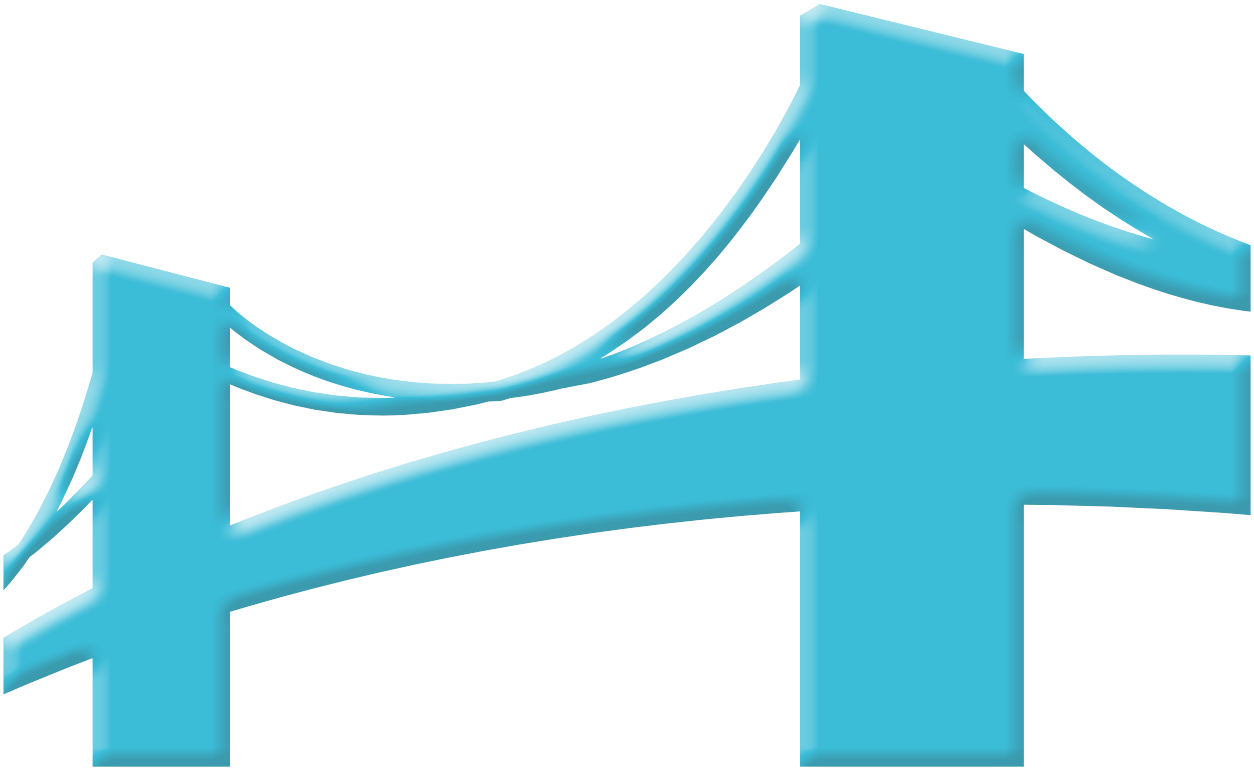

# A path to alignment:

## Connecting K-12 and higher education via the Common Core and the Degree Qualifications Profile

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# Two promising tools for reshaping the system

There's little in life more comforting than clarity. Think of that fateful moment during your annual eye exam. As you peer through the high-tech viewfinder at two parallel images, the optometrist flicks through a sequential stack of lenses, and — click! — the images suddenly snap together into one clear, coherent picture.

Wouldn't it be nice if every conundrum could be solved this way, if every misalignment and missed connection could be corrected with a click?

As someone who's worked for decades in the arena of education policy and education reform, I often find myself yearning for alignment, for clarity. And I'm not alone. For as long as I can remember, colleagues representing every sector of American education — from pre-kindergarten to postdoctoral — have talked about how much better things would be, for students and for society, if the system were more seamless — more of a true *system*.

While this agenda has been talked about in generic terms for years as an idealized "P-16" system, recently many have spoken more precisely about such a system. They see a system in which the exit standards for one sector align with the entrance requirements of the next … one in which students' pathways are clearly defined and reasonably straight … one in which all stakeholders — students, educators, policymakers and employers — have a shared definition of student success and are confident that graduates are prepared to succeed at work and in life.

