

**The American Geographical Society's  
Geographic Knowledge and Values Survey:  
Report of Results for the United States**

Stephanie L. Kozak, Jerome E. Dobson, Joseph S. Wood,

William R. Wells, and Don Haynes



**“Geography’s Hope, America’s Future”©\***

Elise Schlosser, a graduate student in geography at Eastern Oregon University, asked 5<sup>th</sup> graders at Valley Road School in Stanhope, New Jersey, to express what they perceived to be the definition of geography, in graphic form. She then, with graphic assistance by Rosa Taddei, composed their individual drawings into a collage. The result is a work of art for the ages and a stunning reminder of society’s solemn obligation to restore geography at all levels of education from elementary to graduate school. (Dobson, 2012)

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## Executive Summary

The American Geographical Society (AGS) conducted a nationwide survey of public attitudes toward and knowledge about geography. The survey ran online from December 12, 2011 through March 31, 2012 with volunteers constantly soliciting adult U.S. residents to participate. The AGS Geographic Knowledge and Values Survey received 4,021 valid responses from people throughout the United States. While not a true random sample, the results are indicative of a sizable segment of the U. S. population: more educated, more female, and less ethnically and racially diverse than the general population.

This is one part of a major study funded by the National Science Foundation. The Road Map Project is a joint effort of the National Geographic Society (NGS), the National Council for Geographic Education (NCGE), the Association of American Geographers (AAG), and AGS. The overall goal of the larger project is to improve geographic literacy, a matter of serious concern in the United States today.

The questions cover (a) public values regarding the discipline, (b) public knowledge about the discipline, and (c) public knowledge about real world geography. The results indicate that Americans predominantly:

- Want more geography education to be offered in schools, colleges, and universities throughout the United States.
  - Approximately nine out of ten respondents wish they themselves had more geographic education and nearly all want more for their children. To meet this need, respondents favored offering geography courses at every education level, from elementary school to Ph.D. programs in the most elite universities. And, they insist instructors should have formal training in geography.
- Recognize the importance of geography in today's society.
  - A very high portion of respondents said they use geographic knowledge and skills in their everyday lives. They repeatedly demonstrated that they use geographic concepts and spatial thinking when engaging with the world around them on local to global matters. Respondents correctly identified professions and government agencies in which geography and its skills would be highly useful.
- Know that geography is about far more than just "knowing your states and capitals."
  - Respondents show a sophisticated understanding of the purview of geography, which is defined not by content but rather by its emphasis on spatial reasoning, though many did not know to call it geography. They understand that the discipline covers a wide range of topics, methods, techniques, and technologies.
  - However, specific knowledge about real world geography (places and processes) is no better than the dismal levels found routinely in other public surveys of geographic knowledge.

## **The American Geographical Society's Geographic Knowledge and Values Survey**

### **Introduction**

The American Geographical Society (AGS) conducted a nationwide survey of public attitudes toward and knowledge about geography. The survey ran online from December 12, 2011 through midnight (PST) March 31, 2012 with volunteers constantly soliciting adult U.S. residents to participate.

Attitudes toward geography and geography education are crucial factors in all efforts to promote geographic literacy. Understanding public knowledge of real world geography and the discipline of geography assesses geographic literacy and thereby underscores the need for improving geography education in the United States.

Ultimately, the results will be used in two important ways: First, they will be shared with education policy makers to garner support for creating stronger geographic curriculum standards, increasing the number of well-trained instructors at all levels of education, expanding the availability of quality resources for the classroom, and developing clear guidelines for the direction and scope of geography education development. Second, they will serve as a baseline for measuring national progress in geographic literacy over the coming years.

### **Background**

This is one part of a major study funded by the National Science Foundation. The Road Map Project is a joint effort of the National Geographic Society (NGS), the National Council for Geographic Education (NCGE), the Association of American Geographers (AAG), and AGS. The overall goal of the larger project is to improve geographic literacy, a matter of serious

concern in the United States today. The project brings together the nation's leading thinkers in geography, education, and research to develop and disseminate a set of landmark reports focusing on key issues for improving education: instructional materials for students, in-service and pre-service teacher training, assessment and research. It is anticipated that the results will guide K-12 educational reforms that will significantly improve the geographic literacy of U.S. youth over the next decade. The reports will make recommendations about crucial priorities for educators, policymakers, and funding agencies.

The participating organizations have a long history of partnership in efforts to realign the content, methods, technology, and techniques being taught in the classroom to the modern notion of geographical sciences (NRC 1997; NRC 2010). Their most recent effort is aimed at making a road map for guiding the reform of geography education. This project involves a four-prong approach which includes (1) developing an assessment framework, (2) expanding professional development guidelines and creating new instructional materials, (3) surveying the public regarding their geographic knowledge and values, and (4) developing an educational research agenda.

The results will be used by the Road Map Project team and other interested parties to help guide the framework for improving geography education in the US. With the inclusion of geography as one of the key subjects included in the Science, Technology, Engineering, and Mathematics (STEM) Education Coalition, policy makers have shown that they recognize the importance of the subject in order to continue to allow the United States to compete with other countries in these fields. However, the support in terms of funding has been lacking and more policy changes must be made in order to help reach the goals of improving geography education in America.

The results of the survey show that geographic knowledge is weak, but respondents clearly want, for themselves and their children, more and better geography education than the U.S. educational system is providing. The respondents recognize the importance of geographic knowledge and skills in the workforce and in their everyday lives, but still there are problems with misinformation about what the discipline encompasses, what the state of the discipline is for both K-12 education and post-secondary education, lack of knowledge regarding geographic concepts, and restrictions to accessing geography education for students. This survey is the stepping stone for making informed goals and guidelines about how the future of geography education should be shaped and for undertaking further research about the public's knowledge and values.

### **Conducting the Survey**

This report presents the results of the AGS Geographic Knowledge and Values Survey. The survey itself was created and administered under the direction of AGS President Jerome E. Dobson and AGS Councilor Joseph S. Wood with invaluable advice and assistance from AGS Councilors Susan W. Hardwick and Alexander B. Murphy and administrative assistance by (then) AGS Acting Director Peter G. Lewis and Comptroller Maria V. Rosa. A volunteer task force of 58 geographers (Appendix 2) reviewed all survey questions and instructions, publicized the survey, and solicited respondents. The survey was composed and administered online by R. Don Haynes and William R. Wells of the Schaefer Center for Public Policy at the University of Baltimore. The survey was hosted on the Schaefer Center's website for easy public access. The survey results were analyzed by Stephanie L. Kozak and Jerome E. Dobson.

Our solicitation efforts were extremely successful in terms of publicity. At the height of our promotional effort, searching via Google for the exact term "geographic knowledge and

values survey,” we found more than 1,400 citations on Twitter, Facebook, blogs, newspaper columns, and websites. Clearly, we were highly effective in getting the message out. The final count was 4,047 takers nationwide, amounting to 4 takers per announcement. Although the response rate per announcement was lower than originally anticipated and respondent cohorts were not directly proportional to the entire U.S. (see section on survey limitations), the efforts were successful in collecting a large sample. There was a “Catch-22” in that if our promotional message had stated too strongly how important it was to take the survey, we might have biased the results by telegraphing that geography itself is important. All efforts were made to not influence respondents’ attitudes before taking the survey, which may account for the low response rate per announcement.

### **The Nature of Polls about Geography**

The low rate of takers per announcement, itself, may reflect public lack of understanding of geography. Most likely, many of those who declined naively assumed they would be asked a series of questions about locating places on a U. S. or world map. More than two decades ago, Dobson (1990) wrote, “Test after test has shown that U.S. high school and college students can't locate anything on a world map. Canada is a mirror image of the Gulf of Mexico. France is lost forever. Geography is no longer appreciated or understood by our children.”

But, what about the polls themselves? Do they really test geographic literacy, or just one popular component of it: place name geography? Dobson (1990) continued:

It is disturbing when students can't locate countries on world maps, just as it is disturbing when they do not know the alphabet or multiplication tables. Far more troubling, however, is the fact that most Americans, even highly educated people, do not know the purpose and function of geography. The pollsters have focused narrowly on a "states-and-capitals" view of geography. Almost without exception, the tests have emphasized place name recognition and location. They ask, "Where is a place?" but almost never

ask, "What is its climate, its culture, its economy?" They never ask, "Why is it there?" or "How is it connected physically, socially, and economically to its neighbors, its region, its world?" Some tests have erroneous answers. Many are spatially biased. (In one poll, for example, 60% of the questions were about the Western U.S., and the pollsters concluded that Eastern students don't know geography as well as Western students.) Only occasionally do the tests ask questions that require an understanding of geographic relationships among places, and they never require an interpretation of interactions of multiple phenomena in three dimensional space.

To experience the geographer's perception of all this, imagine that you are watching the nightly news as [the show's anchor] is reporting on illiteracy in the United States. As he speaks, it becomes apparent that he knows only about the ABCs; he has never heard about words, sentences, and paragraphs. The revelation would be frightening, and you might well despair of hope for widespread literacy in a society whose major spokesmen know so little about language. From the geographer's perspective, this scene is repeated frequently as pollsters, journalists, and assorted other spokesmen decry geographic ignorance based on a definition of geography that greatly understates its worth.

Fortunately, some improvements have occurred since 1990. The National Geography Bee, for instance, includes questions of a more substantive nature. It is, however, difficult to pose a truly thought-provoking geographic puzzle in a poll of almost any format. We ourselves faced that same limitation while composing this survey. Ultimately, we asked only two questions about real world geography—one regional and physical, the other global and social/economic. Instead, we asked more about knowledge of cartography and geographic methods and techniques.

Ultimately, our survey is more about values than knowledge. While much has been said about values *in* geography (Buttimer, 1974), including many value-laden debates today, we know of no other survey that has tried to capture public attitudes *about* geography.

## **Sample**

The AGS Geographic Knowledge and Values Survey received responses from people throughout the United States with a total of 4,047 adults completing the survey. Twenty-six of the respondents did not give their consent for the Road Map Project team to use their responses, leaving 4,021 valid responses. Of those responses, 4,001 respondents had either been educated in



the United States for the majority of their primary and secondary schooling or were currently residing in the US at the time of the survey. We only used the responses from those 4,001 respondents because our focus is on the future of geography education specifically in the United States.

### Location of Respondents

Location information was collected for both current location of the respondent and place of residence during the majority of the respondent's elementary and high school education. The data were then compared to the current populations of those areas to determine whether the sample overrepresented or underrepresented certain areas.

Of those respondents who reported that they live in the United States, the states with the largest number of respondents were California (381), South Dakota (308), Indiana (232), Maryland (216), and Connecticut (180). Figure 1 shows the results for the number of respondents per 100,000 people in the United States.

There was no intentional or systemic bias in selecting volunteers or promoting the survey. Both South Dakota and Maine are overrepresented in the survey according to the map in Figure 1. We can say confidently that South Dakota's encouraging response was due to outstanding solicitation efforts by volunteers George W. White and Charles F. Gritzner of South Dakota State University, including an editorial encouraged by them in the *Brookings Register*. Similarly, Maine benefitted from the heroic efforts of Thomas Klak at the University of New England.

Most of the respondents also received the majority of their K-12 training in the United States. Of the respondents who gave location information (n=3,962), 93.9% were educated in the United States. The locations with the next largest group of respondents were Europe and North America (outside of the U.S.) with 2.3% and 1.2%, respectively. Those who were educated

outside of the United States gave a location within the U.S. for their current location. The questionnaire was designed to discern differences between U.S. residents educated in the United States and those educated abroad, where geography is more commonly taught every year of elementary and high school. Unfortunately, the number of respondents was small for each non-U.S. region. An additional survey needs to be conducted that focuses on sampling more respondents from outside the U.S.

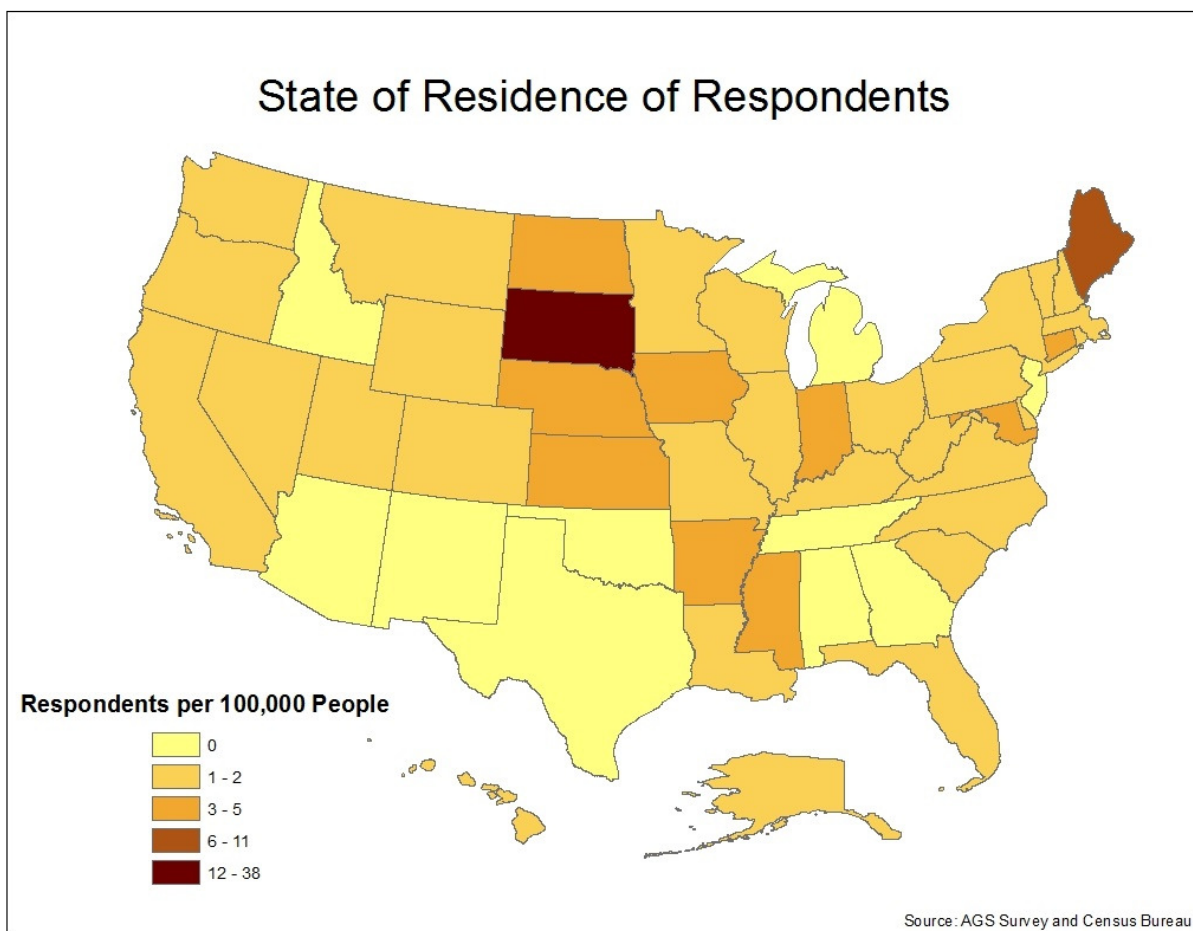


Figure 1. Distribution of respondents per 100,000 people by state according to where they currently reside. Respondents residing in areas outside the United States are excluded.

The states with the greatest numbers of respondents were California (391), Indiana (210), New York (203), South Dakota (188), and Pennsylvania (182). The states with the least numbers

of respondents were Alaska (1), Hawaii (3), and Idaho (5). Figure 2 shows the number of respondents educated in each state per 100,000 people.

There was again overrepresentation by South Dakota in the sample when looking at where the respondents received their K-12 education. We also saw higher rates in some of the Midwestern states of North Dakota, Iowa, and Kansas and in Mississippi and Maine. However, those locations range from 4-5 respondents per state, which was very close in value to the other states. South Dakota had 23 respondents per 100,000 people, so it was well above the rate of other states.

