

The background of the cover is a collage of various maps. At the top, there's a map of a city grid with streets like Broadway, Central St, and East Side. Below that, a map of a coastal area with 'Atlantic Ocean' and 'East Lake Tehepohaligt'. At the bottom, there's a map of 'Victoria BC' and another map showing 'Spring' and 'Adawami'.

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# A ROAD MAP FOR 21ST CENTURY GEOGRAPHY EDUCATION

## Instructional Materials and Professional Development

*Recommendations and Guidelines for Instructional Materials and  
Professional Development in Geography Education*

A Report from the Committee on Instructional Materials and Professional Development of the Road Map for 21st Century Geography Education Project



**Road Map for 21st Century Geography Education Project**

**Instructional Materials and  
Professional Development**


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National Council for Geographic Education  
Washington, DC

**A Report from the Committee on Instructional Materials and Professional  
Development of the Road Map for 21st Century Geography Education Project**



This report was created by the Road Map for 21st Century Geography Education Project.

## Road Map for 21st Century Geography Education Project

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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

Never before in human history has it been more important for a person to be geographically literate. Our world is astoundingly complex and increasingly interdependent—economically, environmentally, politically, socially, and culturally. But the unsettling reality is that many teachers and most students are not yet geographically literate. Currently, American students are not even provided opportunities to learn enough geography to understand the very basic aspects of the world in which they live. Without explicit intervention and a dedicated focus on geographic literacy by educators, curriculum developers, and policy makers, U.S. children will be unable to thrive in the global marketplace, unlikely to connect with and care for their natural environment, and unsure about how to relate to people from other parts of the world. One thing is abundantly clear; if American children hope to participate in our democracy and play a strong leadership role in our world, they must possess geographic knowledge, skills, and perspectives. Simply put, if our children are not taught to think geographically, their success and the success of our nation and world in the 21st century are in jeopardy.

This statement emerged from a highly motivated group firmly committed to the goals, importance, and teaching of geographic literacy. The Instructional Materials and Professional Development Committee of the Road Map Project convened to identify the needs for geography education in the 21st century. These needs span every grade level in our nation's formal and informal education systems in public and private education. These needs extend beyond the stand-alone geography

course, and they exist in science, technology, mathematics, social studies, arts, and English language arts courses as well. These needs can and should be addressed through carefully designed and properly implemented instructional materials and professional development.

When the needs for geography education are met, this Committee envisions teachers and students actively engaged in generating questions, exploring solutions, and making decisions about personal, local, national, and global issues. We envision learning experiences that captivate students' attention, develop their inquiry and thinking skills, and increase their understandings of the physical and cultural aspects of place. All the while, students are effectively using geospatial technologies—in and out of the classroom—in meaningful ways to access, evaluate, analyze, produce, and share information. These learning experiences also should inspire and support teachers who share their ideas, challenges, student work, and resources in professional learning communities. This vision requires serious attention to two interrelated features of education: the materials developed and adopted for use in classrooms as well as the professional development provided for teachers who will transform this vision to reality.

### Recommendations

The goal of this Committee was to create research-based recommendations and guidelines to support: the key knowledge, practices, and dispositions that students and educators must possess; strategies for supporting the professional development of educators; and the design and evaluation of engaging and effective instructional materials in geography. Therefore, this report provides

10 important recommendations for educators, developers, policy makers, and funders to seriously consider in supporting student learning, teacher learning, and large-scale collaboration and change in the field of geography education through instructional materials and professional development. Summarized below, each recommendation is presented in the full report with a core argument and supporting research, vignettes of each recommendation in practice, examples of alignment to other standards, additional information about recommended strategies or principles, and recommended readings.

#### To support student learning in geography...

**Recommendation 1:** Focus instructional materials on big ideas and practices of contemporary geography across subjects and grade levels.

Instructional materials support teachers in making important decisions about what to teach and how to teach it. Most of these teachers are not geographers and may need assistance in determining the big ideas (i.e., fundamental principles, concepts, and themes) and appropriate practices of geography to teach their students. Therefore, instructional materials should focus on big ideas, which are identified in the second edition of *Geography for Life: National Geography Standards* (Heffron & Downs, 2012), to help students make sense of geography and continue developing key understandings across learning experiences. Furthermore, instructional materials should illustrate how geographers “think” about questions and problems, providing students with models for “thinking



geographically” and creating opportunities for students to practice this type of thinking. Instructional materials should convey a sense of purpose for learning big ideas and practices and should include a strategic sequencing of learning experiences within and across grade levels. In addition, the materials should include geographically accurate content that honors diverse perspectives.

