

A Compendium of Research on the Common Core State Standards: Teacher Preparation

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.

Center for the Future of Teaching and Learning at WestEd (2012)

CenterView: Willing But Not Yet Ready: A Glimpse of California Teachers' Preparedness for the Common Core State Standards

Focus

The purpose of this study was to determine if teachers in California were prepared to teach the Common Core State Standards.

Methodology

Researchers brought together six focus groups that included teachers from Sacramento, San Francisco, and San Diego. The focus groups were designed to represent elementary school teachers with fewer than 10 years of classroom experience and elementary school teachers with more than 10 years of classroom experience, as well as middle and high school teachers of mathematics, science, history/social studies, and English language arts.

Key Findings

- **Participants were not very familiar with the CCSS.** Once the teachers received a brief description of the CCSS, they expressed appreciation for the standards' focus on critical thinking, real world relevance, and consistency of the standards across grades. The most skeptical participants were elementary school teachers with more than 10 years of classroom experience, who were unsure of the lasting power of the new standards.
- **While generally enthusiastic about the standards, teachers did express some concerns.** When talking about the transition from the previous California standards to the CCSS, teachers talked about the need for greater autonomy in teaching, increased interdisciplinary readings, progressively complex texts, and an emphasis on the reading process over content. Science teachers specifically cited concerns about losing time for hands-on activities as the CCSS shift the focus of instruction toward reading and understanding informational texts.
- **Middle and high school mathematics and science teachers said they would need additional training.** Specifically, mathematics teachers said they have never been taught math in the manner required by the CCSS, had never taught in the manner required by the CCSS, and were unsure how to teach in that way.
- **Elementary school teachers with less than 10 years of classroom experience wanted guidance in the early stages of implementation.** Teachers in this group wanted to make sure that they were on the right track when transitioning from the previous California standards to the CCSS. Elementary school teachers with more than 10 years of classroom experience said they were prepared and agreed that less experienced elementary school teachers would need guidance. Middle and high school math teachers expressed the view that all elementary school teachers would need guidance because students taught under the previous standards were entering middle and high school unprepared for the rigor of the math curriculum.

Where to Obtain This Report

http://www.wested.org/wp-content/files_mf/139932138032106february12.pdf

Center on Education Policy (2013e)

Year 3 of Implementing the Common Core State Standards: State Education Agencies' Views on Postsecondary Involvement

Focus

The purpose of this study was to report states' strategies, policies, and challenges during the third year of Common Core State Standards implementation. This report focuses on the state education agencies' (SEAs) partnerships with postsecondary education institutions regarding collaboration and partnerships around CCSS initiatives.

Methodology

Researchers sent surveys to state superintendents or their designees in the 46 states that had adopted the CCSS at the time of this study and 40 state administrators responded to the survey. The survey included 43 questions and was used to produce six separate reports.

Key Findings

- **The majority of state education agencies responding to the survey reported that they have forged formal partnerships with postsecondary education officials to implement the CCSS.** Only five states said they have not established any of these types of partnerships.
- **A large majority of the SEAs surveyed said that working with higher education institutions in their state to transition to the CCSS is a major (16 states) or minor (19) challenge.** In addition, 27 respondents indicated that aligning the content of college and university teacher preparation programs with the CCSS was a challenge.
- **Nearly all of the SEA respondents had provided or are preparing to provide briefings on the CCSS for school of education faculty in colleges and universities.** The majority of SEAs also reported they have worked with postsecondary institutions to align the academic content of teacher preparation programs with the CCSS, or are planning to do so.
- **The majority of SEAs surveyed reported that postsecondary institutions have reviewed or will review the CCSS in English language arts and math to determine if mastery of the standards indicates college readiness.** In addition, more than half of the responding SEAs said that postsecondary institutions in their state are considering making decisions about placing students in courses or exempting them from remediation based on their performance on the CCSS-aligned assessments.

Where to Obtain This Report

<http://cep-dc.org/displayDocument.cfm?DocumentID=424>

Consortium for Policy Research in Education (2014)

From the Inside In: An Examination of Common Core Knowledge and Communication in Schools

Focus

This study explored how the dissemination of knowledge and influence of the Common Core Learning Standards¹ (CCLS) may help teachers engage with and influence the implementation of these standards.