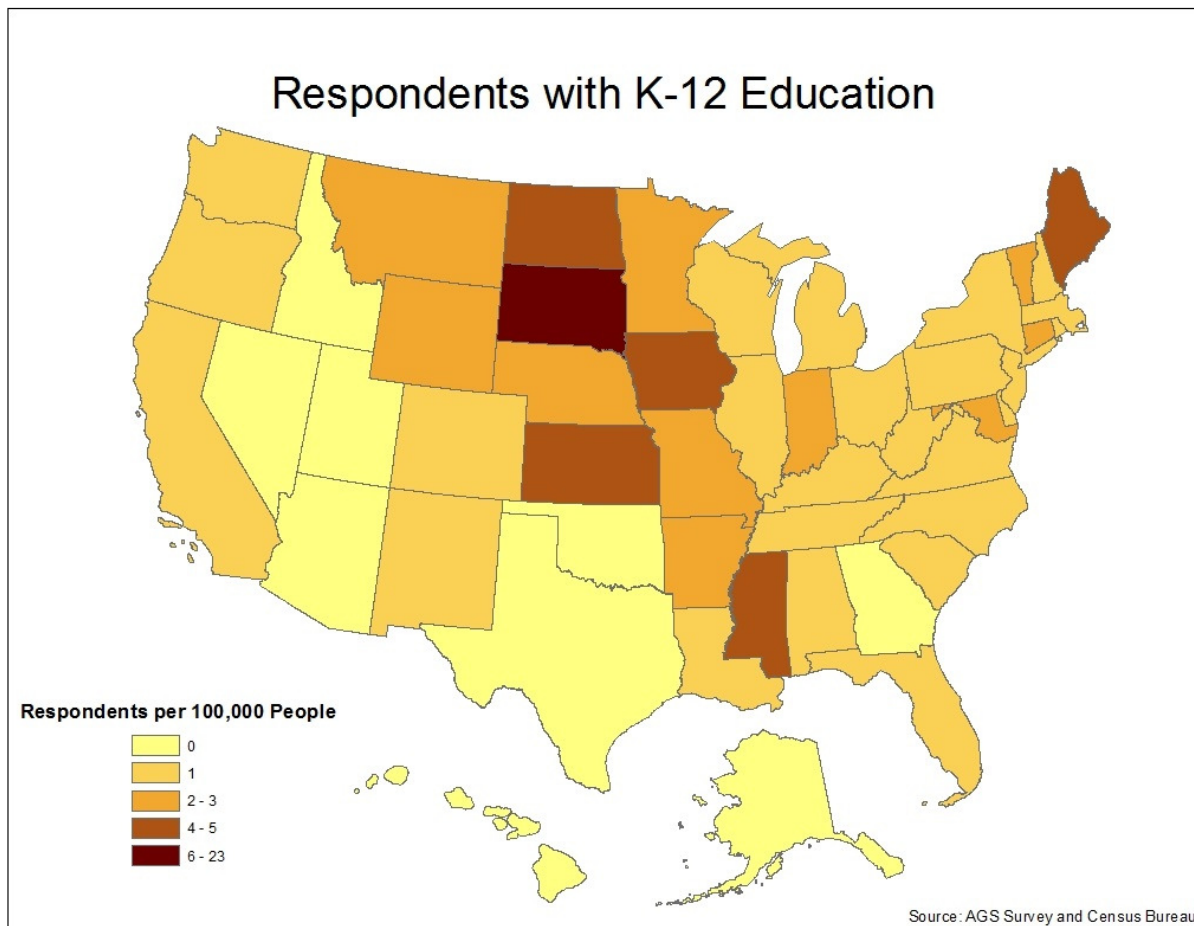


Figure 2. State in which the majority of the respondent's K-12 education was received, reported as number of respondents per 100,000 people.

### Ethnicity and Race of Respondents

Respondents were asked for information regarding their ethnicity and race in order to try and gauge whether the sample was representative for the United States and to identify trends in respondents' answers based on their respective racial and ethnic groups. The classifications of ethnic and racial groups were based on those used by the U.S. Census Bureau in order to make the results of the survey directly comparable to current population counts.

Table 1 shows the number of respondents per group. Out of 3,962 respondents who answer the question regarding their ethnicity, 144 (3.6%) were of Hispanic, Latino, or Spanish origin. The percentage of respondents who are of Hispanic, Latino, or Spanish origin was much smaller for the sample than what was expected based on the current US population, 16.7% (U.S. Census Bureau, 2010).

Table 1. Percentage of respondents by race or ethnicity.

<b>Race or Ethnicity</b>	<b>Percentage of Sample</b>
<b>Hispanic, Latino, or Spanish Origin</b>	2.6%
<b>Native Hawaiian or other Pacific Islander</b>	0.3%
<b>American Indian or Alaskan Native</b>	1.9%
<b>Black or African American</b>	2.5%
<b>Asian</b>	2.6%
<b>White</b>	92.1%
<b>Other race not listed</b>	2.8%

The results of the sample also showed that most minority racial groups were underrepresented while the white, majority racial group was overrepresented. Whites represented 92.1% of the sample, followed by Other Race (2.8%), Asian (2.6%), Black or African American (2.5%), American Indian or Alaskan Native (1.9%), and Native Hawaiian or other Pacific

Islander (0.3%). According to the 2010 U.S. Census, if the sample was representative of the U.S. population, it should have had groups consisting of 78% White, 13% Black, 5% Asian, 1.2% Native American or Alaskan Native, and 0.2% Native Hawaiian or other Pacific Islander (U.S. Census Bureau, 2010). This suggests that a larger study should be conducted that specifically targets minority groups to determine if there are significant differences in the amount of geographic knowledge and how they value geography education compared to the white majority group that is overrepresented in this sample.

### Gender

Out of the 3,944 respondents who answered the question regarding their gender, 55.4% were female and 44.6% were male. The sample showed a slight bias towards females as the national population consists of 50.8% females and 49.2% males. However, a 4.6% difference between the sample and population was very small and is most likely representative of the actual population.

### Education

The sample was largely comprised of very educated respondents, with 80.3% having at least a Bachelor's degree, as shown in Table 2. This is well above the national proportion of 27.9% (U.S. Census 2010). The largest proportion of respondents' highest level of education was a Master's degree (34.6%), followed by Bachelor's degree (30.3%), and a Doctoral degree (15.5%). Only 13.2% of respondents had received a high school diploma, GED, or less as their highest form of education.

The highly educated sample raises issues about the validity of the survey responses because those that have completed post-secondary education are probably more likely to value

education than those that have not. Conclusions about the public demand for more geography education based on this survey should be prefaced with the fact that the sample was a highly educated sample. On the other hand, if respondents incorrectly answered questions pertaining to knowledge about the discipline or about real world geography, then it could be argued that respondents with even less education would fare worse. In this case, the survey results would be construed as a conservative estimate of how severe geographic ignorance may be and, thus, would bolster the case that more geography education is needed.

Table 2. Percentage of respondents by highest level of education.

<b>Level of Education</b>	<b>Percentage</b>
<b>Middle School</b>	0.1%
<b>High School or GED</b>	13.1%
<b>Associate's Degree</b>	6.5%
<b>Bachelor's Degree</b>	30.3%
<b>Master's Degree</b>	34.5%
<b>Doctoral Degree</b>	15.5%

### Occupation

The occupation of respondents is shown in Table 3. Of the 3,985 respondents who supplied information regarding their occupation, the largest class was Education, Legal, Community Service, Arts, and Media at 35.6%. This was followed by Students at 14.3% and Computer, Engineering, and Science at 11.3%. The large number of respondents affiliated with the field of education could bias the results to be more pro-geography education. All of the occupation classes listed had at least 10 respondents.

Table 3. Percentage of respondents by occupation.

<b>Occupation</b>	<b>Percentage</b>
<b>Computer, Engineering, and Science</b>	11.3%
<b>Construction and Extraction</b>	0.4 %
<b>Education, Legal, Community Service, Arts, and Media</b>	35.6%
<b>Farming, Fishing, and Forestry</b>	0.8%
<b>Healthcare Practitioners and Technical</b>	2.1%
<b>Installation, Maintenance, and Repair</b>	0.3%
<b>Management, Business, and Financial</b>	4.3%
<b>Military</b>	0.7%
<b>Nonprofit Sector</b>	3.3%
<b>Not currently working</b>	2.7%
<b>Not working outside the home</b>	0.9%
<b>Office and Administrative Assistant</b>	5.3%
<b>Production</b>	0.6%
<b>Retired</b>	7.4%
<b>Sales and Sales Related</b>	1.7%
<b>Services</b>	2.5%
<b>Student</b>	14.3%
<b>Research</b>	5.3%
<b>Transportation and Material Moving</b>	0.5%

### Affiliation with a College or University

Out of the 3,662 respondents who answered the question regarding what type of affiliation they had with a college or university, the largest group of respondents was no affiliation, 35%. This could offset the bias that may have been introduced with the large proportion of respondents in an occupation related to education. The next largest group was students (20.9%), followed by faculty (16.9%) and alumni (12.2%). Other groups included administrative/technical staff (6.7%), other type of staff (5.2%), and other (3.1%).

### Affiliation with Geography

While the occupation and education demographics suggest that the sample may be more likely to have more knowledge and positive values regarding the field of geography than the general public, questions about the respondents affiliation with the discipline helps to support the idea that even those not directly affected by the growth or decline of geography support it.

Nearly half of the respondents did not know any person who calls himself or herself a geographer, 53.3% yes and 46.7% no. Furthermore, 3,068 of the respondents, or 76.7%, have no degree in geography. The large number of respondents who do not have a degree in geography and the large number who do not even know a geographer help to make the case that the results of the survey reflect the knowledge and opinions of a group that has no vested interest in the discipline. Thus, the survey was successful in attracting a sample that can be generalized to a group that is not directly tied to geography.

### Limitations of Sample

The sample is a nonprobability sample because it was disseminated via the internet and respondents were not randomly chosen. The analysis of the survey is descriptive in nature and it is not appropriate to make inferences about the entire U.S. population. While not a true random sample, the results are indicative of a sizable segment of the population: more educated, more female, and less ethnically and racially diverse than the general population. It is impossible to know whether the differences in the proportions of our sample compared to that of the U.S. population are due to our volunteer recruiting efforts or differences in the response rates.



## Findings and Analysis

The survey was designed to gauge (1) public understanding of geography as a discipline, (2) public knowledge about real world geography, and (3) public values in regard to geography and geography education. The analysis of the survey is divided into these main topics.

### *1. Knowledge*

#### Geography Education

To serve as a baseline, the survey asked questions about how much geography education the respondent had received throughout his or her time in school. The complete survey is included as Appendix 3. The answers also serve to show the state of geography education for the various levels of educational systems. These findings apply primarily to the United States because the majority of respondents live in the United States now and spent the majority of their K-12 education within the country (93.9%).

Questions about K-12 education were broken down into three levels: elementary school, middle school, and high school. For each of those levels, a respondent could have answered “Don’t recall,” “No classes,” “Some classes,” or “Some classes under a different name.” The same question regarding the number of courses taken was posed to respondents who reported education at higher levels including Undergraduate, Master’s, and Doctoral levels. Respondents were also asked to report how much information they recalled from any of their geography courses.

For K-12 education, the majority of respondents for each level of education had some geography, albeit under a different name, as seen in Table 4. The number of responses for no classes increased for high school compared to elementary and middle school. The larger

percentage of respondents who said they had geography but under a different class name draws attention to one of the key challenges that the Road Map Project committee has identified as threatening geographic literacy in the United States (NSF Proposal 2011). Many schools offer geography under the umbrella of social studies, which diminishes physical geography, under-employs spatial reasoning, devalues the importance of geography as a separate discipline, and impedes the education of students in geographic knowledge and skills.

The results for how many geography courses were taken at each level of higher education training received are shown in Table 5. A little more than half of the respondents who answered the question had taken at least one geography course (52.2%). That number drops off dramatically for the Master's (23.9%) and Doctoral (11.3%) degrees.

Table 4. Geography courses respondent received at various stages of his or her K-12 education.

<b>Level of Education</b>	<b>Some geography classes by that name</b>	<b>Some geography by different name</b>	<b>No geography classes by any name</b>	<b>Don't recall</b>
<b>Elementary</b>	24.9%	44.6%	18.1%	12.3%
<b>Middle School</b>	30.4%	49.3%	14.6%	5.7%
<b>High School</b>	27.8%	43.9%	24.1%	4.1%

Table 5. Amount of geography education respondent had at various stages of his or her post-secondary education.

<b>Number of Courses</b>	<b>1</b>	<b>2-5</b>	<b>6-10</b>	<b>More than 10</b>	<b>None</b>
<b>Undergraduate</b>	20.2%	16.4%	6.2%	9.4%	44.6%
<b>Masters</b>	4.5%	7.2%	6.1%	6.1%	74.1%
<b>Doctorate</b>	1.1%	2.7%	3.5%	4.0%	86.4%

When asked whether the respondent recalled any of the material covered in his or her geography course(s), 77.1% responded yes, 12.4% said no, and 10.4% had never had any geography courses. For comparison, the National Geographic Society's Network of Geography

Education Alliances has a stated goal that 80% of 18 year olds should be geo-literate and 50% of 18 year olds should be geo-proficient. “Geo-literate” refers to a person’s ability to be prepared for personal, civic, and workplace decisions that all Americans must make and “geo-proficient” means that they will be ready for college-level courses that require geographic knowledge and reasoning (NSF Proposal 2011).

### Real-World Geographic Knowledge

The survey included questions aimed at establishing a baseline for how much real-world, geographic knowledge the respondents had. Considering the fact that the sample was relatively well educated and that over half had at least one undergraduate geography course, it was expected that many of the respondents would answer these questions correctly.

Four questions pertained mostly to technical knowledge of cartography, an essential sub-discipline of geography.

- On the vast majority of world maps, longitude runs which direction across the page?
- Would a conformal projection be appropriate to use when comparing the land areas of Russia and Kenya?
- Would a Mercator projection be appropriate to use when comparing the land areas of Russia and Kenya?
- If you wanted to map the whole earth on a single sheet of paper, which map scale would you prefer to use, 1:5,000 or 1:50,000,000?

Of the 3,972 respondents who answered regarding the axis on which longitude changes, 56% of the respondents answered incorrectly. With only two choices, however, this result is little better than what might be expected from random guesses. The majority of the respondents said they did not know if a conformal or Mercator projection was appropriate for comparing the land areas of Russia and Kenya. For those who did choose an answer, 32.3% incorrectly said that a conformal projection was appropriate, while 34.8% correctly said that a Mercator

projection would not be appropriate. This suggests that respondents were more familiar with particular map projections, in this case Mercator, rather than with broader categories of projections, such as conformal or equal area. The Mercator projection is, of course, conformal, but most respondents appear to have been unaware of this fact.

The majority of respondents, 55.4%, correctly chose a map scale of 1:50,000,000 for a map of the entire earth at page size, compared to 14.7% who chose 1:5,000 and 30% who said they did not know. With only two choices, however, this result is little better than what might be expected from random guesses. Thus, the survey shows that respondents lack technical knowledge of cartography. The majority of them correctly answered only one question. This supports the need for a concerted effort to improve geography education, including for the general public.

Two questions gauged the respondents' knowledge pertaining to real world physical and human geography. The questions represent two geographic scales: the national and the global. These questions were as follows:

- What is the flattest state in the U.S.?
- Which world region is poorest?

Some 32.5% of respondents said Kansas, and 23.3% said Florida (Figure 3). There are many ways to measure the flatness of a state. By almost every measure, Florida is the flattest, since its highest point is only 105.2 m. (345 ft.) above sea level, but 77% of all respondents, including 62% of Florida residents, did not recognize its overwhelming flatness. Conversely, Kansas ranks ninth among all states in terms of truly flat land as a percentage of all land. Yet, approximately one-third of all respondents and even 29% of Kansans picked Kansas as the flattest state. Most respondents (67.8%) correctly chose Africa South of the Sahara as the poorest world region (Figure 4).

