



Executive Summary
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Ready for College and Career?



*Achieving the Common Core Standards and Beyond
through Deeper, Student-Centered Learning*

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About the Nellie Mae Education Foundation

The Nellie Mae Education Foundation is the largest charitable organization in New England that focuses exclusively on education. The Foundation supports the promotion and integration of student-centered approaches to learning at the middle and high school levels across New England. To elevate student-centered approaches, the Foundation utilizes a strategy that focuses on: developing and enhancing models of practice; reshaping education policies; increasing the body of evidenced-based knowledge about student-centered approaches and increasing public understanding and demand for high-quality educational experiences. The Foundation's initiative and strategy areas are: District Level Systems Change; State Level Systems Change; Research and Development; and Public Understanding. Since 1998, the Foundation has distributed over \$165 million in grants.

Introduction

The adoption of the Common Core State Standards represents a major shift for public schools across the country. In describing what American youth should learn at each grade level, these more rigorous K-12 standards have the potential to raise student outcomes and promote equity nationwide. However, the standards are also a source of tension and anxiety for many—bringing every student to mastery will be no small task. Meanwhile, a number of researchers and advocates have raised questions about whether the Common Core will go far enough in capturing the knowledge and skills students need to succeed in college, the workplace, and life. They ask, *what will it really take to ensure more youth are prepared to thrive in the 21st century?*

“Ready for College and Career?” examines the Common Core standards against a growing body of research on college and career readiness, finding that:

1. Students need a range of cross-cutting skills, knowledge, and behaviors in addition to content knowledge in order to thrive in college and careers. Many of those research-specified qualities are not addressed in the Common Core.
2. When embedded in a rigorous curriculum, such cross-cutting skills can support deeper engagement with learning and mastery of challenging content—in other words, cross-cutting “college and career” skills can promote greater achievement in all content areas of learning K-12.
3. Student-centered learning approaches create ideal conditions for students to acquire the full complement of knowledge, skills, and thinking behaviors they need for success in school, college, and the workplace.

In this Issue Brief, we offer highlights from “Ready for College and Career?”; we encourage you to read the full paper for more details at nmefoundation.org.

The Need for Common Standards

The push for common national standards grew out of concerns about educational equity and national competitiveness. Researchers, policymakers, and school improvement advocates pointed to wide variation in definitions of academic proficiency from state to state and troubling gaps in achievement and high school completion along racial and income lines (Organisation for Economic Cooperation and Development, 2012). Even among those students who met states’ high school graduation requirements, an estimated 20-40% of students in public four-year colleges and 30-60% in community colleges required remedial coursework (Attewell et al., 2006). Under-preparation for college-level coursework helps explain the large number of American students who leave college without a degree, at cost to themselves and the nation.

The Common Core State Standards begin to address these concerns by providing a common definition of what young people need to know and be able to do in English language arts and literacy and mathematics to be ready for college and careers.

Success is More Than Academic

At the same time that educators grapple with the introduction of common standards, a separate conversation is raising questions about what it really takes to succeed in college and careers. Researchers in psychology, education, and economics suggest that the standards movement’s nearly exclusive focus on the core academic disciplines is a major oversight. This growing body of research identifies a broader set of skills that correlate with success in college and the workplace. For example, college professors and employers prioritize aptitudes that go beyond typical academic standards, such as communication, collaboration, and creativity (e.g., American Management Association, 2012; Casner-Lotto & Barrington, 2006). While traditional measures of academic knowledge and ability, such as the SAT, ACT, and high school grade point average, are only weakly correlated with college success, research points to other factors, such as conscientiousness, grit, and self-efficacy, that are far more predictive of whether a student will persist to complete a college degree (e.g., Duckworth et al., 2007).

While different researchers use different terminology and methods to describe and measure the impact of various aptitudes on long-term prospects, the big takeaway is that there is a body of crucial skills and dispositions that support success in most aspects of adult life but are rarely explicitly taught in American schools. Researcher David Conley, the National Research Council, and others have each made attempts to synthesize this large body of research into their frameworks for college and career readiness (e.g., Conley, 2011; National Research Council, 2012). The specifics vary, but these leading researchers agree that a young person who is truly ready for college and careers possesses knowledge, skills, and aptitudes in three domains:

1. **Cognitive:** includes skills that support knowledge acquisition and creation, such as critical thinking, information literacy, reasoning, and innovation.
2. **Intrapersonal:** describes how students think about themselves in relation to work and learning; includes conscientiousness, initiative, flexibility, and metacognition.
3. **Interpersonal:** describes how individuals interact with others in a school or work setting; includes communication, collaboration, responsibility, and conflict resolution.

