



The Cognitive Science Behind the Common Core

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Introduction and summary

Raising academic standards has been part of the education policy discourse for decades. As early as the 1990s, states and school districts attempted to raise student achievement by developing higher standards and measuring student progress according to more rigorous benchmarks.¹ However, the caliber of the standards—and their assessments—varied greatly from state to state. For example, Massachusetts adopted some of the highest standards and most challenging exams in the country and has some of the highest-achieving students in the nation. On the other hand, Mississippi set a low bar, and the state’s students are often ill prepared for college and careers.²

Recognizing that the previous patchwork system did not work, a group of bipartisan governors and state superintendents came together to develop a shared set of more rigorous, internationally benchmarked academic standards in English language arts and mathematics called the Common Core State Standards. Some worry that the standards have not been proven to improve student learning, as they were entirely new as of 2010. However, the Common Core is grounded in the latest cognitive science regarding how students learn. For this reason, there is a preponderance of evidence that strongly suggests the Common Core will improve the quality of education for all students.

Educators, content specialists, and other experts wrote the standards with the goal of preparing all students for college and careers. With that goal in mind, the developers first wrote the standards for high school and worked backward down to kindergarten, ensuring that the standards scaffold smoothly from one grade to the next and lead to college and career readiness. This structure creates a logical progression through the standards, helping educators teach their students stackable knowledge and skills as they move through school.

Unlike prior state standards, the Common Core sets uniform expectations that are grounded in the knowledge and skills every child needs to be successful after high school. Decades of research about how students learn and the best practices for teaching challenging content are embedded directly into the standards. As a starting point, the authors of the Common Core relied on earlier

college- and career-readiness standards developed by Standards for Success; the American Diploma Project; American College Testing, or ACT; the College Board; and the Texas Higher Education Coordinating Board. The Common Core authors also consulted with content experts such as the National Council of Teachers of Mathematics, states with high-quality standards, and high-performing nations such as Singapore and Korea.³

The standards were then revised based on feedback from educators, state education agencies, and public comments. Finally, a 28-member validation committee—comprised of K-12 and higher-education teachers and researchers—reviewed the standards.⁴ After months of review and revision, the committee confirmed that the standards covered the knowledge and skills necessary for students to be ready for college and careers.⁵ Recognizing the Common Core’s potential to dramatically improve American public education, the majority of states rushed to adopt the standards when they were released in 2010.⁶

Although some teachers, students, and parents may feel a degree of anxiety as their classes transition from the old standards to the Common Core, they should be confident that their efforts will pay off. The Common Core is grounded in cognitive science and incorporates practices that have been proven to improve student learning and achievement. A review of the research base for the standards found that the Common Core promotes greater student learning in the following key ways:

- Scaffolding student learning to provide a strong knowledge base on which new ideas and concepts are stacked
- Holding all students to high expectations, which promotes greater student achievement and growth
- Incorporating the latest research on how students learn to read to help close the literacy gap
- Employing both the traditional method of teaching math and conceptual strategies to provide students with a strong understanding of math and the skills to apply it

- Increasing the opportunities for students to learn from their peers and collaborate on assignments, which improves learning and interpersonal skills
- Promoting problem- and project-based learning, which leads to a deeper understanding of concepts

The Common Core was designed to raise the bar for student achievement in the United States. The standards enjoy strong support from a diverse coalition of leaders from the civil rights, business, military, teacher, school administrator, and parent communities. If teachers and students are supported with high-quality curricula and instructional materials, a properly implemented Common Core will help prepare students to be complex problem solvers, as well as critical thinkers and readers. These six research-based practices get to the heart of how the Common Core will make that goal a reality for all students.

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