



## 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)
- Translate quantitative or technical information expressed in words in a text into visual form (e.g., a table or chart). (9th-10th grades)
- In addition, the standards say that “historical, scientific, and technical texts” for grades K-5 should include “biographies and autobiographies; books about history, social studies, science, and the arts; technical texts, including directions, forms, and information displayed in graphs, charts, or maps.”

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

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

In at least some cases, the use of maps in state assessments is not reassuring. Consider these examples from recent New York regents’ exams in 5th grade and 8th grade global history and geography:

[Based on the map] Which product is grown in every Central American country except Belize?

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

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

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

What conclusion is supported by the information on this map?

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

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

The irony is that recent neuroscience research has shed much light on the complexity of information-processing in the human brain. Rather than a single linear path toward “meaning,” the brain appears to have multiple, somewhat independent, and often parallel

ways of making sense out of visual and other sensory input. In this view, there is no such thing as “a” spatial “intelligence.” On the contrary, the brains of expert map readers seem to have multiple and somewhat independent ways of analyzing a map—interpreting proximity, enclosure, position in spatial sequences, spatial associations with other features, and spatial analogies with other places. As with any form of expertise, it is often difficult for experts to explain to novices exactly what they do to perceive and organize information from a map. As a result, the process of gaining expertise can be slow and tortuous. Map reading, however, is not just hard to teach; it is also important. Make a list of major issues in the world today—issues such as unemployment, racial or gender discrimination, deforestation, political polarization, terrorism, or climate change. Each of these issues has causes operating in some places and effects felt in other places, and those places are often connected in ways that demand a sophisticated spatial understanding to comprehend.

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

In that context, I suggest that a literal reading of the standards could support a restrictive view of maps and charts as mere repositories of factual information. The first examples of assessments, therefore, will be very important as models, as guides about what should be taught. Will they focus on equipping students to obtain and organize concepts about relationships as well as factual information from a variety of media? Or will schools cripple students by adopting an expansive view of written text as something that requires close reading, while maintaining a restrictive view of graphics as factual storehouses? Expertise does not necessarily transfer to other domains. Indeed, expertise in text reading can actually make us less able to appreciate (or perhaps even conceive of) the way maps, graphs, and charts can communicate ideas that are difficult to express in words. It would be sad, indeed, if only one kind of expertise would be used to design assessments and determine whether curricular materials align with the common core.

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