate students to think critically, and allow for collaboration, authentic learning, and activity learning (Doolittle & Hicks, 2003; Wilson & Rice, 1999).

Another reason to employ geocaching is to promote technology skills. In today’s technologically complex world, students already use and manipulate technology-related devices and software programs in and away from school. Social studies educators are increasingly required to incorporate technology into the curriculum to meet various state and national standards (e.g., NCSS). Geocaching is one method that may be implemented to develop proficiency in meeting these standards and to support innovative teaching and learning.

Our Activity

The teacher educators involved in this activity wanted to explore uses of geocaching in one social studies classroom at Paul W. Bryant High School (the school also serves as a Professional Development School and Teaching American History site in partnership with the University of Alabama). The university sponsors several professional development learning groups. One such group is the Master Technology Teacher group, and it was through the auspices of this group that the teacher involved in this activity, Lisa, was introduced to the learning tool of geocaching. As a social studies teacher, she saw geocaching as a valuable and engaging tool and began to use it in her classroom instruction. What follows is Lisa’s account of implementing geocaching for the first time.

A Teacher’s Process: Lisa’s Story in Her Words

In previous years, the War of 1812 had always been presented to my pre-AP United States History class in the typical format of lecture, video, artwork analysis, projects, and homework. Each area was designed for the students to obtain the highest level of information that would grant them a complete understanding of the reasons for and results of this war. Although I tried to make it as interactive as possible, there was always room for improvement. Having learned the technique of geocaching through the university’s technology professional development program, I decided to do something a little different the next time I taught this unit. Thus, geocaching in my classroom was born. Since then it has become a regular activity and one that has evolved as my experience and expertise has grown.

My pre-AP 10th grade American History class was split into five different groups and assigned a topic relating to the War of 1812. These topics included the causes of the War of 1812, the naval battles, the Battle of New Orleans, Andrew Jackson, the burning of Washington, DC, Fort McHenry/Francis Scott Key, and the Treaty of Ghent. To prepare for the actual geocaching event, the students researched their assigned topics, wrote the questions and clues for finding the cache, plotted the hiding places with latitude and longitude coordinates, and finally, hid the cache for their fellow classmates to find. In total, the students wrote and hid 25 questions and clues. The students were creative in writing their clues and realized they could make the activity as easy, or as hard, as they wanted. They found this intriguing! From a teacher’s perspective, it was very invigorating.
to see my students so excited about learning. The questions for the assignment were straightforward in that the questions, as well as the answers, had to come from their textbooks. The clues were a bit more intriguing for the students to create. For example, one group hid a question under the garbage can at the tennis courts, and the clue that led others to finding the question was “John McEnroe was a tennis trash talker.” Another group used the clue, “Speeches, plays, and choir recitals are likely to happen here. Our namesake watches them all.” That clue and GPS coordinates led the students to the entrance to the auditorium where a portrait of Paul W. Bryant hangs.

For a new teacher who was integrating this for the very first time in the classroom, writing the clues was the most daunting undertaking, but allowing the students to write the clues allowed them to become creative and more engaged in the learning. In addition, I was able to be more active in their discussions and thinking processes instead of worrying about writing them all myself and doing so in a way that they would find intriguing. Geocaching actively engaged the students, encouraged problem-solving, multitasking and teamwork, and created excitement about learning. The students discussed methods to make the hunt more challenging, along with techniques to streamline the actual hunt (e.g., setting boundaries for hiding the caches and establishing defined hunting rules). Many students had actually participated in geocaching before and were familiar with the GPS units; however, many students had never heard of or used a GPS unit. Although time was dedicated to familiarizing the students with the units, more practice time was warranted and for any first timer (teacher or student) a class period (90 or more minutes) or two is recommended for this purpose. The students enjoyed geocaching, with several commenting they would like to do a similar activity on a weekly basis. Even though most of the comments were positive and helped prove the activity a moderate success, there was still room for improvement as seen from student comments:

I really enjoyed the geocaching experience. I thought that it offered a different type of learning besides just sitting and taking notes. I enjoyed the freedom it offered and the intellect it involved. I did not enjoy the fact that we only had one day and more than half the day was spent searching for our own. So, if I were to change anything it would be the amount of time we spent on it and the order we cached things. (J. Tiller, personal communication, April, 2007)

Another student reflected:

Geocaching was a very unique experience. I have never done anything like it before. I liked it because it showed us new ways to learn history and new ways to work in groups. Geocaching was also a good experience because you got to learn group coordinates…If I could change anything about geocaching, I would change how we started off. When we had to start off finding our own clues and then move on to the next stage, it made it kind of difficult to find any other stages. I would also change how people hid their clues. Some of them were hidden in absurd places, and they didn’t give enough away in the clue to find the new one. (A. Harwood, personal communication, April, 2007)

Overall, the students found the activity to be “fun” and “adventurous”; they enjoyed the “hands-on activity outside.” Other skills specific to technology use and integration were evident, with one student noting, “With the geocaching, I gained experience with a GPS systems that, without this lesson, I would have never even known they existed.” This same student said she would consider it as a hobby! Another student’s comment was similar:
What I liked about geocaching was that it gave me the opportunity to get out of the classroom. Also, it allowed us the freedom to be creative with clues and know how to plot coordinates. This was a new thing for me and it was a pleasant surprise. (T. Barton, personal communication, April, 2007)

As previously stated, my experience and level of expertise with geocaching has evolved as I have become more involved with its activities. Students in my classes and I have progressed from simple questions, clues, and hiding points to including mapping activities that provide a scaled course based on the map and/or lesson being studied. This allows us to take an event that happens anywhere in the United States or the world and re-create it, so to speak, in our own backyard. We have also looked for more ways in which geocaching can help the students make more text-to-self or text-to-modern world connections, especially if events involve their locality and/or state. For example, the War of 1812 unit has grown to now include state battles, the Battle of Horseshoe Bend, and the Creek Nation War.

Technology evolves and so must any lesson in which it is incorporated. From the experience of this teacher, no lesson is ever complete because there will always be better ways to conduct and enhance the lesson.

Final Comments

Geocaching can be an exciting teaching tool for the social studies classroom, but it also requires planning. The first time students are introduced to geocaching class time should be devoted to teaching the tool’s general concept and the flow of how a “hunt” is conducted. In addition, the teacher should give examples of clues and how the course to the clue might be played. Valuable practice time should also be included for first timers. Lisa is now an experienced geocacher and routinely conducts geocaching activities in her social studies classrooms. She has also made geocaching a family event, participating in hunts with her daughter on the weekends!

References


### About the Authors

**Lisa Matherson** is a Social Studies Educator at Paul W. Bryant High School. She currently teaches all three levels (AP, Advanced, and Regular) of U.S. Government and Economics, Early U.S. History, and Psychology. She earned both her BSE and MSE from the University of Alabama.

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