

# A Compendium of Research on the Common Core State Standards: Content, Curriculum, & Alignment

Center on Education Policy  
Updated February 2015



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**UPDATED FEBRUARY 10, 2015**

## **Center on Education Policy**

Graduate School of Education and Human Development  
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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](mailto: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 8<sup>th</sup> 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 B<sup>1</sup> (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>

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<sup>1</sup> 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.

## Brown Center on Education Policy (2011)

### *How Well are American Students Learning? NAEP and the Common Core State Standards*

#### Focus

The purpose of this study was to determine the degree of alignment between the Common Core State Standards grade-level recommendations and the National Assessment of Education Progress (NAEP) questions for 8<sup>th</sup> grade mathematics.

#### Methodology

Using publicly released NAEP test questions, researchers coded 171 items from the algebra and number strands of the 8<sup>th</sup> grade assessments to the grade in which the CCSS recommend teaching an item.

#### Key Findings

- **Over 90% of the material covered in the NAEP number strand items was below the CCSS-recommended 8<sup>th</sup> grade standard.** However, the researchers note that this doesn't mean the assessment was easy for test takers; the average item was answered correctly only 58.6% of the time.
- **When the NAEP items in the number strand were aligned to the CCSS-recommended grade level, the median grade level for the assessment items was 5<sup>th</sup> grade.** In this study, 37 items were below 5<sup>th</sup> grade, 44 items were above 5<sup>th</sup> grade, and 17 items were at 5<sup>th</sup> grade level. The average grade level was 5.2.
- **When the NAEP items in the algebra strand were aligned to the CCSS-recommended grade level, the median grade level for the assessment items was 6<sup>th</sup> grade.** In this study, 15 items were below 6<sup>th</sup> grade, 31 items were above 6<sup>th</sup> grade, and 27 items were at the 6<sup>th</sup> grade level.

#### Where to Obtain This Report

[http://www.brookings.edu/~media/research/files/reports/2011/1/11%20naep%20loveless/0111\\_naep\\_loveless.pdf](http://www.brookings.edu/~media/research/files/reports/2011/1/11%20naep%20loveless/0111_naep_loveless.pdf)

## Center on Education Policy (2013f)

### *Year 3 of Implementing the Common Core State Standards: Transitioning to CCSS-aligned Curriculum and Assessments for Students with Disabilities*

#### 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 strategies states were using or planned to use to support students with disabilities and their teachers in transitioning from previous state standards and assessments to the CCSS and CCSS-aligned assessments.

#### 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

- **Thirty-three states were providing or planning to provide training and materials to help ensure that Individualized Education Programs (IEP) for students with disabilities are aligned to the CCSS.**
- **In 37 states, officials reported facing challenges with providing professional development to help teachers align instruction for students with disabilities to the CCSS.** No state official said that providing this type of professional development was not a challenge.
- **Most survey states that currently administer alternate assessments based on modified standards to some students with disabilities had begun implementing plans to transition these students to new CCSS-aligned exams.** In particular, 7 of the 11 survey states that assess students based on modified standards have already begun implementing plans for this transition, while 3 states intended to start implementing their plans in school year 2013-14 or later.
- **Survey states were taking various actions to help districts, schools, and teachers prepare students with disabilities for the transition from assessments based on modified standards to new CCSS-aligned assessments.** Nine of the 11 survey states that assess students based on modified standards reported taking one or more of the following actions to help with this transition: revising or creating guidelines to help IEP teams determine assessment options and accommodations for students with disabilities, revising or creating professional development and other supports for teachers, and analyzing the characteristics of students who currently sit for alternate assessments based on modified standards.

#### Where to Obtain This Report

<http://cep-dc.org/displayDocument.cfm?DocumentID=425>

## College Board (2011)

### *Common Core State Standards Alignment: Advanced Placement*

#### **Focus**

The purpose of this study was to examine alignment between the Common Core State Standards and related Advanced Placement (AP) courses. The courses used for comparison are AP English Literature and Composition, AP English Language and Composition, AP Calculus AB, AP Calculus BC, AP Statistics, and AP Computer Science A.

It is important to note that many AP courses are currently undergoing a review and revision process and that these alignment findings are based on the course content from 2011. Furthermore, the intent of this alignment study is not to show a one-to-one relationship between standards and elements of AP courses. The authors caution the reader that alignments between the CCSS and AP courses should not be interpreted as showing a link between the two but as areas where there is a bridge from one framework to the other.