It would be unwise to draw broad conclusions from these two questions alone. However, it is worth noting that the results were stronger than expected on the human geography question (ie. world's poorest region) and weak on the physical geography question (ie. flattest state).

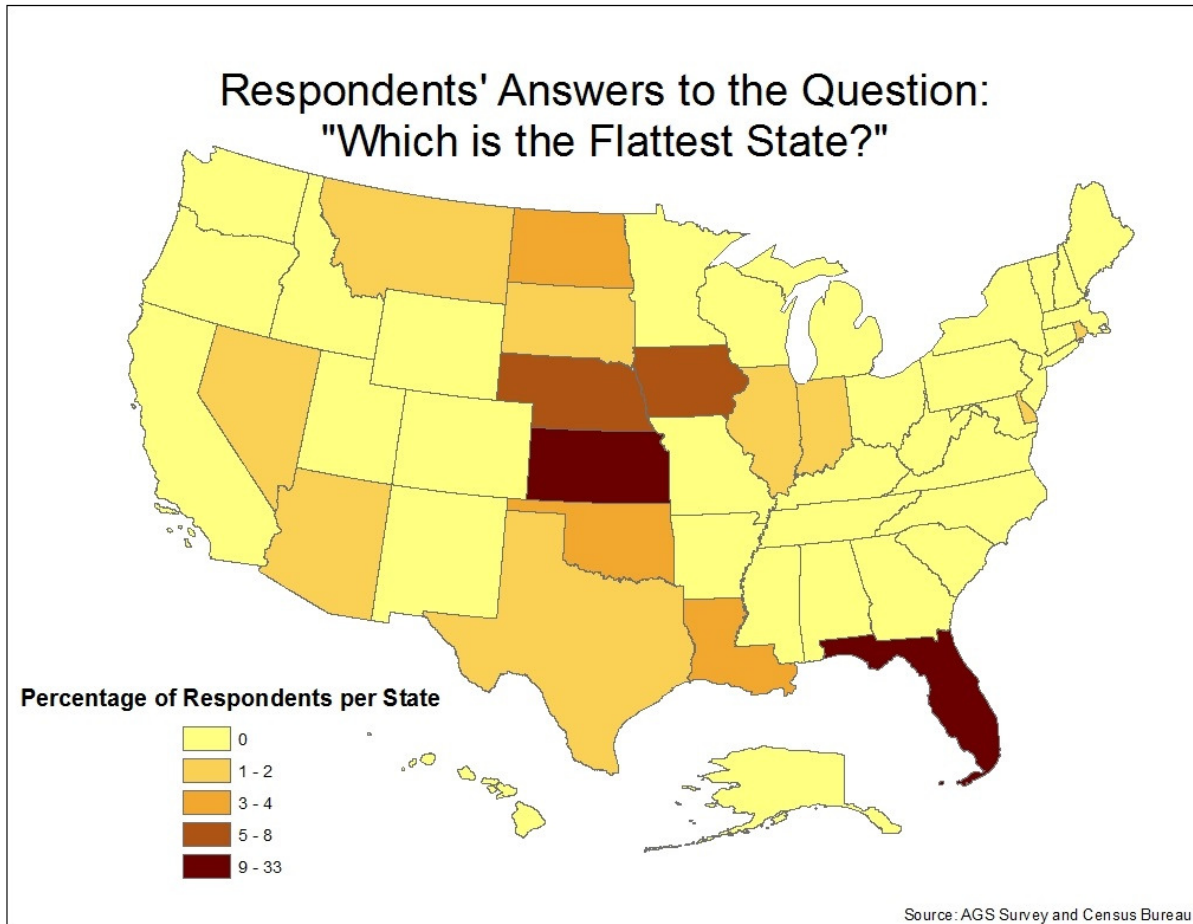


Figure 3. Percentage of respondents who chose state as the flattest state.

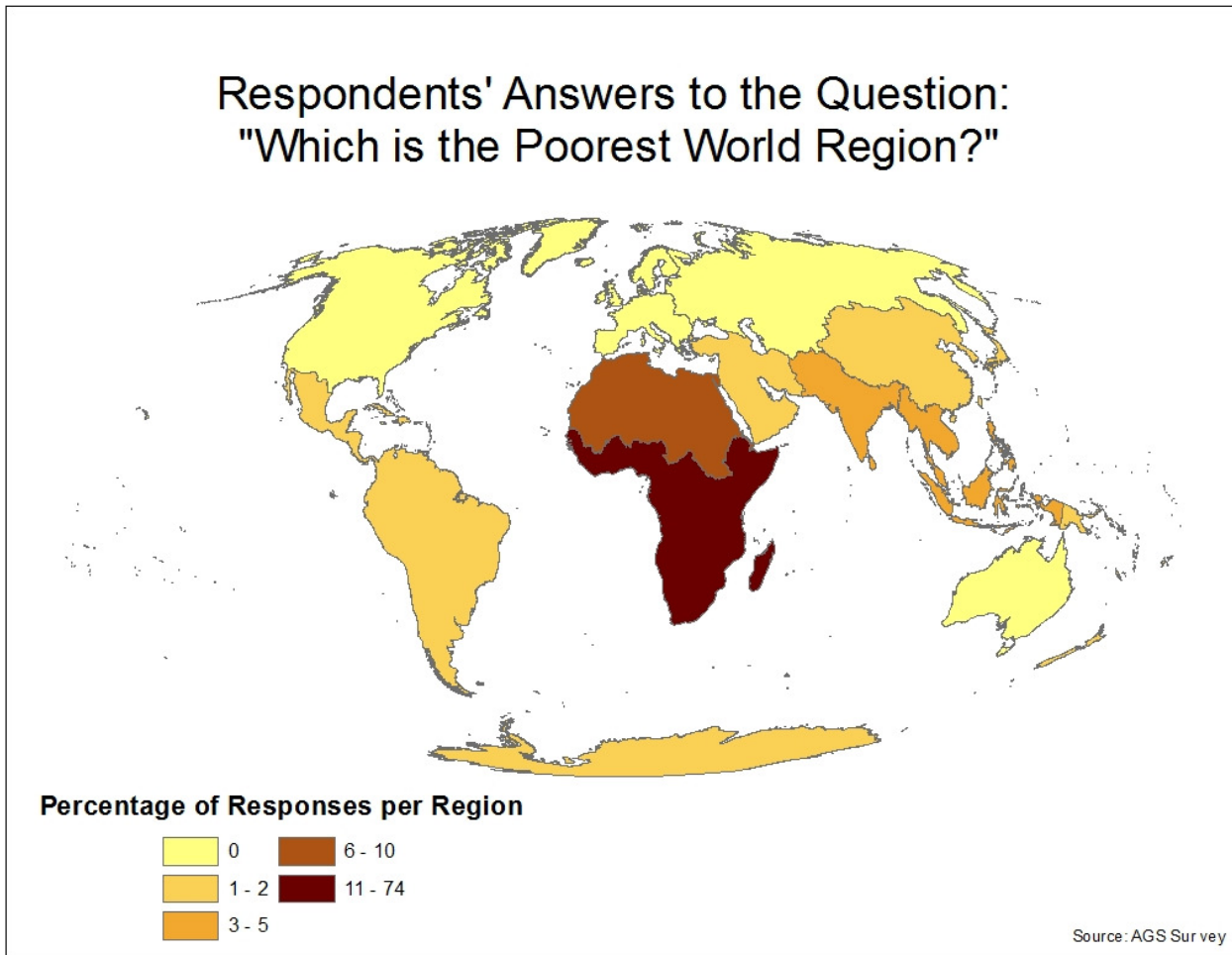


Figure 4. Percentage of respondents who chose region as the world's poorest region.

### Knowledge of the Discipline

Geographers often are reminded that misconceptions commonly exist as to what the discipline of geography encompasses and what geographers do. Questions were asked to capture what the public knows about the discipline of geography, its content, and geographic curricula at all levels of education.

Respondents first were given a list of topics and asked to say whether or not they thought that topic was of interest to geographers. The topics were as follows:

- Hills and mountains
- Rivers and valleys
- National borders
- People and cultures
- Religions, languages, and beliefs
- States and capitals

The results of those questions are shown in Figure 5. Both “hills and mountains” and “rivers and valleys” were chosen by 96% of respondents. This was followed by “national borders” (90%), “people and cultures” (82%), “states and capitals” (81%), and “religions, languages, and beliefs” (74%). Physical geography topics received the most votes. Surprisingly, “religions, languages, and beliefs” was not thought of as a topic of interest to geographers by slightly more than a quarter of respondents, despite the fact that these are considered cultural traits and “people and cultures” had more positive responses. The results are encouraging in that the respondents’ answers do, at least, correctly reflect the breadth of the discipline, unbounded by content and typically integrated across most other disciplines.

Another set of questions addressed how the public values geography’s functions, whether or not they truly understand its scope. Our approach was first to assess the respondents’ *a priori* values regarding geography, next provide them a definition of the discipline that might be acceptable to most professional geographers, and then ask if the definition changed their attitudes or answers. Respondents were given the following description regarding geography:

Collectively, geographers insist that geography is both a physical and a social science, distinguished primarily by its emphasis on space and spatial thinking, and includes humanistic perspectives regarding a “sense of place.”

Geography is to space what history is to time. It is the study of the earth as the home of people. Its hallmarks include spatial analysis, scientific integration, place-based research, and fieldwork. Its technologies include geographic information systems (GIS), the Global Positioning System (GPS), popular geographics such as Google Earth, and an endless variety of applications software.

It was not possible to return to previous questions after reading the definition. This was done to avoid biasing their *a priori* answers and yet still assess how they view the true character of the discipline as opposed to its public image.

Respondents were then asked whether that description changed their opinion about the scope of the discipline. The majority (80.8%) responded that their opinion was about the same as before they read the statement, 18.4% said their opinion was greater, and only 0.8% said that their opinion was less. These results support the notion that the general public is vaguely aware of what the discipline entails and how it is different from other fields of study. However, a sizable number would appreciate geography even more if they understood its true scope. This adds powerful evidence supporting the need for and popularity of improving geography education.

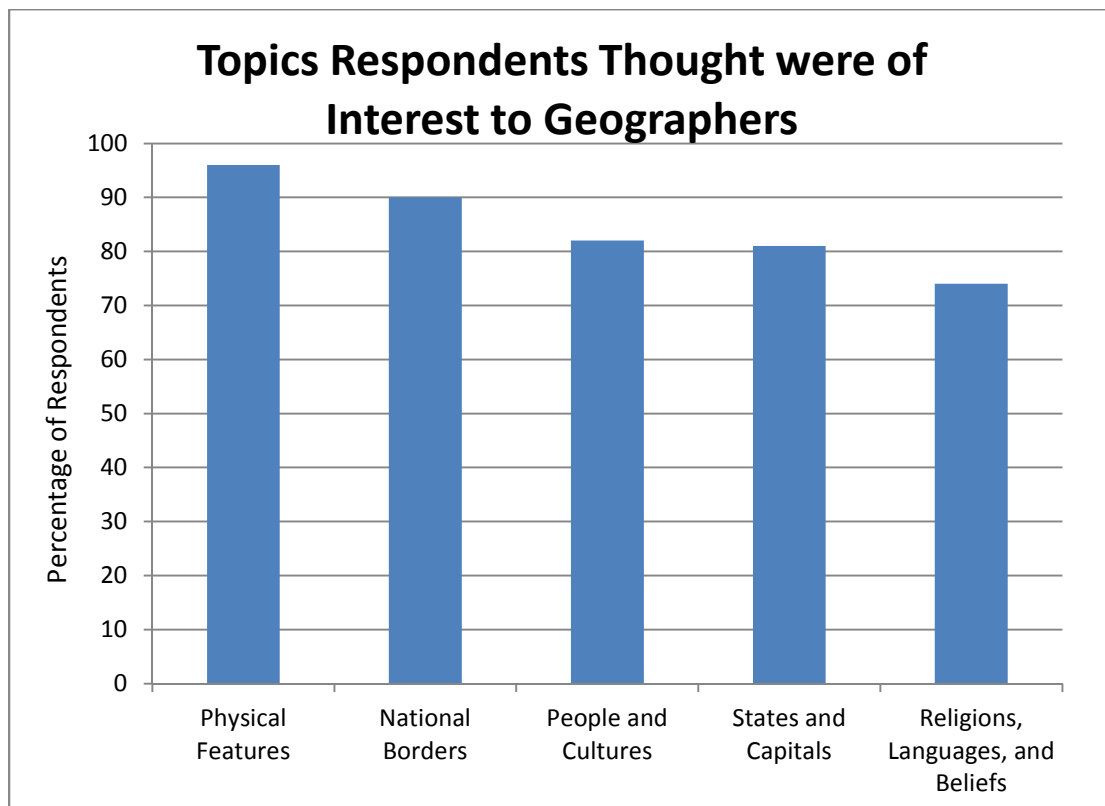


Figure 5. Percentage of respondents who thought each topic would be of interest to geographers.



Even before reading the definition, respondents recognized the importance of geography compared to other core subjects. Compared to reading, writing, and math, 66.8% respondents felt that geography was just as important and 27.3% thought it was less important. This is an astounding affirmation of geography, considering the usual regard the public has for “the 3 Rs.” Geography fared surprisingly well when compared to geology and biology in that 73.7% felt that it was just as important and 18.5% thinks it was more important. Compared to anthropology or sociology, geography was just as important for 61.2%, and a sizable 34.5% said it was more important. Clearly, such interest is not reflected in curriculum offerings at most U.S. institutions of higher education, where geology, biology, anthropology, and sociology departments vastly outnumber geography departments.

To summarize, most respondents think that geography should be given the same emphasis as the core areas of reading, writing, and math, while a much larger majority thinks that it is just as important or more important than other prominent subjects in key physical and social sciences.

Table 6. Percentage of respondents’ answers regarding how important geography is compared to other subjects.

<b>Subjects</b>	<b>More Important</b>	<b>About the Same</b>	<b>Less Important</b>	<b>Don’t Know</b>
<b>Reading, Writing, and Math</b>	5.1%	66.9%	27.3%	0.7%
<b>Geology or Biology</b>	18.5%	73.7%	7.1%	0.7%
<b>Anthropology or Sociology</b>	34.5%	61.2%	3.2%	1.1%

The last group of questions gauged the public’s expectations regarding geography in institutions of higher education. First they were asked which top universities were expected to have geography departments that excelled in teaching and research. Six universities were listed: Harvard, Massachusetts Institute of Technology (MIT), University of Southern California

(USC), Stanford University, University of Michigan, and University of Oregon. Respondents also had the option to select “Don’t know.” The percentage of respondents who answered “Yes” for each school is shown in Figure 6.

For every institution except MIT, more than half of the respondents expected the school to have a geography department that excelled in teaching and research. In reality, however, the only university on the list that actually has a geography department at all is the University of Oregon, which does indeed excel at teaching and research. Again, this adds powerful evidence supporting the need for and popularity of improving geography education. Clearly public expectations are not being met by the reality of higher education institutions today.