**Recommendation 2:** Design instructional materials that build upon students’ prior geographic knowledge and experience and challenge students’ thinking.

Students are naturally curious about how the world works—both in terms of physical processes and human experiences. Geography is a discipline that can excite this curiosity, and it also can build upon and enrich the knowledge students have developed about their world. Instructional materials should capitalize upon this potential by demonstrating to students that geography is a dynamic and active discipline that is relevant to their daily lives. Acknowledging and building on the ideas and experiences students bring to the classroom is an important component in the learning process. This allows students to strengthen their conceptions while addressing any misconceptions they might have about various aspects of geography. Therefore, instructional materials in geography need to offer classroom activities that elicit students’ ideas, and provide information and tools for teachers to anticipate and respond to these ideas. Connecting to or drawing from the rich diversity of students’ prior knowledge and experiences relevant to geography, materials should include learning opportunities that take advantage of students’ curiosities and

interests and include thoughtful questions, discussions, and other activities to challenge student thinking.

**Recommendation 3:** Develop instructional materials that use teaching strategies to engage all learners in meaningful explorations of geography.


To make day-to-day instructional decisions, all teachers need to be equipped with a diverse repertoire of methods and strategies proven effective to teaching geography. Instructional materials are potentially the most useful resource for helping teachers craft productive learning experiences that meet the needs of their students. Developers of such materials can thoughtfully design learning experiences based on contemporary geography, and on the likely experiences students bring to the classroom, to help teachers understand and utilize the best teaching methods and strategies available. At present, many of the instructional materials in geography utilize limited methods for conveying content—typically promoting direct instruction through lecture, reading, and recitation. Most students do not respond well to these learning conditions, and such modes of instruction do not take advantage of one of geography’s greatest assets—that it is a dynamic discipline with a high degree of relevance to students’ lives. Programs should engage students in asking questions about contemporary geography issues and problems. They should immerse students in the study of their local geography and connect geography to students’ lived experiences. Programs should use teaching methods that capitalize on geographic tools to create vivid firsthand and vicarious experiences, engage all students using diverse modes

of instruction, and attend to the inevitable differences among students in a classroom. Programs should build disciplinary language and engage students in the application of geography content and practices within a broad range of contexts.

**To support teacher learning in geography..**

**Recommendation 4:** Design instructional materials to be learning tools for teachers.

The design and implementation of most instructional materials focus on supporting *student learning*. Developers provide guides to help the teacher navigate features in the materials but, for the most part, the idea of designing instructional materials to support *teacher learning* is not at the forefront of developers’ plans. Given the importance of teachers in shaping what students learn, it makes sense that curriculum developers should pay more attention to what teachers know and how teachers make decisions about their curriculum. Recently, some developers have proposed design features to support teacher learning from the materials. These features are not simply step-by-step instruction manuals, or “how-to guides” for using materials. Instead, the materials serve to support teacher learning as well as to guide student learning. Teacher learning is a complex process of building and integrating knowledge of the discipline with knowledge of teaching practice and student learning (Davis & Krajcik, 2005). Given such complexity, designing instructional materials to be educative for teachers is no simple task. This requires developers to step outside their comfort zone and take a new look at the purpose and goals of materials design.



**Recommendation 5:** Develop and implement professional development programs that enrich teachers' knowledge of contemporary geography and how to teach it.

Teachers need to have two fundamental types of knowledge to design and carry out meaningful learning experiences for their students: content knowledge and pedagogical content knowledge. In other words, to teach geography well, teachers must have a deep knowledge of the discipline, and how to teach it, in order to improve student learning of the big ideas and practices of geography. However, many teachers of geography do not enter the profession with rich understandings of geography concepts and how to teach them. In most schools, geography is taught as part of the social studies or science curriculum; in elementary schools, geography also may be integrated into reading and writing activities. In these cases, coordinated teaching and learning of the big ideas and practices of geography often is limited. Furthermore, knowledge of geography and how to teach it is not static but changes as disciplinary knowledge develops over time. This means that content-focused opportunities for professional development in geography are essential—even for teachers with adequate preparation in geography—at the outset of and throughout their teaching careers. These opportunities should focus on enhancing teachers' knowledge of geography and how to teach it, and they should give teachers the opportunity to do geography themselves. Programs should include geography content to prepare teachers for skillful instruction within the discipline and to improve teachers' understanding of instructional strategies and methods proven most effective in engaging students in learning specific geographic big ideas and practices.