#### **Methodology**

The researchers used four principles of alignment when comparing the CCSS to AP courses:

- 1) The full intent and scope of each standard statement must be given “deep and careful consideration,” with direct attention given to content and skill components.
- 2) Alignments must be as specific as possible.
- 3) The course materials used to establish alignment must “clearly and explicitly” frame the course’s objectives and expectations for student performance.
- 4) Consideration must be given to alignment of content and rigor.

#### **Key Findings**

- **The CCSS is aligned to AP English Literature and AP English Language.** As expected, there is a lower concentration of alignment between AP English Literature and the Reading Standards for Informational Text because the focus of the AP Literature course is “imaginative literature.” Researchers also note that there is less alignment between the Speaking and Listening Standards and both English courses because these skills are considered prerequisites and are not emphasized in the AP course materials.
- **The CCSS is aligned to AP Calculus, AP Statistics, and AP Computer Science A.** The CCSS is strongly aligned to the Standards for Mathematical Practice, conceptual categories of Number and Quantity, Algebra, Functions, and Geometry between grades 6 and 12.
- **Students following a CCSS-aligned curriculum would be prepared for the AP courses in this study.** Researchers found that the CCSS alignment with the AP courses, especially in math, demonstrate a logical progression of courses from regular high school courses to AP courses.

#### **Where to Obtain This Report**

<http://media.collegeboard.com/digitalServices/pdf/research/RR2011-8.pdf>

**Dingman, S., Teuscher, D., Newton, J., & Kasmer, L. (2013)**  
*Common Mathematics Standards in the United States*

### **Focus**

This study examines the similarities and differences in content between the Common Core State Standards in mathematics (CCSS-M) and previous state standards in mathematics for grades K-8.

### **Methodology**

Using data and a coding scheme from a previous study of state math standards, researchers conducted an analysis of the CCSS-M using the same categories and labels as the older study. There were seven categories (number and operation, algebra, geometry, measurement, probability and statistics, reasoning, and technology use), and each had its own methodology based on the labels used previously. Results from this analysis of the CCSS-M were compared with the results from the previous state standards study.

### **Key Findings**

- **In most categories, there were similarities and differences between the CCSS-M and previous state standards.** For example, in algebra, both the previous state standards and the CCSS-M focused to a greater extent on symbolic algebra than on functions, but they differed on timing—the CCSS-M delayed an emphasis on functions until grades 6-8.
- **In two categories, reasoning and technology use, the similarities were very limited.** In reasoning, the CCSS-M were addressed in the Standards for Mathematical Practice (SMP) and therefore “explicit reasoning for verification standards connected to content standards was reduced.” Only twice did the CCSS-M mention the use of calculators and technology; the authors concluded that there was a “decreased emphasis on calculator/technology use within the standards.”
- **There were four key changes between the previous state math standards for grades K-8 and the CCSS-M.**
  - *Changes in the timing of content delivery.* Under the CCSS-M some concepts will be taught earlier, such as the multiplication of fractions, while other concepts will be presented in a later grade, such as attention to probability and statistics.
  - *Changes in the frequency of a particular mathematic topic across grades.* For instance, the addition and subtraction of whole numbers was previously addressed to three grade levels, but under the CCSS-M it is addressed in five grade levels. Conversely, fewer grade levels devote attention to fraction computation in the CCSS-M than in past state standards.
  - *Changes in topic emphasis.* At some grade levels, certain topics receive greater emphasis and others receive less emphasis—for example, the CCSS-M delayed emphasis on algebraic functions until grades 6-8.
  - *Changes “in the nature and level of reasoning expectations.”* For example, the percentage of standards that call on students to evaluate statistical processes has doubled compared with expectations under the pre-CCSS-M standards.

### **Where to Obtain This Report**

<http://www.jstor.org/stable/info/10.1086/669939>

## Educational Policy Improvement Center (2011a)

### *Lining Up: The Relationship between the Common Core State Standards and Five Sets of Comparison Standards*

#### Focus

Researchers compared the Common Core State Standards with five sets of standards in math and English language arts and literacy (chosen for their rigorous instruction program, explicit focus on college readiness, or identification as exemplary) to determine the extent of alignment between the CCSS and selected standards.<sup>2</sup> Three types of alignment were used for analysis: knowledge and skill alignment (match), cognitive complexity alignment (depth), and content covered alignment (breadth).

#### Methodology

Sixteen raters examined the content and levels of cognitive demand in the CCSS and the five selected standards and assessments in order to establish a means for comparison.