Knowledge & Skills Addressed in the Common Core State Standards

(adapted from the work of David Conley)

		Domains of College and Career Readiness		
		Cognitive	Intrapersonal	Interpersonal
Conley's College Readiness Framework	Context-specific knowledge and skills	Identified, but not well specified in CCSS <i>Examples: applying math skills to job situations; innovation; information literacy</i>	Not specified in CCSS <i>Examples: work ethic, conscientiousness, initiative</i>	Not specified in CCSS <i>Examples: teamwork, collaboration, leadership</i>
	Acquired disciplinary knowledge and skills	Well-developed in CCSS math and English language arts/literacy <i>Examples: using evidence to support text analysis, solving a multi-variable problem</i>	Not specified in CCSS <i>Examples: intellectual openness, flexibility</i>	Not specified in CCSS <i>Example: group problem solving</i>
	Learned cognitive skills	Some but not all content identified or developed in CCSS <i>Examples: critical thinking, reasoning, argumentation</i>	Only one skill area (metacognition) mentioned in CCSS <i>Examples: self-awareness, time and goal management</i>	Some communication and technology skills identified in CCSS <i>Example: collaboration</i>
	Foundational dispositions	Not specified in CCSS	Not specified in CCSS <i>Examples: self-efficacy, adaptability, personal responsibility, initiative, and self-control</i>	Not specified in CCSS <i>Example: social responsibility</i>

The Common Core as an Important but Insufficient Step

The Common Core State Standards do not encompass the entire range of skills and dispositions that contribute to success. To some extent the “instructional shifts” laid out within the Common Core hint at the skills and thinking behaviors that enhance academic learning, but like most academic standards, they focus on the endpoint—specific content knowledge and skills to be mastered—rather than the skills and mindsets that contribute to mastery.

It is important to note that a relatively narrow focus on core content knowledge and skills is not exclusive to the Common Core. On the whole, American schools prioritize academic learning over other aspects of child and youth development. If we seek to help students master the full complement of knowledge, skills, and behaviors required for success in college and careers, it will require a significant shift in how we think about the goals, structure, and reach of the K-12 curriculum.

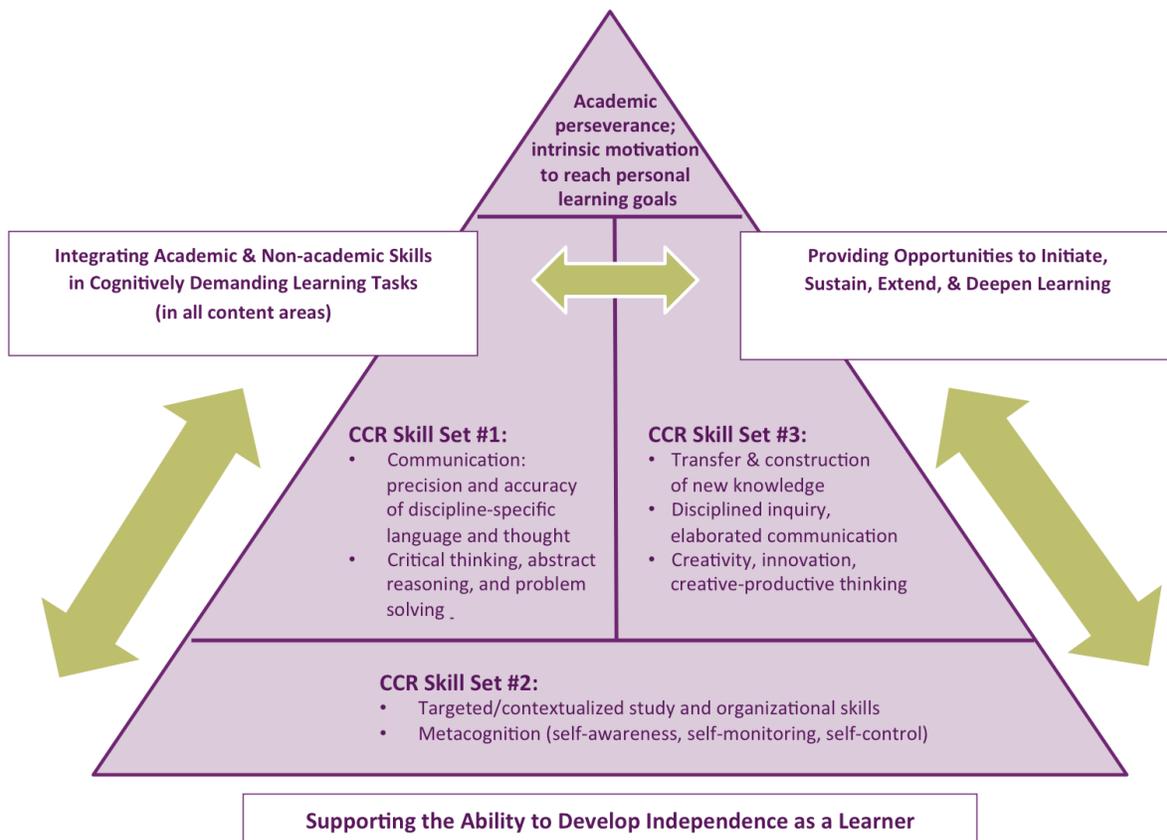
Toward an Integrated Model of Academic and College/Career Readiness

