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A ROAD MAP FOR 21st CENTURY GEOGRAPHY EDUCATION

Geography Education Research

Recommendations and Guidelines for Research in Geography Education

A Report from the Geography Education Research Committee of the Road Map for 21st Century Geography Education Project



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Association of American Geographers
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Road Map for 21st Century Geography Education Project

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The **National Geographic Society** is one of the world's largest nonprofit scientific and educational organizations. Founded in 1888 to "increase and diffuse geographic knowledge," the Society's mission is to inspire people to care about the planet. It reaches more than 400 million people worldwide each month through its official journal, *National Geographic*, and other magazines; National Geographic Channel; television documentaries; music; radio; films; books; DVDs; maps; exhibitions; live events; school publishing programs; interactive media; and merchandise. National Geographic has funded more than 10,000 scientific research, conservation and exploration projects and supports an education program promoting geographic literacy.

The **Association of American Geographers** (AAG) is a nonprofit scientific, research, and educational society founded in 1904. Its 11,000 members from more than 60 countries share interests in the theory, methods, and practice of geography (including GIScience, geographic education, and geographic technologies). The AAG pursues its mission through its many conferences, scholarly publications, research projects, educational programs, topical specialty groups, and its extensive international network of colleagues and organizational partnerships, which encompass professionals working across public, private, and academic sectors all around the world.

The **National Council for Geographic Education** (NCGE) works to enhance the quality, quantity, and status of geography teaching and learning in primary, secondary, university, and informal educational settings. It develops and promotes curricular materials and two journals, fosters best practices in pedagogy and geotechnology, connects educators through online communication and through its annual conference, supports research in geographic education, recognizes exceptional supporters and teachers of geography, and collaborates with other organizations that have similar goals.

The **American Geographical Society** is an organization of professional geographers and other devotees of geography who share a fascination with the subject and a recognition of its importance. Most Fellows of the Society are Americans, but among them have always been a significant number of Fellows from around the world. The Society encourages activities that expand geographical knowledge, and it has a well-earned reputation for presenting and interpreting that knowledge so that it can be understood and used not just by geographers but by others as well—especially policy makers. It is the oldest nationwide geographical organization in the United States. Its priorities and programs have constantly evolved with the times, but the Society's tradition of service to the U.S. government, business community, and nation-at-large has continued unchanged.



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Executive Summary

Introduction

In our rapidly changing, interdependent, and complex world, the importance of “the geographic advantage” (Hanson, 2004) and geography education is evident. Geography education provides critical preparation for civic life and careers in the 21st century. It also is essential for postsecondary study in a wide range of fields from marketing and environmental science to international affairs and civil engineering. In the modern world, every member of society increasingly is called on to make decisions that have far-reaching consequences. Geography education helps prepare people to make these decisions.

Yet the current state of geography education in the United States is a concern. Although examples of excellence in geography education can be identified in every part of the country, they are the exception. More typically, the amount of geography instruction that students receive, the preparation of their teachers to teach geography, and the quality of instructional materials are inadequate to prepare students for the demands of the modern world.

Assessments of geographic concepts and skills confirm the failure of our educational system to provide students with an adequate understanding of geography. The 2010 National Assessment of Educational Progress (NAEP), known as “The Nation’s Report Card,” indicated that the overwhelming majority of American students are geographically illiterate (National Center for Education Statistics, 2011). It found that fewer

than 30% of American students were *proficient* in geography, meaning that they were able to perform at the level that is expected for their grade. More than 70% of high school graduates are not prepared to do the ordinary geographic thinking required in the course of caring for themselves and their families, making consequential decisions in the workplace, and participating in the democratic process.

We need better and more research before we can understand even the most fundamental ways individuals develop proficiency in geography. The current state of geography education across the United States is a threat to our social, political, and economic well-being.

A Road Map for 21st Century Geography Education: Geography Education Research

The Road Map for 21st Century Geography Education Project focuses special attention on the practices of thinking geographically and doing geography, that is, the behaviors that comprise geographic inquiry and problem solving. The project adopts the learning goals of the second edition of *Geography for Life: National Geography Standards, Second Edition* (Heffron & Downs, 2012) to provide a structure outlining what students must know and what they must be able to do to be geographically proficient.

This report focuses on two questions, posed as charges to the Geography Education Research Committee:

- (1) What areas of research will be most effective in improving geography education at a large scale?
- (2) What strategies and methodologies can relevant

research communities develop and adopt to maximize the cumulative impact of education research in geography?