#### Key Findings

- **In terms of knowledge and skills alignment, the CCSS and the five sets of comparison standards have “substantial concurrence.”** Math showed more overlap between the CCSS and the five comparison standards (25 topics out of 25 topics overlap) than English Language Arts (ELA) and literacy (36 topics out of 40 topics overlap).
- **In terms of depth, the CCSS are generally consistent with the comparison standards.** The levels of cognitive depth between the CCSS math standards and the comparison math standards are “somewhat greater” than those between the CCSS ELA standards and the comparison ELA and literacy standards.
- **In terms of breadth, the CCSS were aligned with the comparison standards.** As with the previous two findings, ELA and literacy standards were less likely to be aligned than the math standards. In ELA and literacy there was strong coverage within 37 of the 40 topics between the comparison standards and the CCSS. There was strong coverage in 25 of 25 math topics.

#### Where to Obtain This Report

<http://files.eric.ed.gov/fulltext/ED537877.pdf>

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<sup>2</sup> ELA standards: California State Standards (grades 11-12), Massachusetts State Standards (grades 11-12), Texas Cross-disciplinary College and Career Readiness Standards, Knowledge and Skills for Universal Success College and Career Standards, International Baccalaureate Standards (grades 10-12).

Mathematics standards: California State Standards (grades 8-12), Massachusetts State Standards (grades 9-12), Texas Cross-disciplinary College and Career Readiness Standards, Knowledge and Skills for Universal Success College and Career Standards, International Baccalaureate Standards (grades 10-12).

## Educational Policy Improvement Center (2011b)

### *Reaching the Goal: The Applicability and Importance of the Common Core State Standards to College and Career*

#### Focus

The purpose of this study was to examine the extent to which the knowledge and skills contained in the Common Core State Standards are applicable to and important for college and career readiness.

#### Methodology

Researchers surveyed a national sample of postsecondary instructors from a range of institutions and courses (based on 25 course categories) who were recommended by the institution's leadership. Instructors rated each Common Core standard for math and English language arts on its applicability and, if the standard was applicable, they also rated the standard's importance for their course. A total of 1,897 instructors responded to the survey.

#### Key Findings

- **The Common Core State Standards for English language arts (CCSS-ELA) for non-literary reading and writing were applicable to most courses.** This was also true of the standards relevant to speaking and listening and language. The Common Core State Standards for mathematics (CCSS-M) in mathematical practices were also rated as applicable to their course by most instructors. Other CCSS-M standards were more subject-specific.
- **When instructors rated a standard as applicable to their postsecondary course, they considered it to be important.** Most standards were rated "more important" (rated 3 out of 4 points on a Likert scale). Twenty-five of the 200 math standards were rated below 2.5 for importance and two of the 113 English language arts standards were rated below 2.5 for importance.
- **The CCSS-ELA varied in importance based on subject.** For example, most respondents who rated Reading Standards in History/Social Studies as important were social science instructors. The standards relating to language were highly applicable to most subjects but received low importance ratings. Finally, CCSS-ELA standards related to comprehension of nonfiction texts were rated as highly important.
- **The CCSS-M also varied in importance based on the subject.** The majority of respondents who rated Number and Quantity, Algebra, Functions, and Geometry as important were math and science instructors. The majority that rated Statistics as important taught science and social science. The math standards rated highest in importance were related to reasoning quantitatively and interpreting functions. Finally, Standards for Mathematical Practice were rated as important across the subjects.
- **The standards are broadly applicable to entry-level college courses.** Ninety-six percent of survey respondents replied that the standards as a whole were "sufficiently cognitively challenging" to prepare students for postsecondary classes.

#### Where to Obtain This Report

<http://www.epiconline.org/publications/documents/ReachingtheGoal-FullReport.pdf>

## Fisher, D. & Frey, N. (2014)

### *Student and Teacher Perspectives on a Close Reading Protocol*

#### Focus

The purpose of this study was to examine the perspectives of students and teachers on the instructional practice of “close reading,” which is aimed at meeting the first of the anchor standards for the CCSS-ELA in reading.

#### Methods

Researchers interviewed a sample of 45 teachers in grades 4-12, and conducting 51 focus groups with 327 purposefully selected students at 17 schools in this phenomenological study. The teachers and students came from four districts that had provided professional development in the use of close reading.

#### Key Findings

- **The texts for close reading are generally more engaging for students than typical reading assignments.** All of the student focus groups reported that they found close-reading texts interesting—even though the texts are often more demanding. Nearly every teacher (43 of 45) also reported their students were more engaged during close reading sessions.
- **Close reading can be cognitively demanding and even physically exhausting.** Most student focus groups (72.5%) and teachers (86.7%) described the experience of close reading as draining, tiring, or exhausting for students. Teachers, however, indicated this is a possible benefit of the method, encouraging higher-order thinking skills critical to meeting the CCSS-ELA.
- **Teachers struggled to select appropriate texts and develop questions for the material.** More than half of teachers reported that they struggled to find appropriate texts, and 82.2% identified developing appropriate questions about the text as the hardest part of close reading. Many said lesson planning for these projects was particularly difficult.
- **Some students struggled with not knowing the “right” answer.** Approximately 21% of students raised the issue of the right answer and “expressed impatience with exploring nuances.” Nearly 40% of teachers also raised this issue, and considered it an artifact from traditional pedagogy.
- **Some teachers were concerned about the needs of special education students and English Language Learners.** More than half (55.6%) of teachers raised concerns over how to support these students during these difficult lessons.