**Recommendation 6:** Design and implement coherent and sustained professional development programs with clear and measurable goals.

Professional development programs should create excitement and curiosity for learning geography and should leave teachers eager and prepared to help students develop rich understandings of geography. Professional development designers and providers must recognize teachers as learners, engage them in reflective practice, and encourage their commitment to teaching the discipline over the course of their careers. Professional development programs should promote a meaningful and relevant learning environment for teachers while moving beyond the “one-shot” workshop approach to create a vision of professional development as a sustained process throughout a teacher's career. The aim of high-quality professional development in geography is to help teachers continually reflect on their current teaching so that they include research-based best practices that are tailored to meet the needs of their specific students and contexts. Therefore, professional development should be guided by a vision of effective geography teaching and learning, and should use a model based on a theory of teacher learning with clearly articulated goals and measurable outcomes. Professional development should attend to the needs, challenges, and constraints of local teachers, schools, and communities and should provide specific and usable approaches to bridge the gap between the vision for the professional development and the reality in schools. Programs should develop a plan that clearly considers the logistics and requirements of implementing high-quality professional development in concordance with the program's vision and goals. Finally, program developers should recognize that

change is gradual and sometimes difficult in educational settings and, thus, programs should provide for ongoing support and sustainable professional learning activities for teachers.

**Recommendation 7:** Enhance preservice teacher education programs to emphasize teaching geography across subjects and grade levels.

Most teachers begin their professional development in preservice education programs to build their proficiencies in teaching. Preservice education programs for elementary and secondary educators who will teach geography in a single or interdisciplinary learning environment should provide the necessary teaching and learning experiences to ensure proficiency in teaching contemporary geography. Unfortunately, current teacher preparation programs lack emphasis on teaching geography in preparing both elementary and secondary teachers. Therefore, high-quality preservice education for prospective teachers should provide coursework that promotes a wide and balanced understanding of geography, helps preservice teachers develop geographic perspectives and skills, and prepares them to teach students to use geographic thinking and reasoning effectively. In addition, field placements should allow preservice teachers to observe, inquire about, benefit from, and practice with the most effective models and examples of geography instruction during their field placements, student teaching, and internship teaching experiences. Preservice teachers should have knowledgeable, experienced, and motivating mentors who support and guide their early teaching experiences in geography.



A background image of a street map with various colored lines representing roads and green areas for parks. Labels like 'WEST SIDE', '79 AVE', and '66 TH' are visible.

## To support large-scale collaboration and change...

**Recommendation 8:** Develop and fund extensive research and evaluation in geography instructional materials and professional development.

Instructional materials and professional development programs should be studied to determine what is working and what is not working within programs, and how varied program components contribute to improve teacher knowledge and practice as well as student learning. Both research and evaluation are vital tools for gathering empirical information about instructional materials and professional development. As such, research and evaluation should be pursued to help create a research base, provide evidence, and inform decision making in geography education. The geography education community should engage in a strategic research agenda about instructional materials and professional development. Research questions should be connected, focused, and should build upon the findings of previous studies within geography education and related areas of study, advancing the knowledge in this field. For research and large-scale change to occur, funding is required to support programs seeking to advance this agenda. Three promising areas for future research in geography education include design-based research, learning progressions, and uses of technology tools for learning.

**Recommendation 9:** Create opportunities for sustained and authentic collaboration among geographers, education researchers, and practitioners.

A broad range of individuals representing various academic fields and occupations have expertise in geographic education. Geography professionals, K–16 education practitioners, and education researchers/developers play interrelated roles in creating high-quality instructional materials and professional development programs. Too often in creating instructional materials and professional development, the contributions of one key group or another are non-existent or merely symbolic. We encourage geographers, educational researchers, and practitioners to collaborate in ways that are authentic and sustained throughout the development process—from inception to implementation, evaluation, and revision. Project-specific collaboration is the first step in creating long-term change in the field, but it alone is insufficient. Geographers, education researchers, and practitioners need to develop a culture of collaboration that exists independent of grant-funded and time-delimited projects. Geographers need forums for understanding geography education; practitioners need forums for understanding the dynamic field of geography and how it pertains to the world beyond the school walls; and developers need access to both geographers and practice settings to meld designs with research findings. These forums will require significant resources to develop and sustain, including both funds and the commitment of individuals and groups across multiple professional communities.