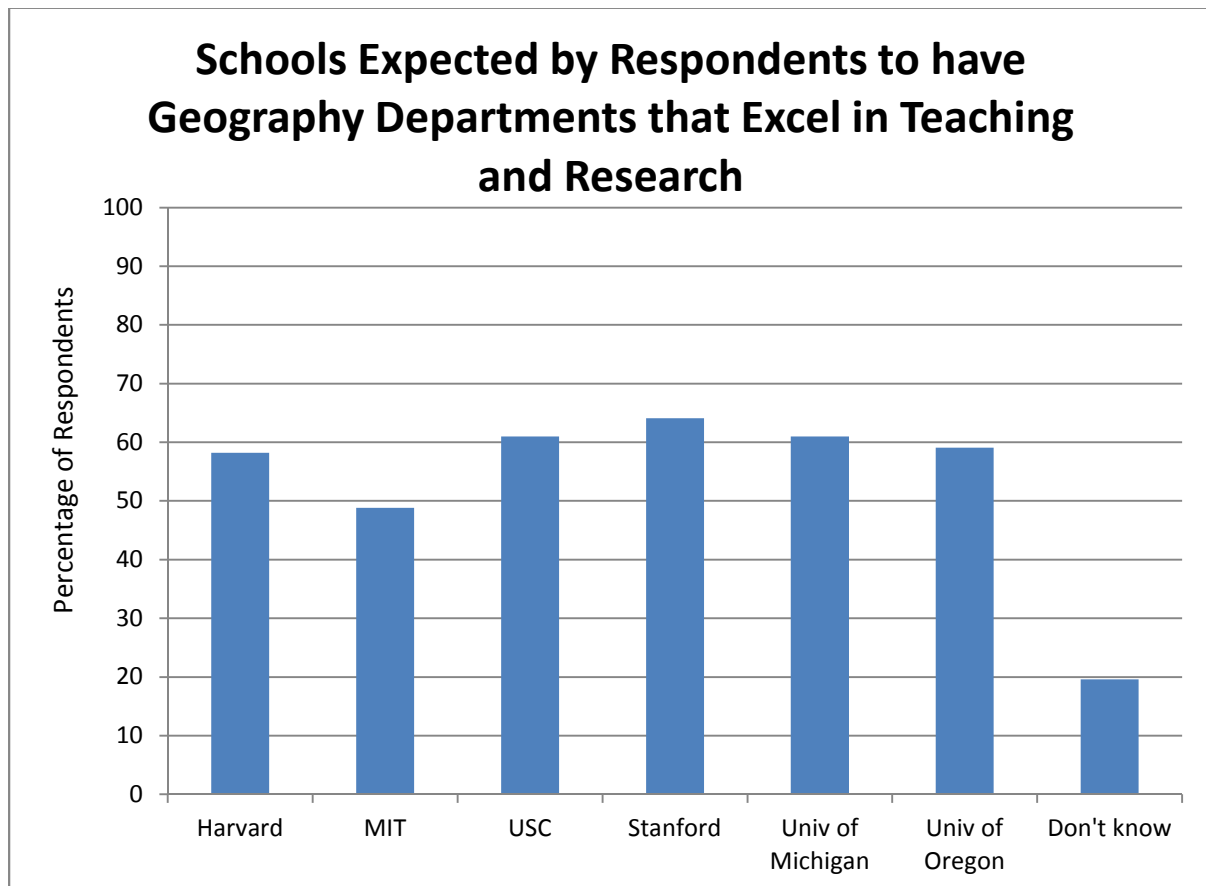


Figure 6. Percentage of respondents who expected the respective university to have a geography department that excels at teaching and research. In reality, the only one with a geography department is the University of Oregon, which does indeed excel in teaching and research.

### Level of Awareness

Sometimes people are using geographic knowledge or skills without realizing that what they are doing is geography. Some questions were designed to distinguish whether a respondent had geographic knowledge and engaged with spatial concepts, regardless of whether they were aware of it. Respondents were asked if they had used a map in the past year for the following reasons:

- Locating places and navigating to them
- Understanding local issues
- Understanding national or world events
- Understanding environmental issues

At least two thirds of all respondents had used a map in the past year for all of the proposed scenarios. The highest percentage (98.8%) was for locating places and navigating to them. The lowest percentage (68.5%) was for understanding local issues. The low results for understanding local issues may be attributable to respondents having mental maps of local places and therefore less need for map aids. Also, local news sources may offer fewer maps because they lack cartographic resources, compared to regional and national news outlets.

Results for the last two questions regarding level of awareness also show a scalar difference between local and global issues. When asked whether a respondent had participated in a debate about a neighborhood issue in which he or she knew geographic location was crucial, 52.2% answered yes. Conversely, when asked whether a respondent sometimes thinks about issues or projects in their state or region in which they know that geographic location is crucial, 82.5% answered yes. Some of the difference between the two questions could be contributed to degree of action. In the first question, the respondent was asked whether they had participated in a debate, whereas the second question only required the respondent to have thought about the

issue. However, this could also point to a difference in scale for respondents regarding what issues they are aware of and how they think they are interacting with geographic knowledge in those situations.

The public seems to have much less experience using spatial statistics or quantitative models to help answer geographic questions. The majority of respondents (53.3%) had never used these tools to help compare two or more geographic distributions. This is not surprising considering that more training is involved in using spatial statistics or quantitative models than is required for using a map to answer geographic questions. Considering this factor, the level of positive response seems encouragingly high.

## *2. Values*

The values section is split into two different categories. The first looks at the public's values about geography itself and how useful they find geographic knowledge and skills in the professional world and everyday life. The second category looks at the value of geography education and how much education should be offered to students and required of geography instructors at various education levels.

### Usefulness of Geography

Respondents were asked questions regarding how useful they thought geographic knowledge and skills were for their own knowledge, as well as for various positions within society. The first group of questions pertains first to the usefulness of geography for the individuals themselves.

When asked how useful the respondent finds the material that they learned from geography courses they had taken throughout their schooling, the majority said that the materials

were useful (47.4%) or very useful (31.6%). Only 12.1% found the content from their geography course not very useful or not useful at all. Eleven percent had never had any geography courses. Here, it seems, respondents overwhelmingly value the benefits of their own geography educations, thus offering powerful support for improving geography education.

The idea that geographic knowledge and skills learned in various courses has been helpful is further illustrated by the results of the question asking how often the respondent uses geography. Most said they use geography every day (37.6%), most days (25.8%), or some days (32.9%). Only 2.8% said they never use geography or that they didn't know how often they used geography (0.9%).

Not only are respondents using geography, but they are also thinking geographically. Fifty-four percent said they think geographically "a lot" and 41.3% said that they think geographically "a little." Only 4.9% said that they do not think geographically at all or that they don't know whether they think geographically.

The survey also posed questions regarding more specific concepts to see how respondents valued geographic knowledge. The first two questions were asked using a scale of 1 to 5 with 1 being very important and 5 being not important at all. The scenarios asked whether respondents felt that it was important to know where their food/water/clothing/etc. come from (Figure 7) and how, why, and where natural disasters occur (Figure 8). Respondents' answers were very similar between the two questions, with most choosing the highest level of importance (50.7% and 54.3%, respectively).

Responses to other questions show that many people are using geography to understand the world around them. Ninety-one percent of respondents said that they try to understand how geographical factors influence events and debates regarding climate change, terrorism, and

foreign policy either all the time or sometimes (Figure 9). Also, the majority of respondents said that they think about how people in faraway places affect them (93.5%) sometimes, very often, or always. The result was slightly lower (89%), but still a large majority, when respondents were asked how often they thought about how they affected people in faraway places. The results for the last two questions can be found in Figure 10.

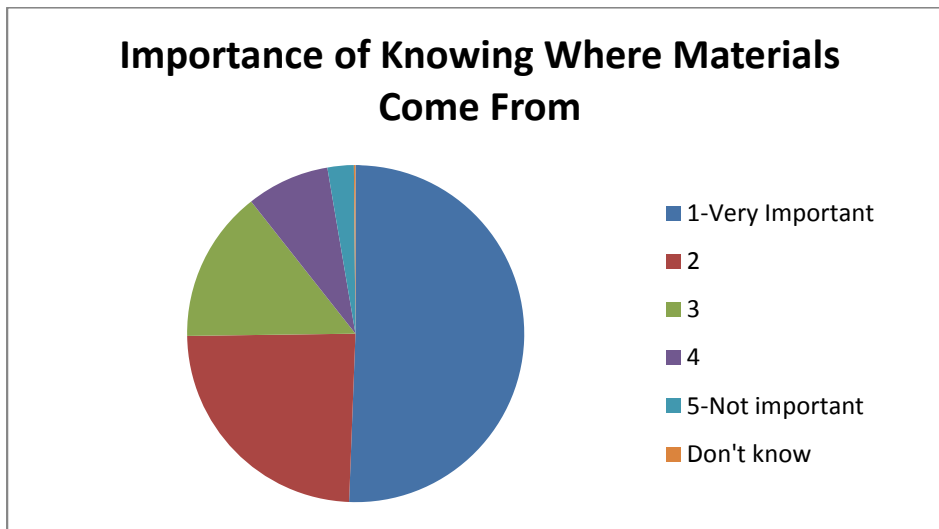


Figure 7. Respondents' answers regarding how important it is to know where their food/water/clothing/etc. come from.

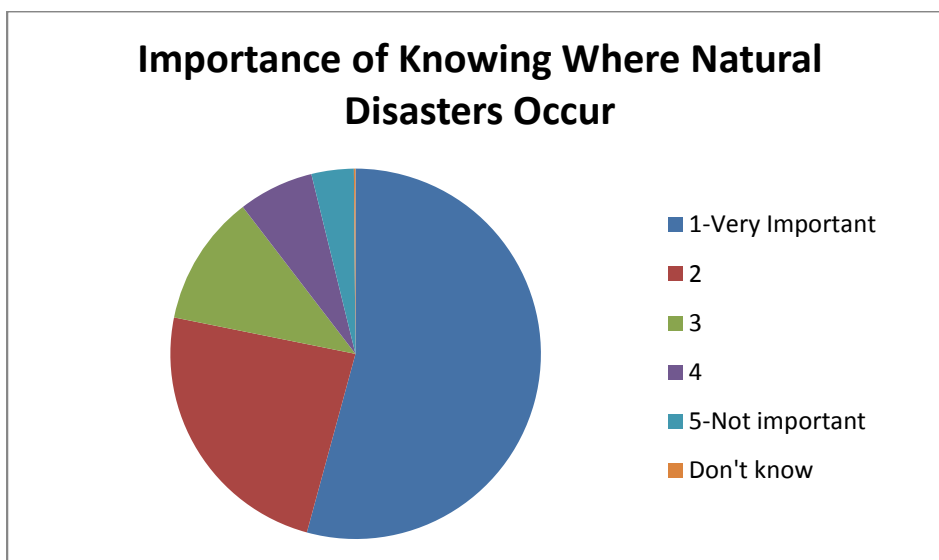


Figure 8. Respondents' answers regarding how important it is to know where natural disasters occur.

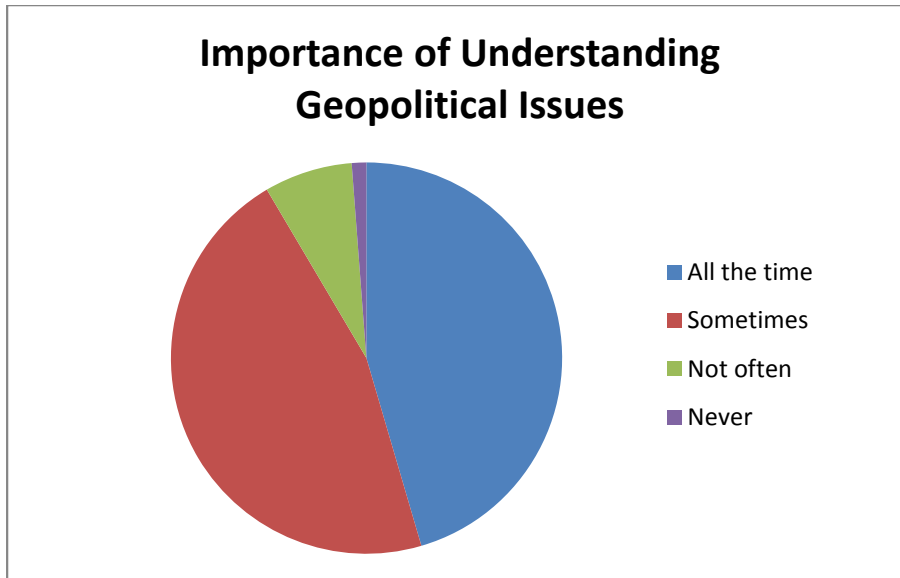


Figure 9. Respondents' answers to how often they try to understand the geographical factors affecting current events.

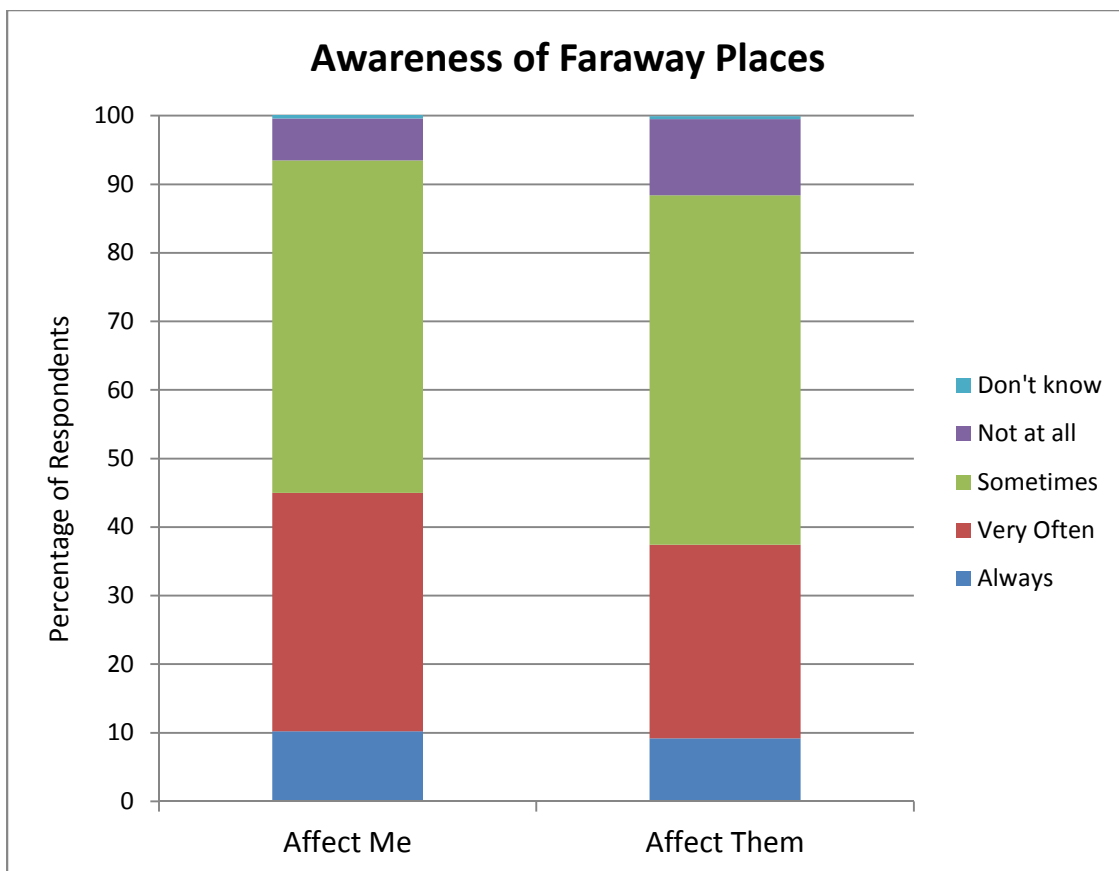


Figure 10. Respondents' answers regarding how often they think about how people in faraway places affect them or, vice versa, how often they affect people in faraway places.

Results were still positive when asked about specific examples. When asked how informed the respondent was about geographic factors regarding the current unrest in the Middle East, 81.5% of respondents said they were somewhat to very well informed regarding the issues. The majority also correctly identified examples of globalization in the world around them. However, there was a considerable difference in whether people thought a Hindu temple in Tennessee was an example of globalization (75.6%) versus a McDonalds in Cairo (91.9%). Some possible reasons for this difference are that perhaps people more often associate economic activities with globalization or that they already think of the United States as a melting pot so the temple in Tennessee is less of an example of globalization.