#### Where to Obtain This Report

Fisher, D., & Frey, N. (2014). Student and teacher perspectives on a close reading protocol. *Literacy Research and Instruction*, 53(1), pp. 25-49.

## Gamson, D., Lu, X., & Eckert, S. (2013)

### *Challenging the Research Base of the Common Core State Standards: A Historical Reanalysis of Text Complexity*

#### Focus

The purpose of this study was to analyze textbooks from the last century to refute or support previous research that suggests text complexity in school textbooks had declined over the past 10 years, a signature premise in the Common Core State Standards.

#### Methodology

Researchers collected data from important or popular textbooks from 187 third grade reading textbooks and from 71 sixth grade reading textbooks that were used in elementary school between the 1890s and 2008. They analyzed 100-word or more segments from these textbooks using lexical difficulty (LEX), word frequency band (WFB), mean length of sentences (MLS), and the New Dale-Chall readability index.

#### Key Findings

- **The results of the four analyses do not confirm a decline in text complexity.**

##### *Grade 3:*

- *Both the average LEX scores and the WFB scores for the 2000s were significantly higher than all other decades. The average LEX scores and WFB scores in the 1940s were significantly lower than all other decades.*
- *The texts from the 2000s had significantly higher readability on the New Dale-Chall index than all of the decades from the 1950s through 1990s. But the texts from the 1910s had a significantly higher readability index than all other decades.*
- *The average MLS for the texts in the 2000s was significantly higher than for the 1950s through 1990s. But the highest average MLS was in the 1910s.*

##### *Grade 6*

- *The average LEX scores in the 1920s were significantly higher than all other decades. LEX scores declined between the 1920s and the 1940s but then stabilized through the 2000s.*
  - *The highest WFB scores were from the 1920s and 1990s. However, like the LEX scores, researchers found that sixth grade texts were “largely stable.”*
  - *The 1920s had a significantly higher New Dale-Chall Readability Index than all other decades. The 1940s had a significantly higher readability index than the readability indexes of the 1960s, 1980s, and the 1990s. The 2000s readability index was similar to the 1940s index.*
  - *The MLS analysis revealed that the 1920s had a significantly higher MLS than all other decades. The 1940s had a significantly higher MLS than the MLS of the 1960s, 1980s, and 1990s. The 2000s MLS was similar to the 1940s MLS.*
- **Over the past century, text complexity in third grade texts has increased, while text complexity for sixth grade text has remained stable.** Authors cite the richness (10 million words), longevity (100 years of artifacts), and depth of analysis (four different measurement tools) of their study, along with other research, to refute the claim that text complexity has declined.

#### Where to Obtain This Report

<http://edr.sagepub.com/content/42/7/381.abstract>

## Nagle, C. & Moore-Russo, D. (2014)

### *Slope Across the Curriculum: Principles and Standards for School Mathematics and Common Core State Standards*

#### Focus

The purpose of this study was to compare the mathematical concept of slope as represented in two sets of standards, the Principles and Standards for School Mathematics (PSSM) and the Common Core State Standards in Math (CCSS-M).

#### Methods

Researchers independently coded the PSSM, the CCSS-M, and all supporting documents using the eleven conceptualizations of slope.<sup>3</sup> Then the researchers collaboratively coded the documents by discussing their individual coding and resolving any coding disagreements as they proceeded.

#### Key Findings

- **Overall, the two sets of standards were similar with regards to total number of slope references, and the most common conceptualizations of slope were consistent between the PSSM and the CCSS.** The PSSM referenced slope 57 times, compared with 53 references in the CCSS. The most common conceptualizations included functional property, linear constant, and real world solution.
- **Researchers found differences between the PSSM and the CCSS when comparing slope references by grade band.**
  - **Grades 3-5:** The PSSM referenced functional property, real world situation, and physical property conceptualizations of slope. The CCSS did not reference any conceptualizations of slope in this grade band.
  - **Grades 6-8:** Both standards give slope the most attention in this band and include 9 of 11 conceptualizations in these grades. The authors write, “Thus, where the core of instruction on slope is concerned, there is a general consensus between [CCSS-M] and PSSM standards regarding the focus and sequencing of instruction.”
  - **Grades 9-12:** The CCSS-M has a more focused representation of slope in this band: five conceptualizations compared with the eight conceptualizations in PSSM.