**Recommendation 10:** Design and disseminate tools and exemplars to inspire and support educators, developers, and policy makers in leading the implementation of these recommendations.

Most education materials and tools—student textbooks, teacher guides, educational games, simulations, and the like—are designed to support teachers and students in the classroom. Very few are designed specifically to support and guide professional development leaders and designers, teacher educators, instructional materials developers, researchers, and policy makers. Geography education leaders need new tools and illustrative examples to support them in developing a deep and shared understanding of contemporary geography education and to guide them in changing the ways they support, fund, and develop instructional materials and work with teachers. Carefully developed tools and illustrative examples, such as accessible videocases of effective teaching strategies for preservice educators and web-based maps of student learning progressions about central concepts and practices in geography, will support these leaders and help the field develop and implement instructional materials and professional development programs that meet the needs of today’s learners.

## Taking Action

When this Committee first convened, the members clearly stated their intent to develop a report that is *useful* in the field of geography education. We recognize that it takes a diverse and committed audience of geographers, educators, researchers, developers, funders, and policy makers to enact large-scale change, and we developed this report with every important audience member in



mind. Therefore, the report can be used flexibly and for a variety of purposes for different groups within that audience. For example, part of this report can be used by administrators to lead materials adoption meetings and by publishers to guide the development of materials. Another part can be used by Geographic Alliance coordinators to create professional development programs, and yet another section can be used by researchers to develop grant proposals. Developers, educators, funders, and policy makers can use the recommendations and guidelines in this report to assist them in designing, sharing, and implementing research-based instructional materials and professional development programs that support effective teaching and learning in geography.

Various stakeholders can support the vision of this Committee and address the goals of this report in multiple ways. We provide some examples of such actions in a section of the report titled “Taking Action,” including the following:

#### Local, State, and National Policy Makers and Funding Organizations

- Provide financial and political support for school and informal education programs that prepare students for careers requiring an understanding of geography and geospatial skills, currently one of the highest U.S. job-growth areas.
- Advocate for state and federal legislation that supports the teaching and learning of geography (e.g., the Teaching Geography Is Fundamental Act).

#### Curriculum Developers

- Craft materials that incorporate effective and engaging strategies and methods and that are designed in collaboration with teachers who use

these strategies to help students develop deep understandings of geographic big ideas and practices.

- Develop materials that focus on depth of geographic understanding around big ideas and practices rather than on superficial coverage of content (i.e., geography facts).

#### Professional Development Providers and Developers

- Use the recommendations and guidelines in this report to support the development, implementation, and evaluation of successful professional development programs.
- Provide opportunities for long-term and sustained professional development in geography.

#### Teacher Educators and University Faculty

- Develop collaborative relationships among education; geography; and science, technology, engineering, and mathematics (STEM) faculty to support geographic literacy of the college students who will lead tomorrow’s classrooms.
- Promote alignment and integration of preservice education program components to present a cohesive and coordinated approach to understanding geography big ideas and practices.

#### Teachers

- Provide dedicated instructional time each day throughout the year for sustained learning of geography.
- Avoid teaching geography as simply a litany of locations—the “where” constitutes the basic alphabet of geography, but sophisticated geographic thinking focuses on the “why there?” and the complex connections between places.

#### District and School-Level Administrators

- Identify, hire, and support teachers with geographic expertise (or the willingness to learn via inservice professional development).
- Demonstrate to parents that geographic literacy is a priority in the school and district.

#### Parents/Caregivers

- Read stories that are set in diverse places around the world.
- Advocate for geography in your school’s curriculum.

While the Committee understands that barriers exist preventing many classrooms from being adequately equipped for this vision of geographic learning, and we acknowledge that educators have competing demands for limited resources, including time for professional development, we assert that the benefits of a geographically literate population are well worth the costs of overcoming these barriers. Reformers, educators, and leaders today promote 21st century learning as preparing students for college, career, and good citizenship. Effective teaching and learning of geographic literacy prepares students—and their communities—for success in all of these areas.

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