

A Compendium of Research on the Common Core State Standards:

Comparison of CCSS Content to Wide-Scale Assessments

Center on Education Policy
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About This Compendium

In the spring and fall of 2013, the Center on Education Policy (CEP) convened two meetings of researchers, policymakers, and practitioners to discuss ideas for a more relevant and coordinated research agenda on the Common Core State Standards. Participants in these meetings identified several needs and made a number of thoughtful suggestions. Many agreed there was a need for a synthesis of existing research on the CCSS and their implementation and impact.

To help meet this need, CEP has put together this compendium, which very briefly summarizes the published research on many different aspects of the CCSS. Our objective was to create an accessible and readable overview of current research that can inform implementation, policy discussions, and the development of future research on the Common Core. Therefore, we have intentionally limited the description for each study to one page that summarizes its focus, methodology, and key findings and includes a URL, where available, or a citation. The compendium is designed to be a living document and will be updated on a rolling basis—this is the second iteration.

Criteria for Including Studies

Although the compendium includes peer-reviewed research published in academic journals and similar outlets, it is not limited to these types of studies. Also included are studies published by government entities, independent organizations, research universities, and individual researchers and graduate students that provide useful information to practitioners, policymakers, and scholars.

To be included in the compendium, each study had to contain the following components:

- An articulated methodology for data collection and analysis so that others could see how the research was conducted
- An empirical approach (derived from observation or experience)
- A specific focus on the CCSS in math or English (research focused on other education issues that have implications for the CCSS was not included)

- A publication date before December 2014, our cutoff for collecting information for the compendium

We recognize that some important research with a bearing on the CCSS may have been omitted, but we wanted to set clear criteria that would yield a manageable number of the most relevant studies. In addition, the studies that are included are complex; to keep the individual summaries concise and practical, we limited the discussion to a few priority areas. We do not purport to have produced a comprehensive summary of all possible research on the CCSS, but we think this is a good starting point. The compendium was first issued in August 2014. This February 2015 update adds new studies to the compendium that were published after May 2015 and other Common Core research that has come to our attention. If you know about research on the CCSS that should be considered for inclusion in an update, please notify us at CEP by email at cep-dc@cep-dc.org.

Verification of Information

Since these are one-page summaries of longer studies that required us to prioritize the information to be included, we felt it was important to contact each study's author (or the lead author for studies with multiple authors). The authors were contacted by email and asked to provide feedback on the summary of their report.

The compendium includes studies from 55 different authors, including reports from CEP. Of the 55 authors contacted to review our summary, 40 responded, for a response rate of 73%. If a respondent made changes or suggestions to the content of our summary, their comments were considered and incorporated into the original draft (in some cases with minor editing).

We are most grateful to the authors who reviewed and verified the summaries for their studies.

How to Use the Compendium

Studies are categorized by topic then presented alphabetically by author within each topic. Studies that fit into multiple categories have been placed in both categories, so there is some duplication. For an alphabetical list of research studies by author and their assigned categories, please see Appendix A.

Please note the information on the studies contained in this compendium does not reflect all of the findings or topics included in a particular study but rather provides is a very brief overview. For example, we have not included a discussion of the limitations addressed in each study report. If you find the summary of a study compelling, we strongly encourage you to use the URL provided to read the study in its entirety.

Brown Center on Education Policy (2014)

How Well Are American Students Learning: A Progress Report on the Common Core

Focus

The purpose of this study was to assess the accuracy of the projection by William Schmidt and Richard Houang (see Schmidt and Houang, 2012) that those states with mathematics standards that were more congruent to the Common Core State Standards in math (CCSS-M) would have higher achievement on the National Assessment of Education Progress (NAEP) in math. The research also attempted to further Schmidt and Houang's study by assessing the relationship between a state's level of CCSS implementation and their NAEP gains between 2009 and 2013.

Methodology

Using the congruency rating created by Schmidt and Houang, researchers analyzed trends in achievement on the NAEP 8th grade math assessments for 2009, 2011, and 2013. In a second-step analysis, researchers utilized a 2011 study by the U.S. Department of Education that included a question to states about their stage of CCSS implementation; if a state's implementation status had changed after the 2011 study, researchers accounted for the change.