#### Where to Obtain This Report

<http://eric.ed.gov/?q=slope+across+the+curriculum&id=EJ1027058>

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<sup>3</sup> The 11 conceptualizations of slope include geometric ratio, algebraic ratio, physical property, functional property, parametric coefficient, trigonometric conception, calculus conception, real world situation, determining property, behavior indicator, and linear constant.

## Polikoff, M. (2014)

### *How Well Aligned Are Textbooks to the Common Core State Standards in Mathematics?*

#### Focus

The purpose of this study was to measure the extent of alignment of three “Common Core aligned” 4<sup>th</sup> grade mathematics textbooks to the Common Core State Standards and to textbooks aligned to previous state mathematics standards.

#### Methodology

Using data from the Surveys of Enacted Curriculum in mathematics, researchers analyzed the CCSS-M, the Florida Sunshine State Standards in math, six math textbooks designed for 4<sup>th</sup> grade instruction in Florida (three aligned to previous state math standards and their new versions that are reportedly aligned to the CCSS-M), and a textbook that is explicitly not aligned to any state’s math standards or the CCSS-M. The researchers used two methods to determine alignment: a main method, which requires exact proportional agreement, and a less stringent alternative method.

#### Key Findings

- **Depending on the alignment method, all three CCSS-M-aligned textbooks are modestly aligned to the CCSS.** Using the main method, the study found that 27% to 38% of the content was aligned, which the author notes “far exceeds that which would be expected by chance.” Using the less stringent method, the study found that “a large majority” of the content emphasized in the textbooks is aligned to the CCSS-M, between 63% and 79% alignment.
- **Content in the CCSS-M-aligned textbooks is not evenly distributed across CCSS-M objectives.** Based on the finding above, the disparity between methods demonstrates that some CCSS objectives are repeatedly covered in the textbooks.
- **The areas of misalignment between the CCSS-aligned textbooks and the CCSS can be largely attributed to a lack of conceptual skills in the textbooks.** Some of the conceptual skills with the largest gaps are memorization and procedures, which account for 88% to 92% of the CCSS-M-aligned textbooks but only 60% of the CCSS-M.
- **The CCSS-M-aligned textbooks are better aligned to previous textbooks than to the CCSS-M.** The analysis found that the CCSS-M-aligned textbooks are highly aligned to their previous counterparts, between 62% and 67% alignment. Using the alternative method, the alignment between older textbooks and their newer CCSS-M-aligned versions increased to between 91% and 96% alignment. The alignment of the older textbooks used in Florida with the CCSS-M-aligned textbooks is unexpectedly high since the CCSS-M were not well aligned to the Florida Sunshine State Standards.

#### Where to Obtain this Report

<http://www.pelhamschools.org/download.axd?file=4b3d1f3d-d615-4798-ab7f-f4eae52ce1bc&dnldType=Resource>

**Porter, A., McMaken, J., Hwang, J., & Yang, R. (2011)**  
*Common Core Standards: The New U.S. Intended Curriculum*

### Focus

This study compared the content of the intended curriculum as represented by the Common Core State Standards in math and English Language Arts (ELA) Reading with the content of standards in selected states and other countries and with state assessments, as they existed at the time of the study.

### Methodology

Researchers examined standards from a selection of states and countries, the National Council of Teachers of Mathematics (NCTM) standards, and the CCSS using the Surveys of Enacted Curriculum. The math and ELA Reading standards and assessments were coded by specialists in both subjects. The degree of focus in these sets of standards was measured two different ways: 1) by the number of cells<sup>4</sup> that contain 80% of the total content, and 2) by the number of cells that contained 1% or more of the total content.

### Key Findings

#### *Degree of alignment*

- **There was low-to-moderate alignment among the CCSS, the state standards, and the NCTM standards.**
- **Alignment with the CCSS was stronger when state standards in math and reading were aggregated to grade bands (e.g. grades 3-6).**
- **For math, the CCSS represented a modest shift toward higher levels of cognitive demand.** In ELA Reading, the CCSS placed more emphasis on analysis than the aggregate state standards; the states, in the aggregate, emphasized “perform procedures” and “generate.”

#### *Degree of focus*

- **When focus was measured by examining the number of cells that contain 80% of the total content, the CCSS was more focused than the aggregate of state standards in both math and ELA Reading.** However, the standards of the individual states, on average, are more focused than the CCSS, although the extent of focus varies greatly among states.
- **When focus was measured by examining the number of cells that contained 1% or more of the total content, the CCSS was more focused than the aggregate of state standards in both math and ELA Reading.** However, the standards of individual states, on average, are more focused than the CCSS, although the extent of focus varies greatly among states.