One of the biggest challenges facing proponents of geography education is educating the public regarding the usefulness of geography for future careers. The survey asked questions regarding the benefit of geographic training and knowledge for specific careers and for various governmental agencies. The careers were as follows:

- Transportation Planner
- Criminal Investigator
- Emergency Manager
- Military Strategist
- Medical Doctor
- Insurance Executive
- Certified Public Accountant
- Mechanic
- Real Estate Broker

The governmental agencies were as follows:

- U.S. Dept. of State
- U.S. Geological Survey
- U.S. Bureau of the Census
- State Highway Departments
- City or County Planning Departments
- Internal Revenue Service
- Securities and Exchange Commission



The results for these survey questions can be found in Figure 11. Respondents thought that geography would be most useful for transportation planners and military strategists and, conversely, least useful for accountants and mechanics. Two careers they believed were less likely to benefit from geographic knowledge and training were criminal investigators and insurance executives, both of which would use tools like spatial statistics and GIS to successfully carry out their work. Another position that scored lower than would be expected given the geographic nature of the position was a real estate broker. Certainly, knowledge about neighborhoods and local issues is important in order for a real estate broker to sell property in an area, but most respondents seem to have missed this connection.

Results regarding the usefulness of geography among various government agencies was even more positive (Figure 12). More than two-thirds of respondents selected the highest measure of importance for all agencies except the Internal Revenue Service (IRS) and the Securities and Exchange Commission (SEC). Indeed, geographic concepts are extremely important for the first five organizations, and the public perception seems reasonable.

Respondents perceived much less usefulness for geography at the IRS and SEC, where accounting skills dominate. Still, a case can be made for geography in either of these agencies as well. For instance, one can readily imagine geographic analysis to identify real world clusters of certain types of tax fraud and geographic profiling to apprehend violators.

### Geography Education

Results from this survey dramatically indicate that the public wants more geography education for themselves and for their children. A large majority (88.6%) wishes that they had more geographic training, and the number is even higher for those wanting their children to have

more geography (98%) and learn more technical aspects of geography (96.2%). Clearly, the public values geography education and favors expansion of geography education.

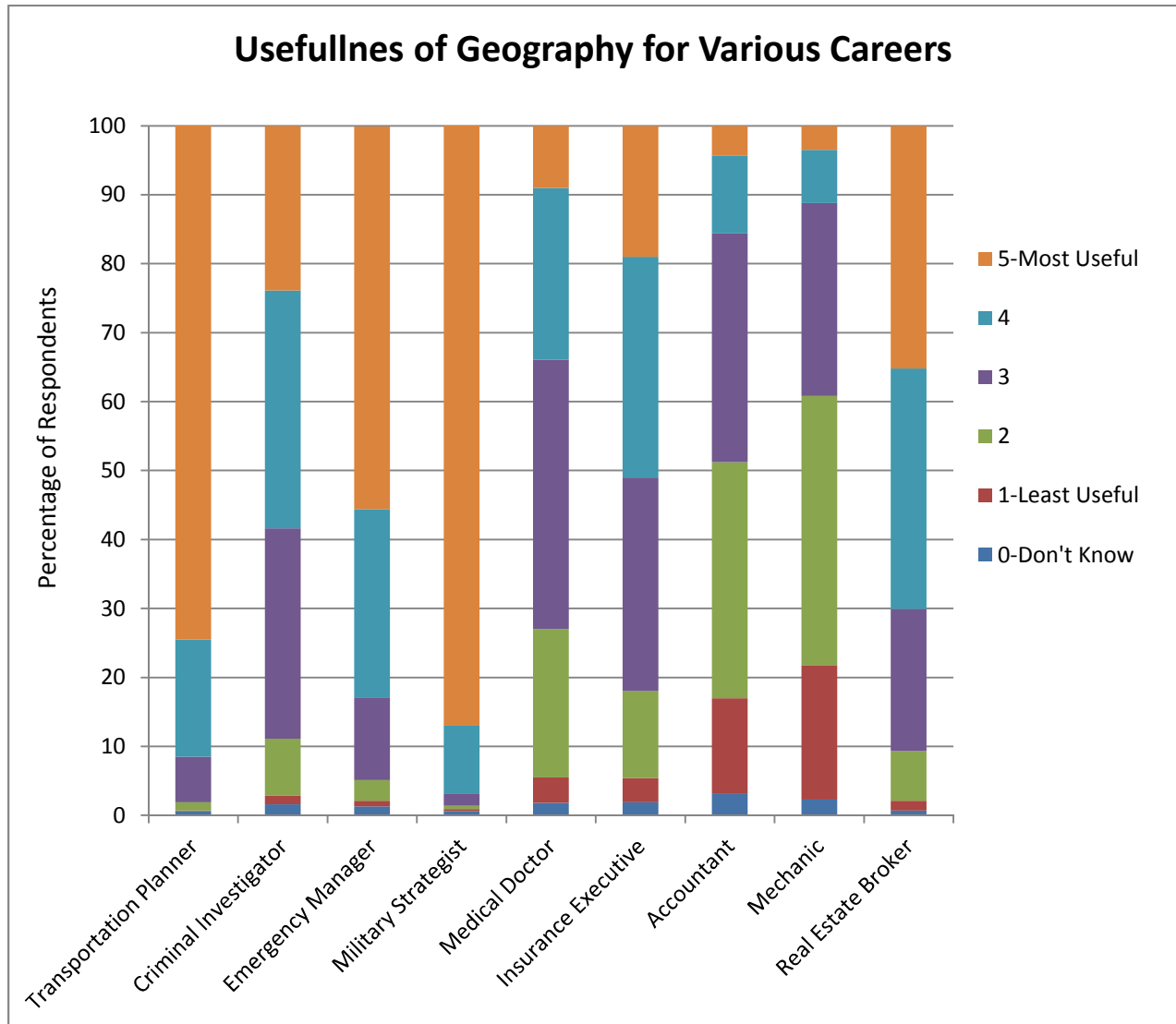


Figure 11. Percentage of respondents' answers regarding how useful they believe geography to be for various careers.

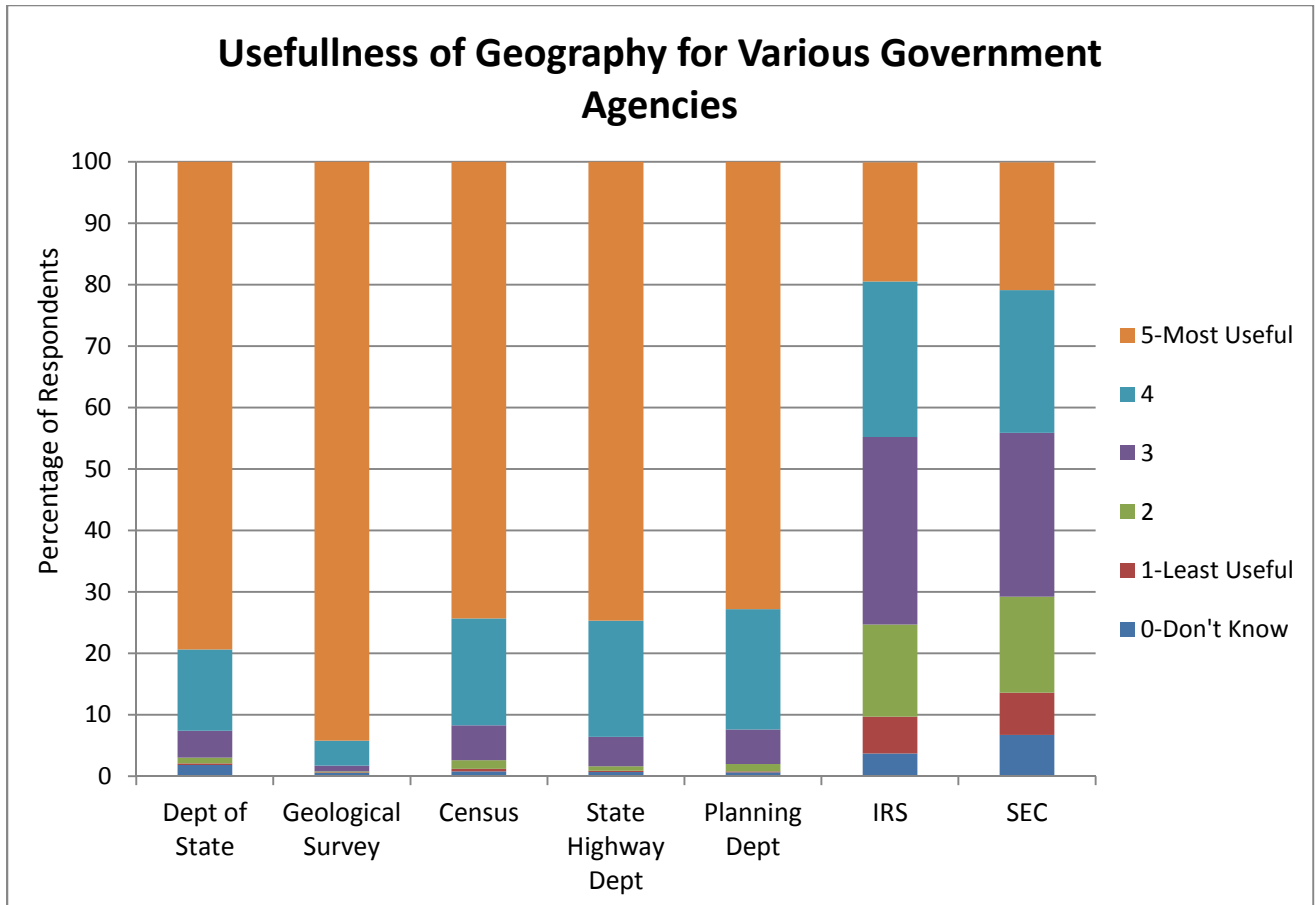


Figure 12. Percentage of respondents' answers regarding how useful they think geography is for various agencies.

Next, we break this down further according to levels of education (Table 7).

Respondents said geography should be offered in elementary school as one full geography course (35%), two or more courses (21.5%), or as part of a non-geography course (40.6%). As students move into middle school and high school, respondents wanted more courses that were exclusively geography. Only a tiny percentage felt that there should be no geography courses offered at any of the levels of primary and secondary education. Respondents favored one or more geography courses in elementary school (56.5%) and more emphatically in middle school (81.1%) and high school (86.9%).

Table 7. Percentage of respondents according to how much geography they think should be offered at various K-12 levels.

<b>Grade Level</b>	<b>Geography Course 2 or More</b>	<b>Geography Course 1</b>	<b>Part of Non-Geography Course</b>	<b>None</b>	<b>Don't Know</b>
<b>Elementary</b>	21.5%	35%	40.6%	0.7%	2.2%
<b>Middle School</b>	26.9%	54.2%	16.8%	0.4%	1.8%
<b>High School</b>	42.5%	44.4%	10.7%	0.6%	1.7%

The majority of respondents felt that every accredited college or university should offer an undergraduate minor (77.8%) and major (66.7%) in geography. They also felt that every state should have at least one accredited college or university that could offer masters (82.5%) and doctoral (71.2%) degree programs.

They also expected instructors who were teaching geography courses to have more geography education. Up until middle school, most respondents felt it was sufficient for geography teachers to have had just some courses in geography. Starting in high school however, the public expects high school geography teachers to have a bachelor's degree in geography and any instructor teaching in higher education to have an advanced degree in geography. Table 8 shows the results for those questions.

Table 8. Percentage of respondents according to how much geography an instructor should be required to have in order to be qualified for teaching various grade levels.

<b>Grade Level</b>	<b>No coursework</b>	<b>Some coursework</b>	<b>Bachelor's Degree</b>	<b>Advanced Degree</b>	<b>Don't Know</b>
<b>Pre-School or Kindergarten</b>	20.8%	70.1%	6.6%	0.3%	2.1%
<b>Elementary</b>	5.3%	78.9%	13.6%	0.6%	1.7%
<b>Middle School</b>	1.1%	61.1%	34.0%	2.3%	1.5%
<b>High School</b>	0.4%	30.6%	57.8%	9.9%	1.4%
<b>Undergraduate</b>	0.3%	2.9%	22.4%	72.7%	1.7%
<b>Masters</b>	0.4%	1.1%	3.1%	93.3%	2.1%
<b>Doctoral</b>	0.5%	1.1%	1.4%	94.7%	2.4%

### Differences in Responses by Association with a Geographer

The sample was almost evenly split between respondents who knew someone who called him or herself a geographer. Fifty-three percent said they were acquainted with a geographer while 47% said they were not. When the sample is split into these “associated” and “non-associated” groups, there were few differences in how respondents answered other questions in the survey. The implication is that our method of recruiting respondents did not bias the results in favor of geographers and their associates.

As would be expected, those associated with a geographer were more likely to have taken college-level geography courses (Table 9). It is quite possible that many of the respondents who did know someone called a geographer were referring to teachers at the college level. A few respondents who were engaged in getting a degree in geography said that they did not know a geographer (32 of those minoring, 37 of those majoring, and 4 of those getting a Master’s degree). This could be an error by the respondent or they could be associating the formal title of “geographer” with professionals in fields other than teaching. There is very little difference in the amount of geography classes respondents had in their K-12 education, regardless of their association with a geographer.

Table 9. Amount of geography education respondent had at various stages of his or her post-secondary education grouped by whether respondent had some type of affiliation with someone who calls themselves a geographer. Responses for “Don’t Recall” are now shown.

Number of Courses	1	2-5	6-10	More than 10	None
<b>Undergraduate</b>					
Some affiliation	17.4%	19.1%	10.7%	17%	34%
No affiliation	23.3%	13.4%	1%	0.7%	56.7%
<b>Masters</b>					
Some affiliation	5.7%	12%	10.9%	11%	58.9%
No affiliation	3.1%	1.6%	0.2%	0.1%	92.2%
<b>Doctorate</b>					
Some affiliation	1.5%	5.1%	6.7%	7.7%	77.2%
No affiliation	0.8%	0.1%	0%	0%	96%

After being shown the definition of geography and asked whether it had changed their understanding of the discipline, 24% of non-affiliated respondents answered their understanding was greater, compared to 13% of affiliated respondents. There was also a slight difference in which subjects non-associated respondents felt were under the purview of geography, compared to associated respondents (Figure 13). Both recognized that physical geography topics, borders, and states and capitals would be of interest to geographers with relatively the same percentage of responses, but non-associated were less likely to think that human geography topics were of interest to geographers.

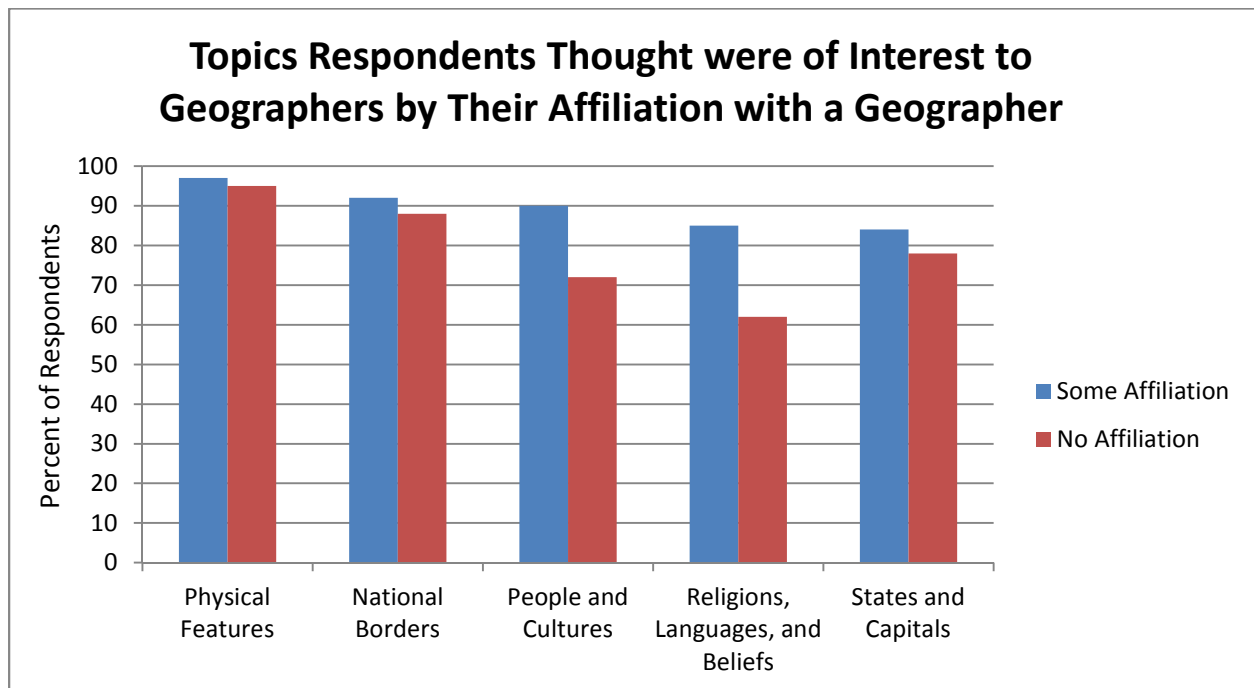


Figure 13. Percentage of respondents who thought each topic would be of interest to geographers grouped by whether respondent had some type of affiliation with someone who calls themselves a geographer.