Methodology

Using the same sample as a previous CPRE study (see 2013a), researchers selected three schools that were highly engaged in CCLS activities, three that were moderately engaged, and three with low levels of CCLS engagement (one school withdrew). Data was collected through a school faculty survey that focused on faculty's CCLS knowledge, understanding, and implementation of the standards. The analysis was conducted on individual administrators, coaches, and teachers; grade-level teams for elementary school; and subject-matter teams for middle school. When analyzing teams, researchers focused on the number of advice-seeking connections between team members (density), the number of times teachers on a team sought advice from a team member (frequency), and the impact of the given advice (influence).

Key Findings

- **Knowledge of the CCLS varied by subject and position.** School faculty scored higher on CCLS knowledge tests for English language arts (CCLS-ELA) than on CCLS knowledge tests for math (CCLS-M). Administrators and coaches scored higher than classroom teachers did.
 - **Knowledge of the CCLS-ELA was related to seeking resources outside of the school.** This was not true for CCLS-M, however. The people most likely to seek resources outside of the school were administrators and coaches. English teachers in middle schools were also more likely to seek resources outside of the school than the math teachers in those schools.
 - **In elementary and middle schools, team knowledge and communication about the CCLS varied.** Researchers also found little connection between team knowledge and team advice seeking. However, there was a connection between seeking knowledge outside of schools and requests for information. Researchers also found that teachers were able to identify and use sources of knowledge within their school.
- Across the eight schools, 37 out of 456 respondents were more likely than other participants to receive requests for assistance about the CCLS and aligned-assessments.** These people were more likely to have higher knowledge about the CCLS-ELA and the CCLS-M and to seek resources outside the school. Roughly two-thirds of these people were administrators or coaches, and the remaining third were classroom teachers.

Where to Obtain This Report

<http://www.cpre.org/fromtheinsidein>

¹ Some states that adopted the CCSS added up to 15% of state specific content to the standards and/or changed the name of the standards. New York did both, and calls its standards the CCLS.

Graybeal, C. (2013)

Learning to Look for the Standards for Mathematical Practice

Focus

The purpose of this study was to examine how the use of the “Common Core Look-fors” iPad application affected pre-service teachers’ understanding of the Standards for Mathematical Practice (SMP) related to teaching the Common Core State Standards in mathematics (CCSS-M), as well as their ability to identify and collect evidence of students’ engagement with the SMP.

Methodology

Twenty-two pre-service teachers of early education and special education who were enrolled in the same elementary mathematics methods course were provided with an iPad and instructions on how to load and use the “Common Core Look-fors” application. The pre-service teachers used the application in their own class sessions and in their internships at local elementary schools when they implemented four open-ended problems with their students.

Key Findings

- **Pre-service teachers reported that the application helped them to become more knowledgeable about the SMP.** Most respondents, 77%, felt that the application increased their knowledge “some” or “a great deal.”
- **The majority of pre-service teachers said that the application increased their ability to identify instances of student engagement with the CCSS-M SMP.**
- **Less than half of the pre-service teachers felt that the application helped them collect evidence of student engagement with the CCSS-M SMP.** However, because of local policies, 6 of the 22 teachers were not allowed to use the photo or video components of the application, which may account for the percentage.

Where to Obtain This Report

<http://files.eric.ed.gov/fulltext/EJ1015759.pdf>

Michigan State University (2013b)
*Implementing the Common Core State Standards for Mathematics:
What We Know about Teachers of Mathematics in 41 States*

Focus

The purpose of this study was to assess teachers' awareness of the Common Core State Standards in mathematics (CCSS-M) in order to provide information to state, district, and school leaders that would help them implement the CCSS-M.

Methodology

Researchers drew results from a survey of 12,000 mathematics teachers in grades 1 through 12 who worked in states that had adopted the CCSS-M by the spring of 2011. The study was designed to sample teachers that are representative of the state in which they taught. The number of teachers sampled in each state was roughly representative of the state's population.