### Where to Obtain This Report

<http://edr.sagepub.com/content/40/3/103>

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<sup>4</sup>A cell is equivalent to the intersection of a standard’s topics and cognitive demand. For example, the mathematical topic, factoring, may intersect with three types of cognitive demand: memorize, perform procedures, and demonstrate understanding. According to the Surveys of Enacted Curriculum, there are 217 topics in mathematics and 163 in ELA Reading and five cognitive demands for both subjects. In mathematics, there are 1,085 distinct cells. There are 815 distinct cells in ELA Reading.

## 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 coherence<sup>5</sup> 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 congruence<sup>6</sup> 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>

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<sup>5</sup> “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.

<sup>6</sup> “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.

## Thomas B. Fordham Institute (2013)

### *Common Core in the Schools: A First Look at Reading Assignments*

#### Focus

The purpose of this study was to identify texts used by teachers in English language arts (ELA) assignments, teacher practices in ELA classes, and complexity of the texts in use early in the implementation of the Common Core State Standards.

#### Methodology

Researchers surveyed 1,154 English teachers in elementary grades 4 and 5, middle schools, and high schools in the 46 states that had adopted the CCSS as of 2013 (including Minnesota, which adopted only the ELA standards, and the District of Columbia).

#### Key Findings

- **Survey respondents reported that their reading lessons were focused on skills.** Of the participants who taught elementary school, 73% focused on skills; the same was true for 56% of middle school teachers and 46% of high school teachers.
- **Text assignment in elementary classrooms was largely based on students' current reading ability.** Sixty-four percent of participants who taught ELA in elementary schools selected texts based on students' reading levels. Middle school teachers were split between selecting texts based on student ability (38%) or based on grade level (37%), while high school teachers were more likely to select texts based on grade level (47%).
- **Teachers who participated in the survey responded that they are already incorporating informational texts into their lessons.**
- **Most respondents felt that the CCSS would have learning benefits for their students.** However, 11% said that the CCSS would not lead to learning gains in ELA, and 18% said it was too soon to tell what impact the CCSS might have on student achievement.

#### Where to Obtain This Report

<http://www.edexcellence.net/sites/default/files/publication/pdfs/20131023-Common-Core-in-the-Schools-a-First-Look-at-Reading-Assignments.pdf>

**Thomas B. Fordham Institute (2010)**  
*The State of State Standards—and the Common Core—in 2010*

## Focus

This study compared the rigor and clarity of the English language arts (ELA) and mathematics standards in all 50 states and the District of Columbia and the Common Core State Standards.

## Methodology

Using pre-established criteria, three content experts (one in ELA and two in math) reviewed 102 sets of state standards and the CCSS and assigned each set of standards a “content and rigor” score and a “clarity and purpose” score. The two scores were added to create a final score that was translated into a letter grade. To be considered “clearly superior” or “clearly inferior,” a set of state standards had to score 2 points above or below the CCSS (which scored an 8 out of 10 for ELA and a 9 out of 10 for math). A set of standards that was 1 point away from the CCSS was considered “too close to call.”

## Key Findings

### *English language arts*

- **Two states and D.C. had “clearly superior” standards, and 11 states had standards that were “too close to call. All other states’ standards were “clearly inferior.”**
  - *While state ELA standards have improved over a decade there are still problems.* These include a focus on metacognition instead of essential content, skimpy expectations, a lack of American literature, inadequate or no specific reading lists, and vague expectations for student writing.
  - *The CCSS has improved on previous state standards but still has some pitfalls.* The CCSS included exemplar texts, stronger expectations for student writing and examples, and a decreased focus on metacognitive reading strategies. However, they are still limited in their focus on American Literature and lack specificity with genres and subgenres.

### *Mathematics*

- **Eleven states and D.C. had standards that were “too close to call,” and no state had “clearly superior” standards. All other states’ standards were “clearly inferior.”**
  - *State math standards also have problems in many or most states.* In particular, a) arithmetic is not a priority; b) standard algorithms are undermined when states offer alternative means of solving particular problems; c) states do not offer specific methods for working with fractions (only 15 states mention “common denominator”); d) language about the use of calculators is vague; and e) functions are introduced to students without context and often too early.
  - *The CCSS in math are “exemplary in many ways.”* They focus on the most important math content, include clear guidance, and require appropriate levels of sophistication from elementary students. But the high school math standards lack clarity and focus.