The first question is addressed in Chapter 2. This Committee suggests two strategies to improve geography education research: (1) careful consideration of education research in related fields, including science and mathematics education, more specifically, research in learning progressions or trajectories and related instructional interventions; and (2) creation of a framework for geography education research. The framework consists of two parts: the practices of geography and four key research questions. The geographic practices, which *Geography for Life* argues are essential to learning and thinking proficiently in geography, are:

- formulating geographic questions;
- acquiring, organizing, and analyzing geographic information; and
- explaining and communicating geographic patterns and processes.

To understand in depth how students learn each of these geographic practices, four education-related key research questions are proposed. These questions are applicable to geography learners of all ages and educational backgrounds, whether they are engaged through schools or informal communities. The four key research questions are: (1) How do geographic knowledge, skills, and practices develop across individuals, settings, and time? (2) How do geographic knowledge, skills, and practices develop across the different elements of geography? (3) What supports or promotes the development of geographic knowledge, skills, and practices? (4) What is necessary to support the effective and broad implementation



of the development of geographic knowledge, skills, and practices? Together, the practices of geography and key research questions provide an agenda and direction for geography education research.

The second question posed to the Committee, “What strategies and methodologies can relevant research communities develop and adopt to maximize the cumulative impact of education research in geography?” is addressed in Chapter 4. The Committee recommends connecting the relatively small community of geographers and others who conduct research in geography education with the broader community of scholars from the learning sciences, education, and related fields. This cooperation and collaboration will inform, assist, and enable more generative activities such as developing a suite of exemplars that can be used in geography and other fields. It also will encourage studies that align to the key research questions suggested previously; are situated in a problem context; focus on the core ideas, knowledge, skills, and practices of geography; draw from research about cross-cutting themes and foundational concepts from other disciplines; and use common tasks, measures, and assessments.

Recommendations

The report concludes with 13 recommendations to improve research in geography education and, thus, to develop a more geographically proficient and literate society.

The Committee’s recommendations are organized around the two key charges to the Geography Education Research Committee. A hierarchical order of recommendations is not implied as both charges are equally important. The Committee leaves it to the

individuals and groups reading and responding to this report to prioritize the recommendations.

Recommendations Focused on Charge 1

What areas of research will be most effective in improving geography education at a large scale?

Recommendation 1

The Committee recommends that geography education researchers engage in systematic efforts to identify learning progressions in geography both within and across grade bands (e.g., grades K–4, 5–8, 9–12).

Recommendation 2

The Committee recommends research that examines the components and characteristics of exemplary geography curricula.

Recommendation 3

The Committee recommends research to investigate the characteristics of effective geography teaching.

Recommendation 4

The Committee recommends research about fieldwork and its impact on learning geography knowledge, skills, and practices.

Recommendation 5

The Committee recommends that research about teacher preparation in geography be conducted with the goal of determining what is needed to produce educators able to understand and teach for student mastery of the content and practices of geography.

Recommendations Focused on Charge 2

What strategies and methodologies can relevant research communities develop and adopt to maximize the cumulative impact of education research in geography?

Recommendation 6

The Committee recommends interdisciplinary and multidisciplinary approaches, drawing on relevant research results.

Recommendation 7

The Committee recommends that geography education researchers follow established principles for scientific research in education (National Research Council, 2002), and that they collect data scientifically from large samples of students in schools, other learning environments, and laboratory settings.

Recommendation 8

The Committee recommends researchers develop and study exemplary programs, curricula, tasks, measures, and assessments to build the body of knowledge about effective geography teaching and learning.

Recommendation 9

The Committee recommends building partnerships with formal and informal educators to conduct research in a range of learning contexts and to share findings among the community of geography education researchers.



Recommendation 10

The Committee recommends the creation or designation of an institution to coordinate the implementation, dissemination, and knowledge transfer of research results.

Recommendation 11

The Committee recommends development of “learning research” opportunities. Pre- and post-doctoral training programs, similar to the

National Science Foundation’s (NSF) Fostering Interdisciplinary Research on Education (FIRE), can prepare participants for a range of career opportunities that promote and disseminate geography education research.

Recommendation 12

The Committee recommends the development and publication of a handbook that includes

online tools and exemplars and that suggests areas in need of additional research.

Recommendation 13

The Committee recommends that the National Assessment of Educational Progress (NAEP) Geography assessment be conducted at more frequent and regular intervals and that more funding for greater analysis of the test results be provided.