Those associated with a geographer were more supportive of offering more geography courses at each grade level and requiring higher levels of geography education for geography teachers, but the differences were small as seen in Tables 10 and 11. The same pattern was seen

for the usefulness of geography in various careers and government agencies. For all of these questions, both groups overwhelmingly recognized the importance of geography.

Table 10. Percentage of respondents according to how much geography they think should be offered at various K-12 levels grouped by whether respondent had some type of affiliation with someone who calls themselves a geographer.

Grade Level	Geography Course 2 or More	Geography Course 1	Part of Non-Geography Course	None	Don't Know
<b>Elementary</b>					
<i>Some affiliation</i>	23.4%	34.2%	40%	0.7%	1.7%
<i>No affiliation</i>	19.7%	35.7%	41.1%	0.8%	2.7%
<b>Middle School</b>					
<i>Some affiliation</i>	30%	53.4%	14.8%	0.2%	1.6%
<i>No affiliation</i>	23.5%	54.8%	19.1%	0.5%	2%
<b>High School</b>					
<i>Some affiliation</i>	48.6%	40.7%	8.7%	0.4%	1.6%
<i>No affiliation</i>	35.6%	48.5%	13.1%	0.9%	1.9%

Table 11. Percentage of respondents according to how much geography an instructor should be required to have in order to be qualified for teaching various grade levels grouped by whether respondent had some type of affiliation with someone who calls themselves a geographer.

Grade Level	No coursework	Some coursework	Bachelor's Degree	Advanced Degree	Don't Know
<b>Pre-School or Kindergarten</b>			6.1%	0.3%	1.8%
<i>Some affiliation</i>	19.1%	72.7%	7.3%	0.4%	2.5%
<i>No affiliation</i>	22.9%	66.9%			
<b>Elementary</b>	5%	79.8%	13.5%	0.4%	1.3%
<i>Some affiliation</i>	5.6%	77.7%	13.8%	0.7%	2.3%
<i>No affiliation</i>					
<b>Middle School</b>	0.8%	61%	34.9%	2.2%	1.1%
<i>Some affiliation</i>	1.3%	61.1%	33.1%	2.4%	2%
<i>No affiliation</i>					
<b>High School</b>	0.3%	28.1%	60.4%	10.3%	0.9%
<i>Some affiliation</i>	0.4%	33.3%	54.8%	9.5%	2%
<i>No affiliation</i>					
<b>Undergraduate</b>	0.3%	1.9%	19.1%	77.7%	1%
<i>Some affiliation</i>	0.3%	4.1%	26%	67%	2.6%
<i>No affiliation</i>					
<b>Masters</b>	0.4%	0.5%	2.5%	95.3%	1.3%
<i>Some affiliation</i>	0.4%	1.7%	3.8%	91%	3.1%
<i>No affiliation</i>					
<b>Doctoral</b>	0.5%	0.5%	1%	96.6%	1.4%
<i>Some affiliation</i>	0.5%	1.7%	1.7%	92.4%	3.7%
<i>No affiliation</i>					

Answers were similar between the two groups for many of the questions regarding respondents' geographic knowledge. However, non-associated respondents were more likely to answer that they did not know.

There was an encouraging difference in how often respondents used geography in their everyday lives. We asked whether they had participated in a debate or expressed an opinion about a neighborhood issue in which they knew geography was important. The majority of associated respondents answered yes (62%), compared with non-associated respondents (41%). Associated respondents were also much more likely to have used a quantitative model to solve a geographic issue with 48%, whereas only 14% of non-associated respondents had used a quantitative model. This may be the strongest indication yet that geography prepares students to play active and more rigorous roles in societal decision making.

Overall, there was very little difference in how non-associated respondents valued geography education and the value of geography in everyday life, compared to associated respondents. While many of the answers had associated respondents answering more favorably in support of geography education, non-associated respondents were not far behind and were usually a sizable portion of the majority favoring more geography education.

### **Final Thoughts and Recommendations**

The results of the survey are a resounding endorsement of geography and geography education. The sample strongly supports increasing the amount of geography education offered at all levels, and they favor increased formal geography education requirements for instructors teaching courses at all levels. Respondents indicate that many of them had either no classes in geography or courses under a different name, despite the fact that respondents overwhelmingly



wish they had more geography education and want their children to have more. The respondents are keenly aware of how important geography education is, how useful geography's tools and knowledge are in their everyday lives, and in short how valuable geography is for society as a whole.

There is, however, misinformation and lack of knowledge about real world geography, geographic and cartographic methods and techniques, and the scope of the discipline itself, particularly in higher education. Educational efforts need to be focused on expanding both the geographic content and the technical training in the classroom for all levels of K-12 and post-secondary education in order to close the gap between knowledge levels and goals for the geosciences.

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## Appendix 1

### Letter of Instruction Sent to AGS Volunteers

Dear AGS Volunteer:

Thank you very much for agreeing to assist the American Geographical Society with the AGS Geographic Knowledge and Values Survey. The survey is now online and ready to go. The next crucial step is for you to reach out and solicit respondents. Our goal is to enlist tens of thousands or more respondents. To ensure that we reach as many people as possible, we encourage you to solicit respondents by every possible means: email, Internet, listserves, newspaper, radio, TV, social networks (Twitter, Facebook, LinkedIn, etc.), and personal appearances (clubs, local to national groups, public events, etc.).

Please try to obtain permission to distribute announcements through your institutions usual means of reaching out to the public. Most universities won't share their e-mail address lists, but perhaps they will allow you to broadcast a public announcement to faculty, staff, administrators, students, alumni. Don't limit yourself, however, to academic networks. We want to hear from the public, so make use of every email list you have: listserves, clubs, or local groups with which you are affiliated, such as conservation, planning, or civic groups.

The American Geographical Society has secured Internal Review Board (IRB) approval through the University of Baltimore, and we believe that will be adequate for all volunteers. If you prefer, however, feel free to file for approval through your own institution, and we will provide any documentation you need to satisfy their procedures.

This may be the world's first adults only geography survey. We did not seek IRB approval for children younger than 18 because (a) we want to send a powerful message that geography really is for grownups too; (b) we are primarily interested in assessing the long-term effects of geographic education; (c) it is the adults, not children, who drive education policy; and (d) the IRB process is more demanding for surveys involving children.

Please paste these three paragraphs into the invitation announcement that you send to the public:

The American Geographical Society (AGS) needs your help in a matter of vital importance. We are conducting a nationwide survey of public attitudes toward geography and knowledge about geography. This is our part in a major study funded by the National Science Foundation. This Road Map Project is a joint effort of the National Geographic Society, the National Council for Geographic Education, the Association of American Geographers, and AGS. The overall topic is geographic literacy, a matter of serious concern in America today. We invite all U. S. citizens and long term residents of the United States to take the survey. The only eligibility requirement is that you must be age 18 or older. The results will help guide Federal and state policies regarding geographic education.

You may access the survey online by clicking the following link: [AGS Geographic Knowledge and Values Survey](http://webteach.ubalt.edu/UltimateSurvey/Surveys/TakeSurvey.aspx?s=F30154FD158241D39265B445E3BD5817) (If the link does not take you directly to the survey, please copy and paste this URL into your web browser: <http://webteach.ubalt.edu/UltimateSurvey/Surveys/TakeSurvey.aspx?s=F30154FD158241D39265B445E3BD5817>). Based on trial runs, we estimate the survey will take 12 to 18 minutes of your time.

When you have finished, please help us spread the word by forwarding this invitation by every possible means: email, Internet, listserves, newspaper, radio, TV, social networks (Twitter, Facebook, LinkedIn, etc.), and personal appearances (clubs, local to national groups, public events, etc.).

I understand this is a busy time of year for you, and I greatly appreciate the effort you are making to ensure the surveys success. I am especially grateful to AGS Councilor Joe Wood, Provost of the University of Baltimore, who helped organize the survey and applied for IRB approval; Don Haynes and Bill Wells of the Schaefer Center for Public Policy at the University of Baltimore, who advised me regarding the design of the survey and programmed the online version; AGS Councilors and officers who assisted in composing questions; and the Volunteers and Road Map Project Team members who reviewed both drafts and gave good advice.

## Appendix 2

## List of AGS Volunteers

<b>Institution</b>	<b>City</b>	<b>State</b>	<b>Volunteer</b>
Florida State University	Tallahassee	FL	Laurie Molina
University of Mississippi	University	MS	Carley Lovorn
			David Rutherford
Oregon Geographic Alliance	Portland	OR	Teresa L. Bulman
University of Colorado, Colorado Springs	Colorado Springs	CO	Steve Jennings
			Geographic Alliance
			Rebecca Theobald
California State University	Dominguez Hills	CA	John Menary
USGS		AK	Brendan J. Kelly
South Dakota State University	Brookings	SD	George W. White
			Fritz Gritzner
			Jason Black
Illinois State University	Normal	IL	E. Joan Miller
Southern Illinois State University	Edwardsville	IL	Susan Hume
Winona State University	Winona	MN	Jerry Gerlach
California State University, Northridge	Northridge	CA	Edward L. Jackiewicz
Portland Community College	Portland	OR	Christina Friedle
Victor Valley College	Victorville	CA	Carol Delong
Affordable USPAP Education			Nancy Summers
	Beaverton	OR	Siri Wickramaratne
California State University, San Bernardino	San Bernardino	CA	Jenny Zorn
Sonoma State University	Rohnert Park	CA	Christine Castagna
California State University, Chico	Chico	CA	Jacquelyn Chase
			Eugenie Rovai
Southern Connecticut State University	New Haven	CT	Leon Yacher
Louisiana State University	Baton Rouge	LA	Kent Mathewson
			Craig Colten
Hofstra University	Hempstead	NY	James E. Wiley
Kansas State University	Manhattan	KS	John Harrington, Jr.
California State University, Sacramento	Sacramento	CA	Robin E. Datel
Eastern Kentucky University	Richmond	KY	Sonja Yow
University of Montana	Missoula	MT	Heather Almquist

Appalachian State University	Boone, NC		Sarah Halvorson Kathleen Schroeder Chris Badurek
American Geographical Society	Brooklyn	NY	Peter Lewis
		IA	Matt Lewis
		VT	Dan Gade
University of Washington	Seattle	WA	Matt Dunbar Monika Moskal
Southern Illinois University	Carbondale	IL	Leslie Duram
University of Oregon	Eugene	OR	Tom Ptak Doug Foster Easther Chigumira Gretchen Hill
Temple University	Philadelphia	PA	Marilyn Silberfein
University of Kentucky	Lexington	KY	Stann Brunn
University of Connecticut	Storrs	CT	Jeffrey Osleeb Thomas Lewis
Indiana State University	Terre Haute	IN	Dorothy Drummond
Indiana University-Purdue	Indianapolis	IN	Frederick L. Bein Kathy Kozenski
University Indianapolis			William R. Strong
University of North Alabama	Florence	AL	
University of Delaware	Newark	DE	Peter Mires
University of Alaska	Fairbanks	AK	Roger Pearson
Old Dominion University	Norfolk	VA	Chris Drake
The University of Arizona	Tucson	AZ	Sallie Marston
Miami University	Oxford	OH	Thomas Klak
University of Kansas	Lawrence	KS	Erin Garity Blake Mayberry
University of South Carolina	Columbia	SC	Jerry Mitchell
University of New Orleans	New Orleans	LA	James Lowry Rachel Magario

## Appendix 3

### Questionnaire

#### Geographic Knowledge and Values Survey

The American Geographical Society has completed its survey of public attitudes toward geography and knowledge of real world geography.

If you have reached this message after March 31, 2012, the survey collection period is over and we are no longer accepting responses.

Thank you for your interest in the American Geographical Society survey.

Findings from this survey will help geographers, educators, and policy makers improve geographic education and geographic skills, practices, and ways of thinking in their careers and civic lives.

Jerome E. Dobson, President American Geographical Society [www.amergeog.org](http://www.amergeog.org)

Please select "Exit" below and close your browser window.



Exit

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The American Geographical Society is conducting a survey of public attitudes toward geography and knowledge of real world geography.

This survey is about the current state of geographical literacy in the American public, including:

- (a) knowledge about real world geography and
- (b) public understanding of and attitudes about the field of geography.

The emphasis is task oriented —about doing geography everyday—more than it is about specific knowledge content.

Findings from this survey will help geographers, educators, and policy makers improve geographic education and geographic skills, practices, and ways of thinking in their careers and civic lives.

Your participation in this survey is voluntary.

No individual information linking you to your responses will be collected or reported.

Jerome E. Dobson, President  
American Geographical Society  
[www.amergeog.org](http://www.amergeog.org)

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\* Please enter your age in years.

---

\* Informed Consent

In providing answers to questions in this survey, you should understand that: Your participation in this survey is voluntary. No individual information linking you to your responses will be collected or reported. Please acknowledge your informed consent below.

☐

Yes, I acknowledge my informed consent and wish to participate in the survey.

☐

No, I do not wish to participate in the survey.

---

Thank you for your time. We are only allowed to survey individuals 18 years of age and older.

---

Thank you for your time. You must agree to the informed consent in order to participate in the survey.

---

**We must ask some demographic questions for purposes of more finely understanding differences in geographic literacy that may exist among individuals.**

---

Please tell us your gender.

---

Are you of Hispanic, Latino, or Spanish origin?

☐

Yes

☐

No



\* Please tell us your Race. Please select all categories which apply.

- |   |  |
|---|--|
| <input type="checkbox"/> American Indian or Alaska Native | <input type="checkbox"/> Native Hawaiian or Other Pacific Islander |
| <input type="checkbox"/> Asian                            | <input type="checkbox"/> White                                     |
| <input type="checkbox"/> Black or African American        | <input type="checkbox"/> Other Race, not listed                    |

---

What is your primary occupation?

---

If you are currently affiliated with a college or university, please let us know which choice best describes you:

- |   |   |
|---|---|
| <input type="checkbox"/> Student                        | <input type="checkbox"/> Other type of Staff                              |
| <input type="checkbox"/> Faculty                        | <input type="checkbox"/> Alumni   |
| <input type="checkbox"/> Administrative/Technical Staff | <input type="checkbox"/> I am not affiliated with a college or university |
| <input type="checkbox"/> Other (please specify below)   |   |

---

What is the highest level of education you have attained?

---

Have you obtained or are you working toward a degree in geography?

- |  |  |  |  |  |
|--|--|--|--|--|
| <input type="checkbox"/> Undergraduate<br>Minor in Geography | <input type="checkbox"/> Undergraduate<br>Major in Geography | <input type="checkbox"/> Masters in<br>Geography | <input type="checkbox"/> Doctorate<br>in Geography | <input type="checkbox"/> I neither have, nor<br>am I working toward a<br>degree in geography |
|--|--|--|--|--|

---

\* Please tell us the zip code where you currently live.

Regardless of where you live now, please tell us where you lived during the majority of your elementary and high school school education.

If you spent the majority of your elementary and high school years in the United States, please tell us where you lived.

Do you know anyone who calls himself or herself a geographer?

☐

Yes

☐

No

How much geographic education have you had?