## Where to Obtain This Report

[http://www.edexcellence.net/sites/default/files/publication/pdfs/SOSSandCC2010\\_FullReportFINAL\\_8.pdf](http://www.edexcellence.net/sites/default/files/publication/pdfs/SOSSandCC2010_FullReportFINAL_8.pdf)

## WestEd (2013)

### *Implementing the Common Core State Standards: Articulating Course Sequences across K-12 and Higher Education Systems*

#### Focus

This study examined the course sequencing strategies and variations of strategies used by Core to College states.<sup>7</sup> For the purposes of the study, course sequences were defined as “the patterns by which students move from one course to the next on an efficient trajectory, building deeper content and fluency as they progress from grade to grade.”

#### Methodology

A 36-question survey was sent to the Alignment Directors (ADs) who are responsible for overseeing the development of Core to College work in their state. A total of 11 ADs participated. The survey focused on Core to College initiatives that are guided by the Common Core State Standards and the CCSS-aligned assessments scheduled for implementation in the 2014-15 school year.

#### Key Findings

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

- **At the time of the study, the CCSS were not a major element in course sequencing discussions.** Most respondents said that their states did not, at the time of the study, have thoroughly developed plans at the local or state level for talking about K-12 and postsecondary sequencing alignment in relation to the CCSS. Only one state had a well very developed plan to discuss course sequencing and the CCSS at the state level, and no AD reported very well developed plans at the local level.
- **Most ADs said that discussions about course sequencing were a lower priority than other CCSS alignment topics.** Most ADs reported that they were not heavily involved in discussions about course sequencing.

#### Where to Obtain This Report

[http://www.wested.org/wp-content/files\\_mf/1379447958C2C\\_Implementing\\_Common\\_Core\\_State\\_Standards.pdf](http://www.wested.org/wp-content/files_mf/1379447958C2C_Implementing_Common_Core_State_Standards.pdf)

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<sup>7</sup> The member states in the Core to College Initiative are Colorado, Florida, Hawaii, Indiana, Kentucky, Louisiana, Maine, Massachusetts, North Carolina, Oregon, Tennessee, and Washington.

**Williamson, G., Fitzgerald, J., & Stenner, J. (2013)**

*The Common Core State Standards' Quantitative Text Complexity Trajectory:  
Figuring Out How Much Complexity Is Enough*

**Focus**

The purpose of this study was to have a more nuanced discussion of the recommended trajectory of student exposure to text complexity that is presented in the Common Core State Standards. Since multiple text-complexity trajectories can lead to the CCSS end-of-high-school target, knowledge of the multiple trajectories, in conjunction with a set of guiding principles for decision making, can support educators' and policy makers' implementation of the CCSS.

**Methodology**

For this report, text complexity is measured in Lexile units.<sup>8</sup> The authors established an equation that represented the complexity of the texts to which students are currently exposed from grades 1 through 12 and the recommended level of exposure needed for students to achieve college and career readiness according to the CCSS for grade 12. Using the equation, researchers developed alternate trajectories of text complexity to achieve the CCSS-recommended level of text understanding by 12<sup>th</sup> grade. (See the study report for more detailed methodology.)

**Key Findings**

- **There are multiple alternative trajectories for text complexity exposure.** Some trajectories reflect substantially increased complexity in earlier grades while other trajectories emphasize raising text-complexity levels in later grades.
- **Each trajectory has benefits and drawbacks.** For example, introducing complex texts too early in a student's academic career may thwart later progress in reading; however, waiting until middle or later grades to increase text complexity may frustrate some students, especially those who are struggling readers.
- **"The CCSS quantitative standard for text complexity exposure provides educators and policy makers some decision-making flexibility."** This flexibility allows districts, schools, or classroom teachers to better tailor text complexity exposure to the unique situation of their students.
- **Educators' decisions about choice of trajectory should be guided by three principles.** Educators should have an evidence-based understanding about how much challenge is beneficial to students for particular reading outcomes; consider the impact of raising text-complexity expectations at specific grade levels in relation to what is known about how learning to read develops over time; and account for local considerations.

**Where to Obtain This Report**

<http://edr.sagepub.com/content/42/2/59.abstract>

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<sup>8</sup> The Lexile scale ranges from below 200 to above 1600; a level of 300 Lexiles or below is roughly associated with 1<sup>st</sup> grade, and a Lexile range of 940 to 1210 is roughly associated with grades 11 and 12.