That cleanly connected system has long been a goal, a wish. But it's more than that now. In fact, in today's global age — an era in which a well-educated citizenry is absolutely vital to economic success and social progress — a truly aligned education system has become all but indispensable. Without such a system, it will be next to impossible for us to forge the necessary human capital — the talent — that can power our economy and ensure a thriving democracy.

Labor experts at Georgetown University's Center on Education and the Workforce predict that 55 million new jobs will be created in this country by the end of this decade. Of them, 40 million — more than 70 percent — will require a high-quality college credential, some type of degree or postsecondary certificate. Right now, according to Census figures, only around 40 percent of working-age Americans (ages 25-64) have attained at least a two-year college degree; and we're on track to reach only about 45 percent by decade's end.

Clearly, then, the talent gap is wide, and it is troubling. If we hope to close that gap, our education system simply *must* adapt and improve. It has to be more seamless, better connected, and more quality-focused. We must make sure that standards are high and that they're well defined — so students see clearly where they're going and can get there as quickly and cost-efficiently as possible.

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The outcomes of education can take many forms, including different standards and competencies. Defining educational success, quantifying learning, has always been a challenge — at every level along the educational pipeline. But in the last few years, significant work has gone into the development and testing of two key tools that can help us meet that challenge. These two tools — the Common Core State Standards (CCSS) and the Degree Qualifications Profile (DQP) — help make concrete and organized what has long been conceptual and atomized.

The CCSS seek to assure students' competence in English and math through the K-12 curriculum, essentially establishing a baseline for college and career readiness. The DQP works at the postsecondary level, describing what a college degree should signify — what learning outcomes are embedded in that degree — regardless of major.

Neither of these tools is "the answer," of course. Using one or the other — or even both in combination — won't immediately produce that satisfying "click" of alignment and clarity in the American education system. Each tool is a work in progress, and neither has garnered universal acceptance.

Still, the CCSS and the DQP are promising. Both tools are the result of well-considered, serious efforts by a number of thoughtful, dedicated professionals to tackle this complex issue. Both have undergone a rigorous period of testing and public scrutiny and, while neither has escaped criticism, both have proven their value. That value stems from the two main characteristics they share.

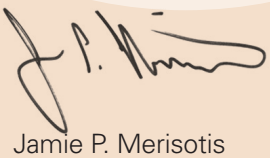
First, the CCSS and the DQP are both rooted in the concept of defining success by assessing genuine *learning* among students — the demonstrable attainment of well-defined learning outcomes, not merely the accrual of time on task or in classrooms. This shift away from a time-based system of education and toward one that is based on competencies — on what students know and are able to do as a result of their studies — this shift is critical in creating the redesigned, efficient system that society urgently needs.

Second, both of these tools take a necessarily comprehensive approach that can be applied broadly and at sufficient scale. In other words, each of these new tools defines and aligns standards in a way that can be applied nationally, at the K-12 and postsecondary levels. This is key because Americans are — and must continue to be — highly mobile to succeed. If our citizens are no longer defined by local geography, our educational standards can't be either.

In short, the CCSS and the DQP are the best tools at hand right now to help us forge better alignment between K-12 and postsecondary education. It's time to look more closely at these tools, to see how they might be used together, how they might be further refined, and what other tools might be needed to finally realize that long-held vision of a truly seamless system.

This report — a collaborative effort between two widely respected experts on learning outcomes and assessment — represents an important step in that ongoing process. We at Lumina are convinced that it can advance the national conversation about educational alignment and reform.

It's a vital conversation, and it's one that must continue — even if we never hear that satisfying "click" of total clarity.



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# Executive summary

The **Common Core State Standards** (**CCSS**), which aim to assure competency in English/language arts and mathematics through the K-12 curriculum, define necessary but not sufficient preparedness for success in college. The **Degree Qualifications Profile** (**DQP**), which describes what a college degree should signify, regardless of major, offers useful but not sufficient guidance to high school students preparing for college study. A coordinated strategy to prepare students to succeed in college would align these two undertakings and thus bridge an unfortunate and harmful cultural chasm between the K-12 world and that of higher education. Chasms call for bridges, and the bridge proposed by this white paper could create a vital thoroughfare.

The white paper begins with a description of the CCSS and an assessment of their significance. A following analysis then explains why the CCSS, while necessary, are not sufficient as a platform for college success. A corresponding explanation of the DQP clarifies the prompts that led to its development, describes its structure, and offers some guidance for interpreting the outcomes that it defines. Again, a following analysis considers the potential of the DQP and the limitations that must be addressed if that potential is to be more fully realized.