“Ready for College and Career?” looks across the research on college and career readiness, providing educators with a conceptual framework for integrating skill development and dispositions with rigorous academic content standards. The framework focuses on skills that both position students for long-term success in college and careers and support mastery of core academic content in high school. More specifically, it includes skills and behaviors that:

- can be integrated with academic instruction and assessed
- strongly predict success in both college and careers
- support deeper understanding of academic content, creative-productive thinking, and increasing disciplinary expertise over time

The result is a relatively short list of priority skills and behaviors that educators can build into new or existing K-12 curricula. “Ready for College and Career?” framework (see Figure 1) illustrates how these priority skills can be used to increase rigor, deeper learning, and help students to become more effective, persistent, and self-directed learners.

Figure 1: Cross-Cutting College and Career Readiness Skills: A New Framework



Priority Skills

Skill Set #1: Tackling Cognitively Demanding Learning

Tasks: Students need opportunities to move beyond recall of facts to think critically, solve new or non-routine problems, and apply abstract reasoning to what they are learning. These thinking processes require daily practice across all content areas and grade levels and, together, support more engaged, rigorous learning.

Skill Set #2: Developing Independence as a Learner:

Intrapersonal dispositions like self-efficacy, academic perseverance (grit), and intrinsic motivation are strongly linked to success in any content domain and are nurtured when students develop positive mindsets about personal growth and effort, when they have opportunities to use metacognitive skills to set goals and reflect on their learning, and when they are explicitly taught concrete self-regulatory skills, like time management and organizational skills within the context of complex, engaging tasks.

Together, these skills and behaviors help students manage complex tasks, persist through challenges, and achieve long-term learning goals. In the context of this framework, academic perseverance is seen as both a CCR skill to nurture and an overarching goal.

Skill Set #3: Initiating, Sustaining, Extending, and Deepening Learning: Advanced college courses and careers often require extended projects and complex, multi-faceted investigations. Students develop the skills to take on such sophisticated tasks when they routinely extend prior knowledge, employ disciplined inquiry and elaborated communication methods, initiate and solve complex problems, and produce or perform work with real-world value. These activities encourage risk taking and flexible thinking, while also expanding students' ability to transfer as well as create knowledge.

Table 1: Interrelated Cross-Cutting CCR Skills and Thinking Behaviors with Supporting Student-Centered Learning Practices

	Skill Set #1: Tackling Cognitively Demanding Learning Tasks	Skill Set #2: Developing Independence as a Learner	Skill Set #3: Initiating, Sustaining, Extending, and Deepening Learning
What are they?	Cognitive skills and processes closely connected to the academic rigor implied in content standards	Critical skills and dispositions for personal development, managing complex tasks, and success in college and careers	Context-specific skills needed for success in high-level courses (e.g., extended learning, research) and in most careers and leadership
Priority skills and behaviors	Communication: precision and accuracy of discipline-specific language and thought Critical thinking, abstract reasoning, and problem solving	Targeted study and organizational skills Metacognition (self-awareness, self-monitoring, self-control) Academic perseverance (or grit); intrinsic motivation to reach personal learning goals	Transfer and construction of new knowledge Disciplined inquiry, elaborated communication Creativity, innovation, creative-productive thinking
Student-centered learning practices that can support each skill set	Use ongoing assessments to monitor learning, tailor instruction, and promote self-reflection. Use performance assessments requiring deeper understanding and portfolio assessments that promote growth over time. Analyze student work to adjust instruction and provide descriptive feedback.	Capitalize on student strengths and focus on individual needs. Attend to emotion's central role in learning by nurturing positive relationships, teaching emotional regulation, and providing shelter from harmful stressors. Supplement assessment with individualized measures that promote self-regulation, self-monitoring, and development of metacognitive skills.	Empower students to plan and engage in active discovery relevant to their lives and their learning goals. Offer a variety of nontraditional learning experiences, such as field work, internships, independent studies, and service learning. Expand traditional assessment practices to include exhibitions, capstone projects, graduation portfolios, etc., with authentic audiences.