	How Many courses?			
	Don't recall	No classes called "Geography"	Some classes called "Geography"	Some geography under a different class name (e.g. social studies)
Elementary School	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Middle School	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
High School	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

At what educational level and how many separate courses with "Geography" in the title or courses with geography as a specific subject area did you take?

	How Many courses?					
	Don't recall	None	1	2 to 5	6 to 10	More than 10
College or University - Undergraduate	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
College or University - Masters Level	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
College or University - Doctoral Level	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

---

Do you recall the topic, content, or skills you learned in any of these courses?

- ☐ Yes
- ☐ No
- ☐ Never had any Geography courses

---

In regard to your everyday life, how useful do you find the material from all the geography classes you have ever taken?

Would you say...

- ☐ Very useful
- ☐ Useful
- ☐ Not very useful
- ☐ Never had any Geography courses
- ☐ Not useful at all

---

Next, we will ask several brief questions about your geographical knowledge, how you employ geographical technologies, and what you think about the state of geographic education today.

What is your own, personal understanding of geography? Check all that apply.

---

Geography is a body of knowledge about the earth. What earth features do you think would be of interest to geographers? (Please check all that apply)

- ☐ Hills and Mountains
- ☐ People and Cultures
- ☐ Rivers and Valleys
- ☐ Religions, Languages, and Beliefs
- ☐ National Borders
- ☐ States and Capitals

Is geography important? For instance:

	Less important 1	About the same 2	More important 3	Don't Know
Compared to the "Three Rs" (reading, writing, and arithmetic), geography is...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Compared to Geology or Biology, geography is...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Compared to Anthropology or Sociology, geography is...	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Collectively, geographers insist that geography is both a physical and a social science, distinguished primarily by its emphasis on space and spatial thinking, and includes humanistic perspectives regarding a "sense of place."

Geography is to space what history is to time. It is the study of the earth as the home of people. Its hallmarks include spatial analysis, scientific integration, place-based research, and fieldwork. Its technologies include geographic information systems (GIS), the Global Positioning System (GPS), popular geographics such as Google Earth, and an endless variety of applications software.

Does this description of the discipline change your opinion about the importance of geography?

Would your perception of its importance be:

- ☐ Greater than before you read the statement
- ☐ About the same as before you read the statement
- ☐ Less than before you read the statement

How much geographic education should be offered at the following levels of education?

	None	Required as a part of a non- geography course	Required as a single course in geography	Required as two or more courses in geography	Don't know
Elementary School	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Middle School	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
High School	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Should every accredited college or university offer geography in the following degree programs?

	Yes	No	Don't Know
Undergraduate Minor in Geography	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Undergraduate Major in Geography	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Should every state have at least one accredited college or university that offers geography as each of the following degree programs?

	Yes	No	Don't Know
Master's Degree in Geography	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Doctoral Degree in Geography	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

How much geographic education do you feel an instructor needs in order to teach geography at each of the following levels?

	Instructor's minimum level of educational attainment				
	No coursework in geography	Some coursework in geography	Bachelor's degree in geography	Advanced degree in geography	Don't know
Pre-school or Kindergarten	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Elementary School	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Middle School	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
High School	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
College or University - Undergraduate	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
College or University - Master's Level	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
College or University - Doctoral Level	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Which of the following universities would you expect to have a geography department that excels in teaching and research? Check all that apply.

- ☐ Harvard University
- ☐ Massachusetts Institute of Technology (MIT)
- ☐ University of Southern California (USC)
- ☐ Stanford University
- ☐ University of Michigan
- ☐ University of Oregon
- ☐ Don't know

How much benefit do you think that geographic knowledge and skills would be in each of the following vocations?

	No Benefit					A Great Benefit	
	1	2	3	4	5		Don't know
Transportation Planner	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Criminal Investigator	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Emergency Manager	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Military Strategist	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Medical Doctor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Insurance Executive	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Certified Public Accountant (CPA)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Mechanic	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Real Estate Broker	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

How much might each of the following government agencies benefit from employing people with geographic knowledge and skills?

	No Benefit					A Great Benefit	Don't know
	1	2	3	4	5		
U.S. Department of State	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
U.S. Geological Survey	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
U.S. Bureau of the Census	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
State Highway Departments	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
City or County Planning Departments	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
Internal Revenue Service	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>
Securities and Exchange Commission	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>

Here are some reasons why people use maps. Please indicate whether or not you yourself have used a map this way in the past year.

Locating places and navigating to them?	
Understanding local issues, such as zoning or utilities and services?	
Understanding national or world events?	
Understanding environmental issues?	

On a printed map, with North at the top of the page, on which axis does longitude increase and decrease?

☐ Vertical    ☐ Horizontal

---

Would either of the following types of maps be appropriate to use, if you wanted to compare the land areas of Russia and Kenya?

	Yes	No	Don't know
Conformal projection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Mercator projection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

---

If you wanted to map the whole earth on a single sheet of paper, which map scale would you prefer to use?

- ☐ 1:5,000
- ☐ 1:50,000,000
- ☐ Don't know
- 

What is the flattest (least hilly) state in the United States?

---

Which world region is the poorest (in dollars per person) on Earth?

---

Have you ever participated in a debate or expressed an opinion about some neighborhood issue (school districting for instance) or project (new highway, energy facility, or prison for instance) in which you knew at the time that the geographic location was crucial?

- ☐ Yes ☐ No
- 

Do you sometimes think about issues or projects elsewhere in your state or region in which you know that the geographic location is crucial?

- ☐ Yes ☐ No



How important do you think it is for you yourself to:

	Very Important				Not at all Important	Don't know
	1	2	3	4	5	
know where in the world your food/water/clothing/building materials come from and how they get to you?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
understand how, why, and where natural disasters generally occur?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

With regard to political debates about climate change, terrorism, and foreign policy, how often do you care about and try to understand how geographical factors influence such events?

☒ All the time    ☒ Sometimes    ☒ Not very often    ☒ Never

When you think about current unrest in the Middle East, how well informed do you consider yourself on major geographic factors such as culture, religion, language, economics, transportation, natural resources, climate, and terrain?

☒ Very well informed    ☒ Well informed    ☒ Somewhat well informed    ☒ Not well informed at all    ☒ I don't think/know about current unrest in the Middle East

Have you ever used a spatial statistic or quantitative model to solve a problem involving two or more geographic distributions?

☒ Yes    ☒ No    ☒ Don't know

Thinking about the word "globalization," are the following examples of globalization?

	Yes	No	Don't know
A Hindu temple in Tennessee	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
A McDonald's restaurant in Cairo	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

When you think about faraway places, how often do you ask yourself:

	Always	Very often	Sometimes	Not at all	Don't know
"How does what they do affect me?"	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
"How does what I do affect them?"	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Based on your present understanding of what geography is, how often do you use geography in your job or everyday life?

☐ Never   ☐ Some days   ☐ Most days   ☐ Every day   ☐ Don't know

	No, not at all	Yes, a little	Yes, a lot	Don't know
Based on your present understanding of what geography is, do you believe that you, yourself, think geographically?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
In retrospect, do you wish you had received more geographic training and education in your own school curriculum?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Would you like for your children (or the next generation in general) to receive more training in technical aspects of geography, such as GIS and GPS?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Would you like for your children (or the next generation in general) to receive more education in geography itself?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Those are all the questions we have for you!

Thank you for taking the time to complete the American Geographical Society survey on geographical literacy in the American public.

Please encourage your friends, co-workers, and acquaintances to take it too.

Jerome E. Dobson, President  
American Geographical Society  
[www.amergeog.org](http://www.amergeog.org)

## Appendix 4

## Confidence Intervals

The 95% confidence limits are displayed below for non-demographic survey responses. These confidence limits should be used with caution due to the limitations of the sample. The confidence intervals represent the range of proportions expected, with 95% confidence, for each survey response from a population from which the sample was taken and not from the population of the United States.

**Confidence Intervals**

<i>Question</i>	<i>Responses</i>	<i>Percentage of Respondents</i>	<i>Confidence Intervals (95%)</i>
Q12	Do you know anyone who calls himself or herself a geographer?		
	Yes	53.3%	±1.55%
	No	46.7%	±1.55%
Q13-15	How much geographic education have you had?		
Q13	Elementary School - How Many courses?		
	Don't recall	12.3%	±1.02%
	No classes called "Geography"	18.1%	±1.19%
	Some classes called "Geography"	24.9%	±1.34%
	Some geography under a different class name (e.g. social studies)	44.6%	±1.54%
Q14	Middle School - How Many courses?		
	Don't recall	5.7%	±0.72%
	No classes called "Geography"	14.6%	±1.09%
	Some classes called "Geography"	30.4%	±1.43%
	Some geography under a different class name (e.g. social studies)	49.3%	±1.55%
Q15	High School - How Many courses?		
	Don't recall	4.1%	±0.61%
	No classes called "Geography"	24.1%	±1.33%
	Some classes called "Geography"	27.8%	±1.39%
	Some geography under a different class name (e.g. social studies)	43.9%	±1.54%

<i>Question</i>	<i>Responses</i>	<i>Percentage of Respondents</i>	<i>Confidence Intervals (95%)</i>
Q16-18	At what educational level and how many separate courses with "Geography" in the title or courses with geography as a specific subject area did you take?		
Q16	College or University - Undergraduate - How Many courses?		
	Don't recall	3.2%	±0.55%
	None	44.6%	±1.54%
	1	20.2%	±1.24%
	2 to 5	16.4%	±1.15%
	6 to 10	6.2%	±0.75%
	More than 10	9.4%	±0.90%
Q17	College or University - Masters Level - How Many courses?		
	Don't recall	2.0%	±0.43%
	None	74.1%	±1.36%
	1	4.5%	±0.64%
	2 to 5	7.2%	±0.80%
	6 to 10	6.1%	±0.74%
	More than 10	6.1%	±0.74%
Q18	College or University - Doctoral Level - How Many courses?		
	Don't recall	2.3%	±0.46%
	None	86.4%	±1.06%
	1	1.1%	±0.32%
	2 to 5	2.7%	±0.50%
	6 to 10	3.5%	±0.57%
	More than 10	4.0%	±0.61%
Q19	Do you recall the topic, content, or skills you learned in any of these courses?		
	Yes	77.1%	±1.30%
	No	12.5%	±1.02%
	Never had any Geography courses	10.4%	±0.95%

<i>Question</i>	<i>Responses</i>	<i>Percentage of Respondents</i>	<i>Confidence Intervals (95%)</i>
Q20	In regard to your everyday life, how useful do you find the material from all the geography classes you have ever taken?		
	Very useful	31.6%	±1.44%
	Useful	47.4%	±1.55%
	Not very useful	11.1%	±0.97%
	Never had any Geography courses	8.3%	±0.85%
	Not useful at all	1.0%	±0.31%
Q21	Geography is a body of knowledge about the earth. What earth features do you think would be of interest to geographers? (Please check all that apply)		
	Hills and Mountains	96.0%	±0.61%
	Rivers and Valleys	96.1%	±0.60%
	National Borders	90.0%	±0.93%
	People and Cultures	81.6%	±1.20%
	Religions, Languages, and Beliefs	74.1%	±1.36%
	States and Capitals	81.0%	±1.22%
Q22-26	Is geography important? For instance:		
Q22	Compared to the "Three Rs" (reading, writing, and arithmetic), geography is...		
	Less Important	27.3%	±1.38%
	About the Same	66.9%	±1.46%
	More Important	5.1%	±0.68%
	Don't Know	0.7%	±0.26%
Q24	Compared to Geology or Biology, geography is...		
	Less Important	7.1%	±0.80%
	About the Same	73.7%	±1.36%
	More Important	18.5%	±1.20%
	Don't Know	0.7%	±0.26%
Q26	Compared to Anthropology or Sociology, geography is...		
	Less Important	3.2%	±0.55%
	About the Same	61.2%	±1.51%
	More Important	34.5%	±1.47%
	Don't Know	1.1%	±0.32%

<i>Question</i>	<i>Responses</i>	<i>Percentage of Respondents</i>	<i>Confidence Intervals (95%)</i>
Q28	Does this description of the discipline change your opinion about the importance of geography?		
	Greater than before you read the statement	18.4%	±1.20%
	About the same as before you read the statement	80.8%	±1.22%
	Less than before you read the statement	0.8%	±0.28%
Q29-31	How much geographic education should be offered at the following levels of education?		
Q29	Elementary School		
	None	0.7%	±0.26%
	Required as a part of a non-geography course	40.6%	±1.52%
	Required as a single course in geography	35.0%	±1.48%
	Required as two or more courses in geography	21.5%	±1.27%
	Don't know	2.2%	±0.45%
Q30	Middle School		
	None	0.4%	±0.20%
	Required as a part of a non-geography course	16.8%	±1.16%
	Required as a single course in geography	54.2%	±1.54%
	Required as two or more courses in geography	26.9%	±1.37%
	Don't know	1.8%	±0.41%
Q31	High School		
	None	0.6%	±0.24%
	Required as a part of a non-geography course	10.7%	±0.96%
	Required as a single course in geography	44.4%	±1.54%
	Required as two or more courses in geography	42.5%	±1.53%
	Don't know	1.7%	±0.40%

<i>Question</i>	<i>Responses</i>	<i>Percentage of Respondents</i>	<i>Confidence Intervals (95%)</i>
Q32-33	Should every accredited college or university offer geography in the following degree programs?		
Q32	Undergraduate Minor in Geography		
	Yes	77.8%	±1.29%
	No	11.3%	±0.98%
	Don't Know	10.9%	±0.97%
Q33	Undergraduate Major in Geography		
	Yes	66.7%	±1.46%
	No	19.1%	±1.22%
	Don't Know	14.3%	±1.08%
Q34-35	Should every state have at least one accredited college or university that offers geography as each of the following degree programs?		
Q34	Master's Degree in Geography		
	Yes	82.5%	±1.18%
	No	6.7%	±0.77%
	Don't Know	10.8%	±0.96%
Q35	Doctoral Degree in Geography		
	Yes	71.2%	±1.40%
	No	13.2%	±1.05%
	Don't Know	15.6%	±1.12%

<i>Question</i>	<i>Responses</i>	<i>Percentage of Respondents</i>	<i>Confidence Intervals (95%)</i>
Q36-42	How much geographic education do you feel an instructor needs in order to teach geography at each of the following levels?		
Q36	Pre-school or Kindergarten - Instructor's minimum level of educational attainment		
	No coursework in geography	20.8%	±1.26%
	Some coursework in geography	70.1%	±1.42%
	Bachelor's degree in geography	6.6%	±0.77%
	Advanced degree in geography	0.3%	±0.17%
	Don't know	2.1%	±0.44%
Q37	Elementary School - Instructor's minimum level of educational attainment		
	No coursework in geography	5.3%	±0.69%
	Some coursework in geography	78.9%	±1.26%
	Bachelor's degree in geography	13.6%	±1.06%
	Advanced degree in geography	0.6%	±0.24%
	Don't know	1.7%	±0.40%
Q38	Middle School - Instructor's minimum level of educational attainment		
	No coursework in geography	1.1%	±0.32%
	Some coursework in geography	61.1%	±1.51%
	Bachelor's degree in geography	34.0%	±1.47%
	Advanced degree in geography	2.3%	±0.46%
	Don't know	1.5%	±0.38%
Q39	High School - Instructor's minimum level of educational attainment		
	No coursework in geography	0.4%	±0.20%
	Some coursework in geography	30.6%	±1.43%
	Bachelor's degree in geography	57.8%	±1.53%
	Advanced degree in geography	9.9%	±0.93%
	Don't know	1.4%	±0.36%