The heart of the white paper lies in sections 5 and 6, which provide a crosswalk between the CCSS and the DQP. These sections show how alignments and differences between the two may point to a comprehensive preparedness strategy. They also offer a proposal for a multifaceted strategy to realize the potential synergy of the CCSS and the DQP for the benefit of high school and college educators and their students — and the nation.

# Introduction

The paper advances three key premises:

- The CCSS define necessary but not sufficient knowledge and skills for college readiness. The DQP is more comprehensive but opaque to high school faculty, advisers and students preparing for college.

- Through greater cognizance of the CCSS and the DQP by secondary and postsecondary educators and policymakers, the two might better serve the shared priority of increased college readiness and success.

- A comprehensive strategy to align the two could promote development of a common language and lead to a shared understanding of what it means to be more fully ready to succeed in college.

The paper explores these three premises through its narrative overview of the CCSS and the DQP combined with appendices that offer a more detailed understanding of the similarities and differences between the two. Understanding more fully how the implementation of each affects the other prompts an exploration of complementary and mutually reinforcing strategies for strengthening the connection between the two in order to enhance college readiness and promote college success.

# An overview of the CCSS

A more detailed review and analysis may be found in Appendix A

The Common Core State Standards represent both a culmination of the standards movement of the past 25 years and an attempt to address the lowering of academic content standards that occurred in many states during the No Child Left Behind era. NCLB then inadvertently offered states an incentive to lower expectations so that more students could meet Adequate Yearly Progress targets. Compared to most existing state standards, then, the CCSS are more complex, both structurally and cognitively, and more demanding.

- They were designed beginning with college- and career-readiness standards at the 12th-grade level through learning progressions that extend to third grade.

- They call for a sound foundation of key content knowledge.

- They mandate not simply rote command of operations and techniques, but deep understanding of the principles involved.

  For example, the **Standards for Mathematical Practice** (see Appendix A for a detailed description) expect students to make sense of problems and to persevere in solving them, to reason abstractly, to construct viable arguments and critique the reasoning of others, and to model with mathematics. By 12th grade, students are expected to have learned key content in algebra, functions, modeling, geometry, statistics and probability, along with the foundational mathematics necessary to master these conceptual categories. This is in addition to clearly specified foundational mathematical skills in numbers and operations, measurement, algebra, geometry, and probability and statistics.

  In **English/language arts/literacy**, students are expected to identify key ideas and details in complex literary and informational texts, integrate knowledge and ideas, and read a range of texts of varying complexity. They need to be able to write in multiple genres and use research in their writing to support their points of view. They will be expected to demonstrate a mastery of the conventions of the English language and have a vocabulary sufficient to express themselves according to standard scholarly conventions. They are expected to understand what is said to them, to engage in effective and fruitful conversation with others, and to present their ideas orally in ways that a wide range of audiences can understand. (See Appendix A for a detailed description.)

Several shared characteristics are apparent in a comparison of the math and ELA standards. Each begins with a unifying set of concepts designed to be integrated into and demonstrated through the context of specific content. In mathematics, these are the Standards for Mathematical Practice. In ELA, they are the Anchor Standards. Understanding these standards is important if the goal is to improve college and career readiness for all students. Focusing solely on the "what" of content coverage at each grade level and, for high school mathematics, each subject area, provides a partial picture at best, one that obscures almost entirely the notion of learning progressions that build knowledge, skill, insight, understanding and the ability to apply what is being learned across grade levels and subject areas.

## Limitations of the CCSS

- The CCSS were developed only in the areas of mathematics and English/language arts. Although states may create and adopt other standards, the CCSS do not now include science, social sciences, second languages and the arts.

- They do not constitute a curriculum. Each school district and ultimately each teacher will need to devise a way to teach the standards in the ways

they see as most relevant and appropriate to their situations.

- The clear link between standards and accountability raises the risk of "teaching to the test." Despite their expectations for the type of deeper learning not easily addressed through test preparation, the CCSS may not be entirely immune to such manipulation. The contrasting hope is that the more challenging content and emphasis on thinking skills will discourage simplistic test preparation.

- Because the types of learning envisioned by the CCSS require fundamental changes in curriculum and instruction, they may challenge states where resources are already stretched thin and where sufficient support for teacher professional development cannot be provided.

- The CCSS have not yet defined the performances required to confirm the content learned. It is not clear yet "how good is good enough" on these challenging and demanding standards.