Student-Centered Learning (SCL) as a Means to the CCR Goal

The Common Core State Standards provide limited guidance to educators on how to group and sequence standards or on the instructional methods that are most likely to result in mastery. “Ready for College and Career?” posits that student-centered learning approaches are a promising avenue for helping students to master more rigorous academic standards at the same time that they build the skills and thinking behaviors needed to become confident, self-directed learners.

Student-centered learning is a broad term, used to describe approaches to instruction that are grounded in mind/brain research, learning theory, and youth development research and that motivate and engage students in deep learning. Student-centered learning attends to students developing academic and personal identities through high expectations, a positive learning culture, and strong relationships. In contrast to more traditional, adult-directed approaches to instruction, student-centered learning adheres to four broad principles:

1. **Learning is personalized:** Each student is well known by adults and peers and benefits from individually paced learning tasks, tailored to their needs and interests. Learning is deepened through collaboration with others and through engaging, authentic, and increasingly complex learning tasks.
2. **Learning is competency-based:** Students move ahead when they demonstrate competency and have multiple means and opportunities to do so. Differentiated scaffolding and supports ensure that each student has what she or he needs to achieve college and career readiness goals.
3. **Learning takes place anytime, anywhere:** Students learn outside of the typical school day and year in a variety of settings, taking advantage of a variety of learning technologies and community resources, and receiving credit for learning, wherever it happens.
4. **Students exert ownership over learning:** Students understand that they improve by applying effort strategically. They have frequent opportunities to reflect upon and understand their strengths and learning challenges. They take increasing responsibility for learning and support and celebrate each other’s progress.

Student-centered learning requires different ways of thinking about curriculum, instruction, the learning environment, and the roles students and adults play in the learning process. To support true college and career readiness, educators should consider how to adopt more student-centered approaches across three dimensions.

1: Redesign curriculum and instruction so that cross-cutting skills are systematically integrated with challenging academic content, promoting rigor and deeper learning in each content area.

Students develop the skills and dispositions associated with deeper learning when they transfer and construct new knowledge through a disciplined inquiry process. Facts, concepts, and procedures become means to deeper understanding, rather than ends in and of themselves. A student-centered curriculum may cover less content in greater depth as students take on increasingly challenging, non-routine learning tasks.

Sample SCL approaches:

- Multi-step, open-ended problems, projects, and thematic explorations
- Assignments that incorporate research, investigation, innovation, and risk taking
- Opportunities to design and conduct explorations of real-world problems independently and with others

2: Restructure the classroom and school day to create authentic learning opportunities that are relevant to college and career expectations; use a range of assessment formats to measure learning, wherever and whenever it occurs.

Students develop academic perseverance and other crucial skills when they engage in non-routine investigations and extended projects. These learning opportunities can happen beyond school walls or the traditional school day, with students earning credit based on mastery, rather than seat time. Quality assessments of academic content and cross-cutting skill development help educators monitor student progress.

Sample SCL approaches:

- Authentic projects and performances before real-world audiences
- Performance assessments, such as presentations and exhibits
- Online systems that allow each student to track

and self-manage their progress toward mastery

- Credit for learning beyond school hours and over the summer months
- Personalized learning plans that build on students' interests and goals and provide multiple pathways to graduation

3: Place students at the center of learning and expand the definition of who or what is a “teacher.”

For students to become self-directed learners who practice the many skills associated with long-term success, the traditional roles of teachers and students must change significantly. Students are more likely to develop the motivation, perseverance, and self-regulatory skills when instruction is responsive to their individual needs and when they play a role in shaping how they learn and take responsibility for their progress.

Sample SCL approaches:

- Teachers treat knowledge as something to be constructed, investigated, and disputed
- Teachers model open-ended inquiry, evidence-based reasoning, and processes for solving non-routine problems
- Students set personal learning goals in the context of authentic intellectual tasks and the existing (flexible) curriculum
- Teachers design instruction so that students learn to collaborate with and lead peers in productive ways

From Standards to Readiness

We have much work ahead: Ensuring a secure, sustainable future for the next generation will require our K-12 system to perform a bigger job than it has before. It means we must help every child master more rigorous standards and the skills they need to succeed in college, careers, and as citizens.

The Common Core State Standards are an important step in the right direction, but mastery of academic standards is not enough to guarantee that our young people will be ready to meet the demands of postsecondary life. Increasingly, research suggests that an additional set of skills, behaviors, and dispositions are what separate those who succeed from those who do not—in school, college, the workplace, and beyond.

Student-centered learning approaches may be one of our best means for achieving a more integrated and realistic vision of college and career readiness. By engaging students in rigorous, complex, and increasingly self-directed learning, we can help them master more challenging content while developing the skills and behaviors they need to thrive in the 21st century.

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