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COMMENTARY

What Do We Mean by 'Reading' Maps?

By Phil Gersmehl

There are (at least) two ways to read a paragraph.

One way is to conceive of text as a repository of factual information. For example, if you want the date of an event, you can scan for a plausible four-digit number and write it down, confident that you have found “the answer.”

Try it. Here is a reading, and your challenge: In what year did Columbus sail across the Atlantic?

The Treaty of Granada ended nearly eight centuries of Muslim control of the Iberian Peninsula. After the treaty was signed, the Ottoman sultan recalled the fleet of Kemal Reis, ending the raids on Spanish coastal cities. This, in turn, allowed King Ferdinand and Queen Isabella to consider redeploying ships and soldiers formerly needed to defend coastal ports. It is no coincidence, therefore, that in 1492, shortly after the surrender of the last Muslim stronghold in Spain, they finally agreed to support the expedition proposed by Columbus.

A visual search for a date in this paragraph is easy and fast. There is, however, another way to read the paragraph, namely as an explanation of a causal relationship between geopolitical conditions and trans-Atlantic exploration. This requires the kind of “close reading” emphasized in the Common Core State Standards.

This dual view of reading exposes a serious issue with the common core. With its focus on language arts, its treatment of text is rightly expansive, requiring both simple and sophisticated reading. Its description of communication through charts, graphs, and maps, however, is ambiguous. Try to decide whether these statements from the common core’s English/language arts standards describe a simple (just-the-facts) or close reading of maps:

- Use information gained from illustrations (e.g., maps, photographs) and the words in a text to demonstrate understanding of the text (e.g., where, when, why, and how key events occur). (3rd grade)
- Interpret information presented visually, orally, or quantitatively (e.g., in charts, graphs, diagrams, ...); and explain how the information contributes to an understanding of the text in which it appears. (4th grade)
- Integrate visual information (e.g., in charts, graphs, photographs, videos, or maps) with other information in print and digital texts. (6th-8th grades)
- Integrate quantitative or technical analysis (e.g., charts, research data) with qualitative analysis in print or digital text. (9th-10th grades)

35 • Translate quantitative or technical information expressed in words in a text into visual form (e.g., a
36 table or chart). (9th-10th grades)

37 • In addition, the standards say that “historical, scientific, and technical texts” for grades K-5 should
38 include “biographies and autobiographies; books about history, social studies, science, and the arts;
39 technical texts, including directions, forms, and information displayed in graphs, charts, or maps.”

40 **"Will [the standards] focus on equipping students to obtain and organize concepts about relationships
41 as well as factual information from a variety of media?"**

42 The bullet points above represent all uses of “map” and “chart” in the common-core English/language
43 arts standards. The persistent ambiguity of the wording leaves the door open for either a restrictive or
44 an expansive view of the process of “reading” maps: Is a map simply a repository of factual information
45 about places, or is it a structured means of communicating ideas about spatial relationships?

46 In at least some cases, the use of maps in state assessments is not reassuring. Consider these examples
47 from recent New York regents’ exams in 5th grade and 8th grade global history and geography: [Based
48 on the map] Which product is grown in every Central American country except Belize?

49 (A.) Coffee (B.) Cotton (C.) Bananas (D.) Sugar

50 According to this map, New York was part of which group of the 13 colonies:

51 (A.) New England colonies (B.) Middle Atlantic colonies (C.) Southern colonies

52 What conclusion is supported by the information on this map?

53 (A.) Russia is dependent on imported oil. (B.) The United States exports little or no oil. (C.) South
54 America exports more oil than Africa. (D.) Most of the oil from the Middle East goes to Japan.

55 This information is important, but obtaining it is the equivalent of searching a paragraph to find a date.
56 The overwhelming majority of questions in assessments like the one above focus on facts obtained by
57 decoding colors and symbols. The message of a map, however, is not just the meaning and location of
58 individual symbols, but also their spatial relationships—the distances, directions, and topological
59 relationships among features.

60 The irony is that recent neuroscience research has shed much light on the complexity of information-
61 processing in the human brain. Rather than a single linear path toward “meaning,” the brain appears to
62 have multiple, somewhat independent, and often parallel ways of making sense out of visual and other
63 sensory input. In this view, there is no such thing as “a” spatial “intelligence.” On the contrary, the
64 brains of expert map readers seem to have multiple and somewhat independent ways of analyzing a
65 map—interpreting proximity, enclosure, position in spatial sequences, spatial associations with other
66 features, and spatial analogies with other places. As with any form of expertise, it is often difficult for
67 experts to explain to novices exactly what they do to perceive and organize information from a map. As
68 a result, the process of gaining expertise can be slow and tortuous.

69 Map reading, however, is not just hard to teach; it is also important. Make a list of major issues in the
70 world today—issues such as unemployment, racial or gender discrimination, deforestation, political
71 polarization, terrorism, or climate change. Each of these issues has causes operating in some places and

72 effects felt in other places, and those places are often connected in ways that demand a sophisticated
73 spatial understanding to comprehend.

74 Failure to understand the spatial facets of issues leads to the policy nightmare encapsulated in the
75 bumper sticker of the geographically ignorant: "It works for them, where they are, so it ought to work
76 for us, here." That ignorance can lead to one-size-fits-all policies that are appropriate in some places,
77 but irrelevant or even counterproductive in others. In short, there is citizenship value in helping students
78 learn how to acquire meaning as well as factual information from all modes of communication. The
79 challenge, therefore, is to ensure that assessments developed for the common core actually require
80 "close reading" of graphs, maps, and diagrams as well as text.

81 In that context, I suggest that a literal reading of the standards could support a restrictive view of maps
82 and charts as mere repositories of factual information. The first examples of assessments, therefore, will
83 be very important as models, as guides about what should be taught. Will they focus on equipping
84 students to obtain and organize concepts about relationships as well as factual information from a
85 variety of media? Or will schools cripple students by adopting an expansive view of written text as
86 something that requires close reading, while maintaining a restrictive view of graphics as factual
87 storehouses?

88 Expertise does not necessarily transfer to other domains. Indeed, expertise in text reading can actually
89 make us less able to appreciate (or perhaps even conceive of) the way maps, graphs, and charts can
90 communicate ideas that are difficult to express in words. It would be sad, indeed, if only one kind of
91 expertise would be used to design assessments and determine whether curricular materials align with
92 the common core.

Phil Gersmehl is a visiting research professor with the Michigan Geographic Alliance at Central Michigan University, in Mount Pleasant. He is the author of Teaching Geography, which has a third edition scheduled for publication in 2014, from the Guilford Press. He is also the director or co-director of several international curriculum projects, with partners in Russia, South Korea, Japan, Canada, and Brazil, and funding from the Corporation for Public Broadcasting, the National Science Foundation, the Japan-America Foundation, the Fund for Improvement of Postsecondary Education, NASA, and other sources.