## The CCSS and college preparedness

The alignment of the CCSS with the expectations of college instructors in a wide range of courses was demonstrated through a large-scale study undertaken by the Educational Policy Improvement Center (EPIC). The study found that most of the nearly 2,000 instructors in 25 different areas, including both general education and more career-oriented courses, stated that the vast majority of the CCSS were applicable to their courses and important for success in those courses. While the exact profile of standards needed for success in each of the 25 areas varied, the CCSS overall were found to provide a solid foundation upon which to undertake postsecondary studies. An overwhelming majority of respondents (96 percent) agreed with the statement that the standards reflect a level of cognitive demand sufficient for students who meet the standards to be prepared to succeed in their course. (See appendix B for a detailed summary of this study.)

# An overview of the DQP

The Degree Qualifications Profile, published in January 2011 by Lumina Foundation, addresses three previously unmet needs.

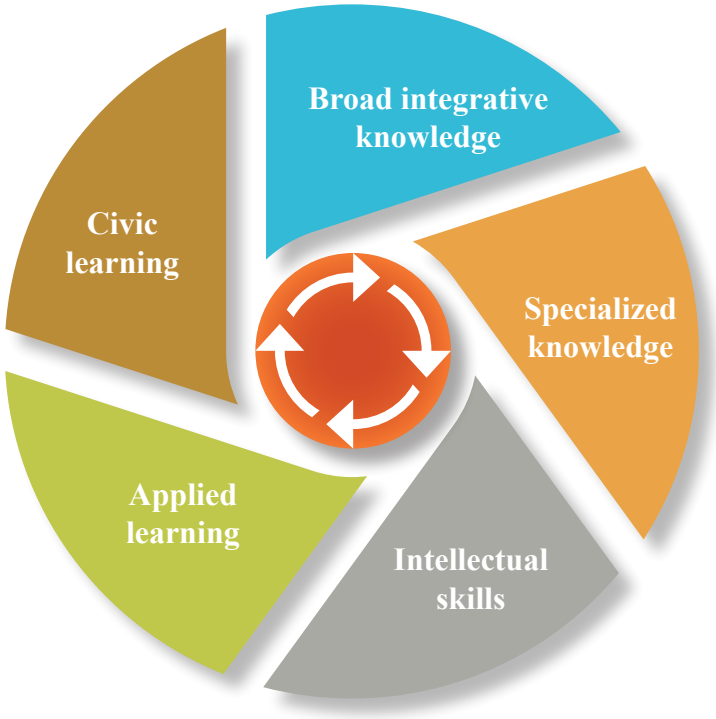
First, by defining the most often awarded academic degrees in the United States, the DQP draws on extensive documentation and experience to propose a consensus urgently required by higher education and its supporters. The greater transparency and accountability demanded by many of higher education's constituents — political leaders, regional and specialized accrediting organizations, alumni, and students — necessitate a shared understanding of what higher education is expected to accomplish.

Second, the DQP explicitly supports the move in higher education towards greater intentionality. The unambiguous higher education outcomes set forth in the DQP offer a structure to guide curricular planning at every level — the college degree, the major, the program, the course. By developing curricular structures that enable students to accomplish widely understood educational objectives, institutions, departments and faculty members will strengthen learning and invite more meaningful assessment.

Third, the DQP enables the U.S. to join an increasing number of nations that delineate higher education outcomes according to a qualifications framework. Europe's brief "overarching" framework, a scaffold for more detailed frameworks at the national level, may be the most conspicuous effort in this regard, but some nations in Africa, South America, Latin America and the Pacific Rim, as well as Australia, already have organized their higher education systems to pursue clear statements of outcomes and to measure student accomplishment accordingly.

## The outcomes

The DQP is organized according to five categories. While there are important correlations among these areas — and thus some echoes of one category in another — the division draws attention to the vital importance of civic learning as a discrete educational objective, to the singular value of applied learning as a measure of all learning, and to the necessity for broad, integrative learning not only as a value in itself, but also




as a condition for the genuine intellectual command that emerges when knowledge is grasped not as isolated fragments of information but as coherent and inter-related.

Note that "applied learning" in this context refers not to narrowly focused career or technical education leading to "procedural knowledge," but to the furtherance and confirmation of broad learning, or "conceptual knowledge," through its exercise with respect to complex problems. "Civic learning" assumes an awareness of principles and structures so as to focus on the exercise of learning in the public arena for both individual and societal benefit.