Key Findings

- **Overall, no clear trends emerged in student achievement.** States whose previous standards had the highest level of congruence to the CCSS-M (Level 5) did not have the largest gains; rather, states whose standards had the lowest level of congruence (Level 1) had the largest gains. However, there was no clear relationship between NAEP score and level of congruence.
- **When states are identified by Group A and Group B¹ (following Schmidt and Houang's research), Group B states made larger gains than Group A states.** The author notes that this result "may indicate regression to the mean." In other words, the states in Group B already had an average NAEP score that was 14.67 points below Group A's average and therefore were in the best position to increase achievement.
- **States with the strongest implementation of the CCSS had the highest achievement gains on NAEP between 2009 and 2013.** During the same time span, states with a medium level of implementation had the next highest gains, and states that did not adopt the CCSS had the smallest gains.

Where to Obtain This Report

<http://www.brookings.edu/research/reports/2014/03/18-common-core-loveless>

¹ Group A consists of 37 states that scored higher on the 2009 NAEP assessment. Group B included 13 states with standards that were above average in congruence to the CCSS-M but with a below average score on the NAEP.

National Center for Educational Statistics (2013a)

The National Assessment of Educational Progress and the Common Core State Standards: A Study of the Alignment between the NAEP Mathematics Framework and the Common Core State Standards for Mathematics

Focus

The purpose of this study was to assess which clusters and standards of the Common Core State Standards in mathematics (CCSS-M) are represented in the National Assessment of Educational Progress (NAEP) subtopics and objectives.

Methodology

A panel of experts in mathematics examined representation and alignment between the CCSS-M clusters and standards in grades 3 and 4 and the NAEP Framework's subtopics and objectives for grade 4. They also did the same type of comparison for the CCSS-M in grades 7 and 8 and NAEP in grade 8. Researchers used two criteria for determining the degree of alignment: the extent of content coverage and the grade level at which the content was covered.

Key Findings

- **Overall, the CCSS-M for grades 3 and 4 are represented in the NAEP Framework for grade 4.** However, there are differences between the clusters/standards and the subtopics/objectives in levels of specificity and conceptual understanding.
- **The NAEP Framework for grade 4 was generally well matched with the CCSS-M.** The grade 4 topics tested under NAEP that are least aligned to the CCSS-M include Data Analysis, Statistics, and Probability.
- **The CCSS-M for grades 7 and 8 are represented in the NAEP Framework for grade 8.** Like the first finding, there are key differences between the CCSS-M clusters/standards and the NAEP subtopics/objectives in levels of specificity and conceptual understanding.
- **All content areas in the NAEP Framework for grade 8 were covered in the CCSS-M.**

Where to Obtain This Report

http://www.air.org/sites/default/files/downloads/report/NAEP_Validity_Studies_combined_report_updated_9-19-13_0.pdf

National Center for Educational Statistics (2013b)

The National Assessment of Educational Progress and the Common Core State Standards: A Study of National Assessment for Educational Progress Reading and Writing Frameworks and Assessments in Relation to the Common Core State Standards in English Language Arts

Focus

The purpose of this study was to evaluate the alignment between the CCSS-ELA and the reading and writing frameworks and test items of NAEP. The goal was to evaluate whether NAEP can continue to serve as an independent monitor of student achievement following the implementation of the CCSS-ELA.

Methodology

Panels of experts in reading and writing compared a) NAEP reading and writing Frameworks to CCSS-ELA documents (i.e. standards and exemplars); b) NAEP reading passages, writing prompts, scoring guides, and anchor papers to the CCSS-ELA documents; and c) NAEP reading items/writing prompts to CCSS-ELA anchor/grade level standards at grades 4, 8, and 12.

Key Findings

Overall

- **NAEP should retain its independence from any specific curriculum, including CCSS-ELA.** With attention to specific issues identified in the report and a systematic program of special studies, NAEP could continue to serve as an independent monitor of student achievement in the U.S.

Reading

- **Many aspects of NAEP are consistent with the conceptualization of reading found in CCSS-ELA.**
- **NAEP reading selections for grades 4 and 8 are aligned with the CCSS-ELA recommendations regarding text.** At grade 12, NAEP texts are generally less complex and discipline-focused than CCSS-ELA recommendations. NAEP does not currently include digital texts called for by CCSS-ELA.
- **CCSS-ELA places more emphasis than NAEP does on building knowledge from reading discipline-specific texts.** NAEP uses informational texts across disciplines, stressing general comprehension.
- **CCSS-ELA takes a broader perspective on vocabulary than NAEP.** The CCSS-ELA emphasizes word meaning in the context of reading passages and does not address discipline-specific vocabulary.

