

Who EarthCaches and Why?

Results of an Exploratory Survey by the
Center for STEM Research, Education,
and Outreach at Southern Illinois
University Edwardsville (SIUE)

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Meet the Researchers

Sharon Locke

Sharon is the director of the SIUE STEM Center and an associate professor at SIUE. She is a geoscience educator who is passionate about promoting engagement with science at all age levels and increasing the diversity of the scientific workforce. She has taught college courses in a wide range of topics, including geology, geochemistry, hydrology, oceanography, and paleontology and has led extended student field trips to Hawaii and the western U.S. She has a Ph.D. in Geology from the University of Minnesota.

Georgia Bracey

Georgia has been a research associate in the SIUE STEM Center for over four years. She has spent 13 years teaching in public schools. In 2009, she received her M.S. in Physics and is currently a doctoral candidate in science education at the University of Missouri-St. Louis. Her research interests include physics/astronomy education, citizen science, and the integration of technology in teaching and learning.

Rosey Morr

Rosey has been a research assistant in the SIUE STEM Center for a little over a year as she wraps up her Industrial/Organizational Psychology Master's degree. She has studied motivation theories in several classes in her program.

Study Overview

The SIUE Center for STEM Research, Education, and Outreach develops, strengthens, and promotes engagement in STEM locally and worldwide. In the fall of 2013, the STEM Center began a study to learn more about what motivates people to partake in informal educational STEM activities on a voluntary, regular basis. The study focused on one program - EarthCaching. EarthCaching is a subset of the wider game of Geocaching, which is run by Geocaching.com. Because EarthCachers dedicate their time and resources to participate in this program, they were the perfect candidates for the study.

After some preliminary interviewing of EarthCachers, a survey was developed in order to investigate *who* participates in EarthCaching activities, *why* they participate, and *what* they think they learn from participating. The survey asked participants 32 questions about their reasons for beginning to EarthCache, their reasons for continuing to EarthCache, and what they've learned from EarthCaching. In addition, the survey also asked about favorite EarthCaches, awards received and mastery levels attained, and personal goals related to EarthCaching.

The survey was available online from December 2013 through April 2014. The data were analyzed during the summer of 2014, and the results were presented at the October 2014 3rd International EarthCache Mega Event in Duncan, BC, Canada.



For more information about the Center for STEM Research, Education, and Outreach, visit: <http://www.stemideas.org/>



Study Results

Demographics

- Our survey respondents were primarily male (65%), Caucasian (91%), and college-educated with an associate's degree or higher (76%).
- Over half (54%) were age 45-64.
- The most-reported (25%) approximate yearly income range was \$70K - \$99K.
- The average length of time involved in EarthCaching was four years, with many having participated in the program since its beginning in 2004.
- Some EarthCachers completed one to three EarthCaches per year (25%); however, many completed 13 or more (33%).

Motivations

- The two most-valued elements of an EarthCaching experience were

to see rare and unusual Earth features and to see something that was new to them. Other preferred cache features were beautiful scenery, the opportunity for hiking/walking, and not being too physically demanding.

- The strongest motivator for *continuing* to EarthCache was to learn about the Earth, followed by learning about geologic topics and a desire to be outdoors.
- Almost all (92%) planned to continue EarthCaching as long as they were able.

Learning

The survey results suggest that EarthCaching is an engaging science learning activity, one that connects people with their natural curiosity about the outside world.

- The most frequently chosen (54%)

personal goal associated with EarthCaching was *to increase my knowledge about the Earth*.

- When asked what they learned from EarthCaching, participants overwhelmingly chose *Earth processes*, then *how the Earth has changed over time*, and *the Earth's composition*. Other choices selected were *how the Earth was formed*, *GPS skills*, *navigation skills*, and *writing and communication skills*.

We gratefully acknowledge the support of



For more information about EarthCaching, visit www.earthcache.org

Why is this Important?

Thousands of people spend their time and money to participate in EarthCache activities each year. Learning about their motives for doing so can help educators understand how and why people engage in life-long science learning. The results of this ongoing study will help geoscience educators to design formal and informal learning experiences that tap into interest in and enthusiasm for science. The EarthCaching program itself will be able to use this information to optimize the EarthCaching experience, increasing engagement and learning and bringing the program to a broader audience.



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