Key Findings

- **Teacher awareness of the CCSS varied by state.** In at least one state 68% of teachers had heard of the CCSS, but in at least one other state 100% of respondents had heard of the CCSS. The percentage of teachers who had read the CCSS-M for their grade varied similarly among states.
- **After having seen the CCSS-M for their grade, 77% of the math teachers said these standards were “somewhat” or “pretty much” the same as their previous state mathematics standards.** Before the math teachers were presented with the CCSS-M for their grade, a lower percentage (57%) said the two sets of standards were similar.
- **The majority of respondents at all grade levels said their teaching was primarily determined by state standards.** Fewer chose district standards, the adopted textbook, or other options.
- **Surveyed teachers liked the idea of having common standards across states.** The percentage of teachers supporting common standards varied little among states, ranging from 88% to 98%.
- **Most teachers reported that they currently taught topics that were covered by the CCSS-M in their grade level.** When given a list of topics that included a series of grade level topics, two topics above grade level, and two topics below grade level, between 76% and 85% of teachers, depending on grade level, reported teaching the on-grade CCSS topics.
- **Teacher preparedness varied by grade level.** For example, thirty-one percent of 1st grade teachers and 51% of 8th grade teachers reported that they already taught and felt comfortable with grade level CCSS-M content, while 52% of 1st grade teachers and 30% of 8th grade teachers said they already taught grade level CCSS-M content but did *not* feel comfortable with it. Fifteen percent of 1st grade teachers and 20% of 8th grade teachers said they did not teach grade level CCSS-M content.

Where to Obtain This Report

<http://education.msu.edu/epc/publications/documents/WP33ImplementingtheCommonCoreStandardsforMathematicsWhatWeknowaboutTeacherofMathematicsin41S.pdf>

Simpson, A. & Linder, S.M. (2014)

An Examination of Mathematics Professional Development Opportunities in Early Childhood Settings

Focus

The purpose of this study was to examine the pre-service and in-service professional development opportunities for teachers of early childhood education (birth to five) in mathematics.

Methods

This study utilized a multi-phased mixed methods model, conducting surveys and interviews with both providers and recipients of professional development for early childhood mathematics education. The sample of providers included 815 participants and 320 of them completed surveys (a 39% response rate) and researchers conducted 20 follow-up interviews. The sample of recipients included 1,127 survey-responding participants (no response rate provided) and researchers conducted 27 follow-up interviews. To measure alignment to the Common Core State Standards in mathematics, the researchers collected program descriptions, course descriptions and syllabi, and programs of study from 17 two-year and 27 four-year institutions providing degrees in early childhood education for the 2011-2012 academic year.

Key Findings

This study included questions and key findings that are not directly related to the Common Core State Standards. For brevity, only key findings that are directly related to the CCSS or the CCSS-aligned assessments are presented below.

- **Half of the providers interviewed mentioned the CCSS-M as a focus of their professional development.** Of these, only two worked with pre-service educators in a college or university. The majority of these worked with school districts and in-service teachers.
- **Most institutions in the study did not have pre-service courses aligned with the CCSS-M.** Only 3 two-year and 11 four-year institutions had course content that was aligned with the CCSS-M.

Where to Obtain This Report

Simpson, A. & Linder, S. (2014). An examination of mathematics professional development opportunities in early childhood settings. *Early Childhood Education Journal*, 42 (5), pp. 335-342.

Thomas B. Fordham Institute (2012a)

Future Shock: Early Common Core Implementation Lessons from Ohio

Focus

This report looked at Common Core State Standards implementation in Ohio. Some of the general questions that guided the research include: How are Ohio's educators preparing themselves for this big change? Who is doing this work well and what can other schools and districts learn from the early adopters? What are the lessons, hopes, and fears facing those on the frontlines who have to lead Ohio's embrace of significantly more rigorous academic standards?

Methodology

Researchers interviewed a total of five superintendents, one assistant superintendent, two principals, three curriculum specialists, and four teachers from districts throughout the state.

Key Findings

- **Professional development that explicitly explains why the CCSS are essential was underway in Ohio at the time of this study.**
- **Professional development is most effective in small, collaborative learning communities, and ideally occurs peer to peer.**
- **State and district communication with schools and teachers must be consistent.** Researchers found that consistent communication was needed to stress the importance of the CCSS and the significant changes they necessitate.
- **Teachers want concrete tools and resources that help them understand the rigor of the CCSS.** Many of the interviewees commented that there was a lack of good models at the time of the study and that the available materials were not rigorous enough for the CCSS.

Where to Obtain This Report

<http://www.edexcellence.net/publications/future-shock-early-common-core-lessons-from-Ohio-implementers.html>

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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