Writing

- **CCSS-ELA and NAEP address the same domains of writing and emphasize the same characteristics of effective writing.** The domains include development of ideas, organization, language facility, and conventions.
- **CCSS-ELA emphasizes writing about reading and writing based on research; NAEP does not.**
- **CCSS-ELA addresses the special skills and domain-specific vocabulary associated with writing in the disciplines, while NAEP does not.**
- **CCSS-ELA expects college- and career-ready students to strategically use technology and digital media.** NAEP limits the role of technology to students' use of computers to compose and edit.

Where to Obtain This Report

http://www.air.org/sites/default/files/downloads/report/NAEP_Validity_Studies_combined_report_updated_9-19-13_0.pdf

Schmidt, W. & Houang, R. (2012)

Curricular Coherence and the Common Core State Standards for Mathematics

Focus

The purpose of this study was to assess if the Common Core State Standards in mathematics (CCSS-M) have the focus and coherence² that are characteristic of curricular standards in countries that were high-achieving on the Third International Mathematics and Science Study (TIMSS). Also, researchers analyzed the alignment of previous state standards to the CCSS-M to predict future achievement on NAEP.

Methodology

Researchers analyzed the focus and coherence of the CCSS-M. Next they compared the congruence³ and focus of the CCSS-M and of the previous state standards for school year 2008-09 with that of the math standards of high-scoring countries on TIMSS (A+ standards). They also examined the relationship between a) the congruence of previous state standards to the CCSS-M and b) states' performance on the 2009 NAEP in grade 8 math.

Key Findings

- **The CCSS-M are coherent and focused.** The CCSS-M are “very consistent with the international benchmark” (A+ standards) and can be characterized as “world-class standards.”
- **State standards varied in their focus and congruence to the CCSS-M.** The states whose math standards had the greatest congruence to the CCSS-M included AL, CA, FL, GA, and IN; the states with the least congruence included AZ, IA, KS, KY, and LA.
- **States whose standards had the greatest amount of congruence to the CCSS-M had higher predicted achievement on the NAEP.** This analysis was conducted by separating the states into two groups. Group B included 13 states with standards of above average congruence to the CCSS-M but below average scores on NAEP; Group A included all other states.
- **The degree of implementation of standards is an important factor when analyzing the relationship between the state standards and student achievement.**

Where to Obtain This Report

<http://edr.sagepub.com/content/41/8/294.full.pdf+html?ijkey=Ci4h9RZMnVAuE&keytype=ref&siteid=spedr>

² “Focus” is defined in TIMSS as the number of topics covered at each grade that was also aggregated over the first eight grades. The fewer total topics that are covered in grades 1 through 8, the more focused the standards are. “Coherence” is defined by as a logical and sequential progression of topics over time that reflects, when appropriate, the natural hierarchy of a subject or topic.

³ “Congruence” is the product of five indicators that signified a deviation from the CCSS-M: 1) a topic was introduced earlier; 2) the number of times a topic was covered in a different grade level; 3) a topic was not covered in the grade level intended by the CCSS-M; 4) a topic was introduced later; and 5) a topic had a break in coverage between grades.

Credits and Acknowledgements

Studies included in this compendium were compiled and summarized by Matthew Frizzell, CEP research associate and Tara Dunderdale, CEP graduate research assistant. Nanami Yoshioka, CEP graduate research assistant, checked the summaries for accuracy. Diane Stark Rentner, deputy director, Jennifer McMurrer, senior research associate, and Nancy Kober, editorial consultant, reviewed and edited the compendium. Maria Ferguson, CEP's executive director, provided advice and assistance on the compendium's content.

We are tremendously grateful to the authors of the original studies who took time to review and respond to the summaries. Thank you for providing critical feedback and helping us ensure that we are accurately reflecting the content of your research.

Based in Washington, D.C., at The George Washington University's Graduate School of Education and Human Development and founded in January 1995 by Jack Jennings, the Center on Education Policy is a national independent advocate for public education and for more effective public schools. The Center works to help Americans better understand the role of public education in a democracy and the need to improve the academic quality of public schools. We do not represent any special interests. Instead, we help citizens make sense of the conflicting opinions and perceptions about public education and create the conditions that will lead to better public schools.

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