**Wohlstetter, P., Buck, B., Houston, D., and Smith, C. (In Press)**  
*Common Core, Uncommon Theory of Action: CEOs in New York City*

### Focus

With attention focused on three foundational pillars that were designed to facilitate the autonomy of principals (called “CEOs”), researchers analyzed New York City’s efforts to implement the Common Core Learning Standards (CCLS).<sup>9</sup>

### Methodology

Researchers conducted roughly 30 semi-structured interviews across the entire NYC education system between 2011 and 2013. Interviewees included NYC Department of Education (DOE) staff; Children First Network (CFN) cluster leaders, individual leaders, and coaches for English, math, special education, and English language learners; and CEOs, school administrative personnel, and teachers. Interviews were transcribed and coded; the resulting analysis was triangulated with archival documents and policies.

### Key Findings

- **Two NYC DOE policies facilitated the role of the CFNs in supporting schools’ implementation of the CCSS.** The first, a set of Citywide Instructions Expectations (CIE), placed a priority on important reforms and provided yearly outlines for implementation strategies. The second policy was a shift in the Quality Review process that reflected the CIE requirements as they pertained to the CCLS. These two policies provided clarity and consistency to schools as they implemented the CCLS.
- **The CFNs played key roles in supporting schools with CCLS implementation.** The first role the CFNs played was to improve communication between NYC DOE and individual schools; researchers found that the CFNs enhanced communication in both directions—from the top-down and bottom-up. The second key role the CFNs played was to develop and provide professional development supports for individual schools as they implemented the CCLS.
- **Researchers found two main challenges with CCLS implementation.** First, the NYC DOE placed too much emphasis on student assessment tools but not enough emphasis on curriculum support. Second, the relationships between CFNs and individual schools were complicated by structural and organizational features of the program; researchers specifically cited geography and the large number of member schools in some CFNs as challenges.

### Where to Obtain This Report

Wohlstetter, P., Buck, B., Houston, D., & Smith, C. (In Press). *Common Core, uncommon theory of action: CEOs in New York City*. In A. Daly & K. Finnigan (eds.) *Thinking systematically: Improving districts under pressure*. Washington, DC: American Educational Research Association.

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<sup>9</sup> 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.

**Wolf, M.K., Wang, Y., Huang, B.H., & Blood, I. (2014)**

*Investigating the Language Demands in the Common Core State Standards for English Language Learners: A Comparison Study of Standards*

**Focus**

The purpose of this study was to examine the similarities and differences in the language skills and tasks between the Common Core State Standards for English language arts (CCSS-ELA) and other state ELA and ELP (English Language Proficiency) standards for grade 8. This study also looked at teachers' interpretation of the CCSS and their perceived challenges with teaching the content in the CCSS to English language learners.

**Methods**

The researchers developed a coding structure derived from the CCSS-ELA. This structure was used to compare language skills and tasks found in the CCSS-ELA to the ELA and ELP standards in California, Florida, and New Jersey. In addition, they conducted a focus group with three English as a second language (ESL) and two ELA Grade 8 teachers from middle schools in New Jersey.

**Key Findings**

- **The extent of overlap between the states' standards and the CCSS-ELA varied with a low to moderate level of similarities.** The amount of overlap ranged from 21% to 85%, depending on the standards and the skill.
- **The ELA standards had more overlap with the CCSS than the ELP standards did.** The CCSS reading skills and tasks that appeared in all standards include (1) analyzing the development and interaction of characters, events, and ideas, (2) comprehending words and phrases in context, (3) analyzing how word choices shape meaning or tone, (4) analyzing the structure/organization of texts, (5) integrating content from multiple resources, and (6) comparing and contrasting texts of similar themes or topics. For listening and speaking, none of the CCSS-derived skills and tasks was observed across all three states' ELA standards.
- **The CCSS had fewer objectives but more higher-order language skills and tasks than the state standards.**
- **ELL students will need more opportunities to practice higher-order academic language skills to meet the CCSS standards.** The teachers in the focus group identified two major challenges to meeting the new standards:
  - ELLs need to acquire foundational language skills (decoding, fluency, and word recognition) while performing higher-order (evaluating, synthesizing, and analyzing) skills expected in the standards.
  - Economically disadvantaged ELL students may not have access to all the tools and technology that would allow them to achieve all objectives of the CCSS.

**Where to Obtain This Report**

Wolf, M. K., Wang, Y., Huang, B.H., & Blood, I. (2014). Investigating the language demands in the Common Core State Standards for English language learners: A comparison study of standards. *Middle Grades Research Journal*, 9(1), pp. 35-52

## 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.

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The Center on Education Policy receives nearly all of its funding from charitable foundations. We are grateful to the George Gund Foundation and the Phi Delta Kappa International Foundation who provide CEP with general support funding that assisted with this endeavor. The statements made and views expressed are solely the responsibility of the Center.

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