<i>Question</i>	<i>Responses</i>	<i>Percentage of Respondents</i>	<i>Confidence Intervals (95%)</i>
Q40	College or University - Undergraduate - Instructor's minimum level of educational attainment		
	No coursework in geography	0.3%	±0.17%
	Some coursework in geography	2.9%	±0.52%
	Bachelor's degree in geography	22.4%	±1.29%
	Advanced degree in geography	72.7%	±1.38%
	Don't know	1.7%	±0.40%
Q41	College or University - Master's Level - Instructor's minimum level of educational attainment		
	No coursework in geography	0.4%	±0.20%
	Some coursework in geography	1.1%	±0.32%
	Bachelor's degree in geography	3.1%	±0.54%
	Advanced degree in geography	93.3%	±0.77%
	Don't know	2.1%	±0.44%
Q42	College or University - Doctoral Level - Instructor's minimum level of educational attainment		
	No coursework in geography	0.5%	±0.22%
	Some coursework in geography	1.1%	±0.32%
	Bachelor's degree in geography	1.4%	±0.36%
	Advanced degree in geography	94.7%	±0.69%
	Don't know	2.4%	±0.47%
Q43	Which of the following universities would you expect to have a geography department that excels in teaching and research? Check all that apply.		
	Harvard University	58.2%	±1.53%
	Massachusetts Institute of Technology (MIT)	48.8%	±1.55%
	University of Southern California (USC)	61.0%	±1.51%
	Stanford University	64.1%	±1.49%
	University of Michigan	61.0%	±1.51%
	University of Oregon	59.1%	±1.52%
	Don't know	19.5%	±1.23%

<i>Question</i>	<i>Responses</i>	<i>Percentage of Respondents</i>	<i>Confidence Intervals (95%)</i>
Q44-60	How much benefit do you think that geographic knowledge and skills would be in each of the following vocations?		
Q44	Transportation Planner		
	1 - No Benefit	0.1%	±0.10%
	2	1.2%	±0.34%
	3	6.6%	±0.77%
	4	17.0%	±1.16%
	5 - a Great Benefit	74.6%	±1.35%
	Don't know	0.6%	±0.24%
Q46	Criminal Investigator		
	1 - No Benefit	1.3%	±0.35%
	2	8.2%	±0.85%
	3	30.5%	±1.43%
	4	34.5%	±1.47%
	5 - a Great Benefit	23.9%	±1.32%
	Don't know	1.6%	±0.39%
Q48	Emergency Manager		
	1 - No Benefit	0.8%	±0.28%
	2	3.0%	±0.53%
	3	12.0%	±1.01%
	4	27.3%	±1.38%
	5 - a Great Benefit	55.5%	±1.54%
	Don't know	1.3%	±0.35%
Q50	Military Strategist		
	1 - No Benefit	0.3%	±0.17%
	2	0.5%	±0.22%
	3	1.8%	±0.41%
	4	9.8%	±0.92%
	5 - a Great Benefit	87.1%	±1.04%
	Don't know	0.6%	±0.24%
Q52	Medical Doctor		
	1 - No Benefit	3.7%	±0.58%
	2	21.5%	±1.27%
	3	39.1%	±1.51%
	4	24.9%	±1.34%
	5 - a Great Benefit	9.0%	±0.89%
	Don't know	1.8%	±0.41%

<i>Question</i>	<i>Responses</i>	<i>Percentage of Respondents</i>	<i>Confidence Intervals (95%)</i>
Q54	Insurance Executive		
	1 - No Benefit	3.5%	±0.57%
	2	12.6%	±1.03%
	3	31.0%	±1.43%
	4	32.0%	±1.45%
	5 - a Great Benefit	19.0%	±1.22%
	Don't know	1.9%	±0.42%
Q56	Certified Public Accountant (CPA)		
	1 - No Benefit	13.9%	±1.07%
	2	34.2%	±1.47%
	3	33.2%	±1.46%
	4	11.3%	±0.98%
	5 - a Great Benefit	4.3%	±0.63%
	Don't know	3.1%	±0.54%
Q58	Mechanic		
	1 - No Benefit	19.5%	±1.23%
	2	39.0%	±1.51%
	3	28.0%	±1.39%
	4	7.7%	±0.83%
	5 - a Great Benefit	3.5%	±0.57%
	Don't know	2.3%	±0.46%
Q60	Real Estate Broker		
	1 - No Benefit	1.4%	±0.36%
	2	7.2%	±0.80%
	3	20.6%	±1.25%
	4	34.9%	±1.48%
	5 - a Great Benefit	35.2%	±1.48%
	Don't know	0.7%	±0.26%

<i>Question</i>	<i>Responses</i>	<i>Percentage of Respondents</i>	<i>Confidence Intervals (95%)</i>
Q62-74	How much might each of the following government agencies benefit from employing people with geographic knowledge and skills?		
Q62	U.S. Department of State		
	1 - No Benefit	0.3%	±0.17%
	2	0.9%	±0.29%
	3	4.4%	±0.64%
	4	13.2%	±1.05%
	5 - a Great Benefit	79.4%	±1.25%
	Don't know	1.8%	±0.41%
Q64	U.S. Geological Survey		
	1 - No Benefit	0.1%	±0.10%
	2	0.2%	±0.14%
	3	0.9%	±0.29%
	4	4.1%	±0.61%
	5 - a Great Benefit	94.2%	±0.72%
	Don't know	0.5%	±0.22%
Q66	U.S. Bureau of the Census		
	1 - No Benefit	0.4%	±0.20%
	2	1.4%	±0.36%
	3	5.7%	±0.72%
	4	17.4%	±1.17%
	5 - a Great Benefit	74.3%	±1.35%
	Don't know	0.8%	±0.28%
Q68	State Highway Departments		
	1 - No Benefit	0.2%	±0.14%
	2	0.7%	±0.26%
	3	4.8%	±0.66%
	4	18.9%	±1.21%
	5 - a Great Benefit	74.7%	±1.35%
	Don't know	0.7%	±0.26%
Q70	City or County Planning Departments		
	1 - No Benefit	0.2%	±0.14%
	2	1.2%	±0.34%
	3	5.6%	±0.71%
	4	19.6%	±1.23%
	5 - a Great Benefit	72.8%	±1.38%
	Don't know	0.6%	±0.24%

<i>Question</i>	<i>Responses</i>	<i>Percentage of Respondents</i>	<i>Confidence Intervals (95%)</i>
Q72	Internal Revenue Service		
	1 - No Benefit	6.0%	±0.74%
	2	15.0%	±1.11%
	3	30.5%	±1.43%
	4	25.3%	±1.35%
	5 - a Great Benefit	19.4%	±1.23%
	Don't know	3.7%	±0.58%
Q74	Securities and Exchange Commission		
	1 - No Benefit	6.9%	±0.79%
	2	15.6%	±1.12%
	3	26.7%	±1.37%
	4	23.2%	±1.31%
	5 - a Great Benefit	20.8%	±1.26%
	Don't know	6.7%	±0.77%
Q76-79	Here are some reasons why people use maps. Please indicate whether or not you yourself have used a map this way in the past year.		
Q76	Locating places and navigating to them?		
	Yes	98.8%	±0.34%
	No	1.2%	±0.34%
Q77	Understanding local issues, such as zoning or utilities and services?		
	Yes	68.5%	±1.44%
	No	31.5%	±1.44%
Q78	Understanding national or world events?		
	Yes	96.3%	±0.58%
	No	6.4%	±0.76%
Q79	Understanding environmental issues?		
	Yes	82.3%	±1.18%
	No	17.7%	±1.18%

<i>Question</i>	<i>Responses</i>	<i>Percentage of Respondents</i>	<i>Confidence Intervals (95%)</i>
Q80	On a printed map, with North at the top of the page, on which axis does longitude increase and decrease?		
	Vertical	56.0%	±1.54%
	Horizontal	44.0%	±1.54%
Q81-82	Would either of the following types of maps be appropriate to use, if you wanted to compare the land areas of Russia and Kenya?		
Q81	Conformal projection?		
	Yes	32.3%	±1.45%
	No	12.9%	±1.04%
	Don't know	54.8%	±1.54%
Q82	Mercator projection?		
	Yes	19.9%	±1.24%
	No	34.8%	±1.48%
	Don't know	45.3%	±1.54%
Q83	If you wanted to map the whole earth on a single sheet of paper, which map scale would you prefer to use?		
	1:5,000	14.7%	±1.10%
	1:50,000,000	55.4%	±1.54%
	Don't know	30.0%	±1.42%
Q84	What is the flattest (least hilly) state in the United States?		
	Alabama	0.2%	±0.14%
	Alaska	0.1%	±0.10%
	Arizona	0.6%	±0.24%
	Arkansas	0.1%	±0.10%
	California	0.1%	±0.10%
	Colorado	0.2%	±0.14%
	Connecticut	0.0%	±0.05%
	Delaware	2.2%	±0.45%
	Florida	23.3%	±1.31%
	Georgia	0.1%	±0.10%
	Hawaii	0.1%	±0.10%
	Idaho	0.4%	±0.20%
	Illinois	1.3%	±0.35%
	Indiana	0.8%	±0.28%

<i>Question</i>	<i>Responses</i>	<i>Percentage of Respondents</i>	<i>Confidence Intervals (95%)</i>
	Iowa	6.2%	±0.75%
	Kansas	32.5%	±1.45%
	Kentucky	0.2%	±0.14%
	Louisiana	3.8%	±0.59%
	Maine	0.1%	±0.10%
	Maryland	0.0%	±0.05%
	Massachusetts	0.0%	±0.00%
	Michigan	0.1%	±0.10%
	Minnesota	0.2%	±0.14%
	Mississippi	0.3%	±0.17%
	Missouri	0.3%	±0.17%
	Montana	0.6%	±0.24%
	Nebraska	7.9%	±0.84%
	Nevada	1.0%	±0.31%
	New Hampshire	0.1%	±0.10%
	New Jersey	0.2%	±0.14%
	New Mexico	0.2%	±0.14%
	New York	0.0%	±0.05%
	North Carolina	0.0%	±0.05%
	North Dakota	2.6%	±0.49%
	Ohio	0.4%	±0.20%
	Oklahoma	3.4%	±0.56%
	Oregon	0.1%	±0.10%
	Pennsylvania	0.1%	±0.10%
	Rhode Island	1.2%	±0.34%
	South Carolina	0.0%	±0.05%
	South Dakota	0.6%	±0.24%
	Tennessee	0.1%	±0.10%
	Texas	2.1%	±0.44%
	Utah	0.1%	±0.10%
	Vermont	0.0%	±0.00%
	Virginia	0.0%	±0.00%
	Washington	0.0%	±0.05%
	West Virginia	0.0%	±0.00%
	Wisconsin	0.1%	±0.10%
	Wyoming	0.4%	±0.20%
	Don't know	6.0%	±0.74%

<i>Question</i>	<i>Responses</i>	<i>Percentage of Respondents</i>	<i>Confidence Intervals (95%)</i>
Q85	Which world region is the poorest (in dollars per person) on Earth?		
	North America	0.0%	±0.05%
	Latin America	1.8%	±0.41%
	Europe	0.0%	±0.05%
	Russia and its Neighbors	0.4%	±0.20%
	East Asia	1.0%	±0.31%
	Southeast Asia	4.6%	±0.65%
	South Asia	3.6%	±0.58%
	Southwest Asia (Middle East)	0.7%	±0.26%
	North Africa	9.4%	±0.90%
	Africa South of the Sahara	67.7%	±1.45%
	Australia	0.0%	±0.05%
	Antarctica	1.6%	±0.39%
	Oceania	1.1%	±0.32%
	Don't know	7.9%	±0.84%
Q86	Have you ever participated in a debate or expressed an opinion about some neighborhood issue (school districting for instance) or project (new highway, energy facility, or prison for instance) in which you knew at the time that the geographic location was crucial?		
	Yes	52.2%	±1.55%
	No	47.8%	±1.55%
Q87	Do you sometimes think about issues or projects elsewhere in your state or region in which you know that the geographic location is crucial?		
	Yes	82.5%	±1.18%
	No	17.5%	±1.18%



<i>Question</i>	<i>Responses</i>	<i>Percentage of Respondents</i>	<i>Confidence Intervals (95%)</i>
Q88-90	How important do you think it is for you yourself to:		
Q88	Know where in the world your food/water/clothing/building materials come from and how they get to you?		
	1 - Very Important	50.6%	±1.55%
	2	24.1%	±1.33%
	3	14.6%	±1.09%
	4	8.0%	±0.84%
	5 - Not at all Important	2.5%	±0.48%
	Don't know	0.2%	±0.14%
Q90	Understand how, why, and where natural disasters generally occur?		
	1 - Very Important	54.2%	±1.54%
	2	23.9%	±1.32%
	3	11.4%	±0.98%
	4	6.6%	±0.77%
	5 - Not at all Important	3.7%	±0.58%
	Don't know	0.2%	±0.14%
Q92	With regard to political debates about climate change, terrorism, and foreign policy, how often do you care about and try to understand how geographical factors influence such events?		
	All the time	45.5%	±1.54%
	Sometimes	46.0%	±1.54%
	Not very often	7.3%	±0.81%
	Never	1.2%	±0.34%
Q93	When you think about current unrest in the Middle East, how well informed do you consider yourself on major geographic factors such as culture, religion, language, economics, transportation, natural resources, climate, and terrain?		
	Very well informed	10.2%	±0.94%
	Well informed	26.3%	±1.36%
	Somewhat well informed	45.0%	±1.54%
	Not well informed at all	17.7%	±1.18%
	I don't think/know about current unrest in the Middle East	0.8%	±0.28%

<i>Question</i>	<i>Responses</i>	<i>Percentage of Respondents</i>	<i>Confidence Intervals (95%)</i>
Q94	Have you ever used a spatial statistic or quantitative model to solve a problem involving two or more geographic distributions?		
	Yes	32.0%	±1.45%
	No	53.3%	±1.55%
	Don't know	14.8%	±1.10%
Q95-96	Thinking about the word "globalization," are the following examples of globalization?		
Q95	A Hindu temple in Tennessee		
	Yes	75.6%	±1.33%
	No	17.1%	±1.17%
	Don't know	7.3%	±0.81%
Q96	A McDonald's restaurant in Cairo		
	Yes	91.9%	±0.85%
	No	3.8%	±0.59%
	Don't know	4.4%	±0.64%
Q97-98	When you think about faraway places, how often do you ask yourself:		
Q97	"How does what they do affect me?"		
	Always	10.2%	±0.94%
	Very often	34.8%	±1.48%
	Sometimes	48.5%	±1.55%
	Not at all	6.1%	±0.74%
	Don't know	0.5%	±0.22%
Q98	"How does what I do affect them?"		
	Always	9.2%	±0.90%
	Very often	28.2%	±1.39%
	Sometimes	51.0%	±1.55%
	Not at all	11.1%	±0.97%
	Don't know	0.4%	±0.20%

<i>Question</i>	<i>Responses</i>	<i>Percentage of Respondents</i>	<i>Confidence Intervals (95%)</i>
Q99	Based on your present understanding of what geography is, how often do you use geography in your job or everyday life?		
	Never	2.8%	±0.51%
	Some days	32.9%	±1.46%
	Most days	25.8%	±1.36%
	Every day	37.6%	±1.50%
	Don't know	0.9%	±0.29%
Q100	Based on your present understanding of what geography is, do you believe that you, yourself, think geographically?		
	No, not at all	4.1%	±0.61%
	Yes, a little	41.3%	±1.53%
	Yes, a lot	53.9%	±1.54%
	Don't know	0.8%	±0.28%
Q101	In retrospect, do you wish you had received more geographic training and education in your own school curriculum?		
	No, not at all	9.4%	±0.90%
	Yes, a little	41.1%	±1.52%
	Yes, a lot	47.5%	±1.55%
	Don't know	1.9%	±0.42%
Q102	Would you like for your children (or the next generation in general) to receive more training in technical aspects of geography, such as GIS and GPS?		
	No, not at all	1.8%	±0.41%
	Yes, a little	31.7%	±1.44%
	Yes, a lot	64.5%	±1.48%
	Don't know	2.0%	±0.43%
Q103	Would you like for your children (or the next generation in general) to receive more education in geography itself?		
	No, not at all	0.9%	±0.29%
	Yes, a little	20.9%	±1.26%
	Yes, a lot	77.1%	±1.30%
	Don't know	1.0%	±0.31%