A few clarifications:

- The degree-level outcomes are meant to be "summative." The DQP does not propose model curricula but instead assumes that students may arrive at the outcomes it defines having followed a variety of paths.

- The outcomes are *not* meant to be "comprehensive." Through their reliance on active verbs and their emphasis that degrees differ *in kind*, not simply in the number of credits required, they are intended to *illustrate* effective outcomes statements. Hence they invite colleges and universities, programs, and professors to create additional statements in the light of the DQP that define even more clearly what their students should know and be able to do when they graduate.

- The DQP makes no effort to define levels of performance required for mastery of its outcomes. "Standards for quality necessarily embody local judgments based on explicit criteria for performance."[1] However, future iterations of the DQP may offer guidance toward identifying best practices in this regard.

- "All outcomes identified for the bachelor's degree assume those listed for the associate degree, and outcomes stated specifically for the master's degree include those for the associate and bachelor's degrees." Each section of the DQP "thus demonstrates the principle of incremental challenge and accomplishment from one degree level to the next."[2]

## Applications of the DQP

Since its publication in January 2011, the DQP has prompted and supported a wide variety of known applications in 44 states. An early survey appears in the winter 2012 issue of Focus magazine, published by Lumina Foundation (www.luminafoundation.org/publications/focus/2012-01.html). More recently, the National Institute for Learning Outcomes Assessment (NILOA) is tracking users and uses of the DQP. NILOA maintains a website describing the "DQP in Practice" at http://learningoutcomeassessment.org/DQPInPractice.html.

Prominent users to date include several regional accrediting associations — the Council of Independent Colleges (CIC), the American Association of State Colleges and Universities (AASCU), and the Association of American Colleges and Universities (AAC&U). In addition to these broadly inclusive projects, many colleges and universities are using the DQP in pursuit of their own priorities.

## The current status of the DQP

The aspiration behind the DQP is clearly stated: It is intended to serve as "a tool that can help transform U.S. higher education."[3] Nearly three years following its publication, the glass representing that aspiration is half full — and half empty. An observer with a positive perspective might point to the many and diverse uses of the DQP that continue to proliferate. A negative perspective would emphasize that the DQP remains little known throughout much of higher education, has had little impact on the important sector of specialized accreditation and has yet to enter the popular vocabulary.

## The potential of the DQP

The DQP is not yet "transforming" U.S. higher education, but it has the potential to do so, provided that several conditions are met.

- Because the DQP offers leadership not evident elsewhere, there must be clear and detailed "crosswalks" to complementary initiatives such as the Essential Learning Outcomes of AAC&U, the Tuning Process and the emerging commitment to validation of competence-based learning. Long before recent declarations by the Department of Education and institutions investing in competency-based learning, the DQP proposed that degrees be defined according to competencies.

- A second iteration of the DQP must reveal consideration in greater depth of the discrete audiences that should use it, e.g., high school guidance counselors, college students, faculty members, etc. Having already published "user's guides" for chief academic officers and for

members of the faculty, Lumina may wish to offer similar guides for other discrete audiences. To make the DQP more useful to such constituencies, such publications should include prototypes for assessment and reporting.

- The next iteration of the DQP should include attention to what some observers believe to be gaps — or to indicate clearly why these apparent gaps persist. This white paper addresses one of the most frequently mentioned concerns — the lack of attention on the part of the DQP to issues of preparedness, in general, and to the anticipated impact of the Common Core State Standards, in particular. But concerns about other perceived gaps have arisen as well. These include attention to the importance of clearly understood liberal learning outcomes in some certificate programs and cognizance of professional doctoral degrees (audiology, pharmacy, physical therapy) that were master's programs only a few years ago.

In sum, the significant potential of the DQP remains undiminished. But there is work to be done if that potential is to be realized following the release of the DQP in its second iteration.

# Comparing the CCSS and the DQP

A more detailed review and analysis may be found in Appendix C

The CCSS and the DQP have much in common. Both offer explicit statements of desired student learning in order to clarify expectations and to enable better curricular planning. Both seek to raise the bar of student performance by identifying important learning and by organizing its expectations in a clear, coherent framework. And both acknowledge that real improvement will result only through the committed engagement of teachers and faculty members.

But the CCSS differ substantially from the DQP standards in their quantity, detail and focus on essentially two arenas of academic performance — mathematics and English/language arts. The CCSS seeks to move the K-12 curriculum away from a "mile-wide, inch-deep" model toward greater depth in identified foundational areas. By contrast, the DQP covers a much broader territory. As it focuses on what the recipient of an associate, bachelor's or master's degree should know and be able to do, regardless of discipline, its vision includes the creative integration of knowledge, its application and its expression through civic engagement.

In addition, both the CCSS and the DQP represent a particular perspective toward learning that is characteristic of their respective sectors. Hence, some of the differences between them reflect differences in nomenclature, organization and tradition.

## INTENT

While the CCSS seek to establish a framework within which states can mandate a level of consistency of expectations across schools within a state and across states, the DQP is designed for adaptation and implementation by individual institutions engaging their faculty in deliberation and application.

## CIRCUMSTANCES

The CCSS focus on college and career readiness, a concern that extends through and beyond K-12 education. The DQP, which focuses on postsecondary performance, has not yet acknowledged efforts to promote college and career readiness efforts at the K-12 level.

## CONTEXTS

The CCSS are, in some respects, the culmination of more than two decades' worth of standards development work in K-12. Similarly, the DQP, which seeks to express a broad consensus within higher education as to appropriate degree outcomes, draws on previous initiatives and reflects emerging priorities.

## LEADERSHIP

Governors and chief state school officers organized the CCSS development process, which was facilitated by a range of experts and educators. The DQP developed out of discussions convened by Lumina Foundation that prompted the commissioning of a draft by four authors representing different higher education sectors and realms of experience.

## ASSUMPTIONS

The CCSS and DQP share certain assumptions, primary among them the principle that making expected academic performances clear and measuring them explicitly leads to improved learning for more students. Curriculum and instruction follow from a shared understanding of what students should learn. Additionally, the learning outcomes are meant to be achievable by motivated students who are supported. Neither the CCSS nor the DQP are intended for the sorting of students or the ranking of programs or institutions. Both approaches create frameworks within which accountability might be better conceived and executed at all levels.

## SCOPE

The CCSS view English/language arts/literacy and mathematics as proxies for the entire high school curriculum, while the DQP maps expectations for the full breadth of learning associated with the degrees

awarded most often. The CCSS are designed to be implemented relatively consistently, with educator discretion on how they are taught, while the DQP invites adaptation to the range of postsecondary missions. Both offer standards while steering clear of standardization. The CCSS have associated with them a well-developed external assessment system, while the DQP explicitly envisions and invites appropriate assessments.

The largest contrast between the two is the sheer number of CCSS standards compared to those of the DQP. The CCSS attempt to capture 12 years' worth of curriculum and instruction, whereas the DQP limits itself to three degrees covering approximately six years.

- In mathematics, for example, the CCSS must include all of the foundational mathematics necessary for the study of every other branch of mathematics subsequently, while the DQP sets forth expectations that apply broadly across a wide range of degree programs.

- This contrast is particularly marked in the area of English/language arts/literacy. The DQP is structured around a relatively modest range of standards that are embedded into its theme areas. For example, the Intellectual Skills section contains only five statements to define expected language and literacy performance. However, these five describe a level that will challenge students and that represent internationally competitive performance. The CCSS, by contrast, are significantly more detailed and are grade-level specific, though many of the differences across levels reflect increasing sophistication of application rather than of the content and skills themselves.

Differences between the CCSS and the DQP can be seen most clearly in several emphases of the DQP:

- **The DQP emphasizes the application of foundational and disciplinary knowledge in increasingly complex ways, whereas the CCSS emphasize math and English content and attendant thinking skills as preparation for college and careers.** While this distinction is perhaps an oversimplification (the CCSS clearly is concerned about the application of knowledge in many ways), it illustrates different value perspectives inherent in the two sets of standards.

- **The DQP regards the capacity to "engage diverse perspectives" as an essential intellectual skill, whereas the CCSS are silent on this point.** Several of the CCSS, particularly those concerned with writing, imply such engagement, but a specific agenda to do so is beyond the scope of the CCSS.

- **The DQP places an explicit priority on scientific awareness and reasoning, whereas the CCSS do not yet include science standards.** These are being developed separately and are being adopted by states as they emerge. These new standards will address scientific awareness and reasoning, so this distinction may fall away as they are implemented.

- **The DQP identifies civic learning as a discrete category, whereas the CCSS are silent on this point**. While civic learning may be implied at several points in the CCSS, the topic itself is not addressed directly, in part due to the problems associated with requiring standards in K-12 education that imply explicit value positions.

- **The DQP emphasizes the inter-relatedness of knowledge.**

- **The DQP argues that the different postsecondary degrees — associate, baccalaureate, master's — differ in kind, each requiring an increased level of intellectual independence and initiative; deeper understanding of a particular field or area of study; and increased mastery of both general ways of knowing and discipline-specific inquiry skills.**

- **The DQP promotes the notion that its standards may be learned and mastered through a wide range of curricular options and approaches, and through practical experience and independent study. Many paths exist to the desired outcome.** The CCSS tend to describe a finite universe of curricular and instructional options that are designed and directed by the teacher in almost all cases.

## Issues of implementation

The CCSS were adopted fully by 45 states as of spring 2013. However, it is worth noting that the CCSS are much more sensitive than the DQP to political pressures. As a result, CCSS implementation is on hold in several states, while several others are contemplating withdrawing their adoption altogether. At the same time, CCSS implementation is supported by extensive resources, including materials from ad hoc groups; subject-matter and professional organizations; and publishers and vendors. Critical mass for implementation may be reached soon largely due to the adoption of the CCSS as *de facto* national standards by so many vendors and educational organizations. Support for DQP implementation, by contrast, comes largely from Lumina Foundation in concert with a few other organizations and foundations.

Each initiative has encountered implementation challenges. The CCSS face the fact that many schools are not well prepared to take on a challenge and change of this magnitude at the end of a period of drastically reduced budgets. Many districts may be unable to meet the technology demands alone. Professional development needs, including the enhancement of teacher content knowledge and pedagogical skills, are vast and largely unaddressed to date. The implementation timeline has put new assessments in place before schools have had adequate time to prepare for them.

Similarly, the DQP has met resistance in some quarters. Its interest in seeking a consensus of the academy on standards has sometimes been mischaracterized as "standardization," and its goals at times have become confused with efforts such as the Tuning Process (also a Lumina project) and the AAC&U Essential Learning Outcomes.

Funding is an issue for both. While the CCSS are supported by several sources, including funds from the $4.65 billion federal Race to the Top program, most funding comes from state and local K-12 educational operating budgets in which implementation costs are largely invisible or not easily determined. Although these costs may be modest if thought of in terms only of direct implementation support, any redirection of funds in tight fiscal environments will engender a measure of resistance. DQP funding has been limited largely to Lumina Foundation-sponsored discussions, the development (and now revision) of the DQP itself, and grants to support many of the implementation projects described above.

Concerns exist about both sets of standards. Will the CCSS encourage reductionist teaching? Will the DQP overcome resistance to any effort meant to achieve a greater level of consensus? Will students be overwhelmed by the amount of testing the CCSS require? Will the next iteration of the DQP address preparedness issues?

# Bridging the chasm: Strategy for synergy

Considered separately, the Common Core State Standards and the Degree Qualifications Profile represent impressive efforts to create higher expectations for education, to enhance the accountability of education for the support on which it depends, and, above all, to improve student learning through greater intentionality. Taken together, the CCSS and the DQP represent an unprecedented effort to make education more focused and purposeful, deeper, and, potentially, more coherent between the K-12 and higher education sectors. The problem is that, for a variety of understandable but often regrettable reasons, they are yet to be "taken together" very often or very publicly. They should be — much more often and much more publicly — because each stands to benefit from attention to the strengths of the other, and the nation's students stand to benefit from a coordinated implementation of both.

This white paper proposes a two-stage process to achieve a desirable synergy between the two initiatives. The first stage would be primarily informational, a process through which those engaged with the CCSS and the DQP would begin to understand and appreciate the initiative with which they are less familiar. The aim of this stage would be to encourage and enable educators and education officials to make better use of these initiatives *in their present form*, and would focus on practical applications of their broader understanding to enhance current practice. In the second stage, those involved with "design, manufacture and implementation" of the CCSS and the DQP would consider how each initiative might be improved through reference to the other. As improvements in each initiative then create greater synergy between them, both could accomplish their shared goals more fully.

## STAGE ONE
## EXPANDING AWARENESS AS A PLATFORM FOR CHANGE

This initial stage would emphasize (1) enabling K-12 educators to work with a more fully comprehensive understanding of college preparedness drawing on both the CCSS and the DQP; and (2) enabling postsecondary educators to understand issues of preparedness more fully through their greater acquaintance with the CCSS and the process of implementation now under way.

The elements of this strategy might include:

(a) A sponsored convening of representatives of the National Governors Association Center for Best Practices (NGA Center), the Council of Chief State School Officers (CCSSO), the Smarter Balanced Assessment Consortium, the Partnership for Assessment of Readiness for College and Careers (PARCC), the DQP authors and representatives of Lumina Foundation, and perhaps other concerned foundations and groups to discuss the issues raised in this white paper and to advise on the two publications (b and c) proposed below.

(b) Publication of a draft DQP user's guide that would reference the CCSS within a straightforward, user-friendly presentation of the DQP.

(c) Publication of an explanatory guide to the CCSS pitched to higher educators.

(d) A subsequent series of regional meetings and workshops to introduce the CCSS-DQP guide and to suggest how the two initiatives might be considered in tandem as an enhancement to high school curricular planning and college preparedness advising.

## STAGE TWO
## SYNERGY THROUGH ADAPTATION AND COORDINATION

The second stage would address the opportunities for synergy suggested in this white paper and identify others with a view toward strengthening both the CCSS and the DQP. Obviously, the suggestions that have surfaced through the considerations of the white paper are little more than points of departure. But if the journey is worth making, points of departure are important.

(a) Implementation of the CCSS might be enhanced through acknowledgment of the advantages obtainable through the collegial, incremental, persuasive approach evident in implementation of the DQP. Similarly, those responsible for the implementation of the DQP have something to learn from how CCSS is being quickly brought to scale through an implementation process based on state-wide mandates in 45 of the 50 states.

(b) If the DQP is to realize the potential envisioned by its framers, those engaged with its revision may wish to consider how the CCSS guides curricular planners and teachers through detailed outcomes expectations according to clearly defined domains of competence — perhaps not at the meticulous grade-by-grade, skill-by-skill level evident in the CCSS, but in ways that offer greater guidance for the structuring of college curricula and increased support for assessment. Without seeking any greater degree of standardization among college curricula, the DQP could follow the example of the CCSS by proposing models describing alternate pathways to accomplishment of the recommended outcomes.

(c) High school students, in particular, might find the CCSS and their curriculum far more compelling if the CCSS were to be deliberately linked to the DQP as a platform for both college preparedness and college success. As David Conley has observed, high school teachers often function as *de facto* college advisers. Yet he asks, "To what degree do teachers know the specific knowledge and skills associated with student success in college courses?"[4] More fully informed about expectations at the college level, high school teachers would be better able to offer advice on the application process, on placement testing and on success in college.[5]

(d) As the process evolves, might the CCSS propose multiple curricular paths that would prompt creative exploration of additional content beyond the CCSS? Without any sacrifice of rigor, the CCSS might acknowledge the possibility that sequences currently unimagined could lead to the same result. That is, if the CCSS were to learn from the DQP its invitation to diversity of means in pursuit of agreed-upon ends, it could encourage further innovation even as it raises standards and increases performance. Moreover, if the CCSS are to contribute as significantly as possible to the intellectual and economic competitiveness of students — and of the nation — might they evolve over time to create a more complex, nuanced and inclusive understanding of secondary education? For instance, might they reflect more fully the emphases of the DQP on applied learning, integrative understanding and civic learning?

(e) Just as the DQP envisions graduates applying their learning in real-world environments, so, too, might the CCSS look more resolutely beyond *preparation for* college to providing the means toward student *success in* college.[6] If the vision of the CCSS were less instrumental, a clearer and more compelling focus on results — the "real" outcomes, perhaps — might emerge. But the vision of the DQP must expand as well, to regard the learning outcomes specified by the CCSS as expectations for college entry. That is, the DQP might clearly stipulate that if students are to achieve the outcomes it frames, they must enter college prepared to achieve them — having already achieved the outcomes defined by the CCSS.

(f) Affinities between the DQP and the CCSS might be more fully developed to the benefit of both — and to the edification of both the K-12 and the postsecondary communities. For instance, both express the understanding that knowledge must not simply be held, but demonstrated through

application. But just as the DQP might be stronger if accompanied by a curricular guide illustrating the "domains" (to use a CCSS word) that define a particular capacity, the CCSS might appear more compelling to students if it were to project more clearly the potential usefulness of the domains it prescribes.

# In sum

The synergy envisioned in this white paper is less a matter of aligning documents with one another and more a matter of providing greater guidance and motivation for students and faculty members. However, the likelihood of such synergy developing will be greatly enhanced if those engaged with CCSS and DQP development and implementation undertake a sustained dialogue that leads to immediate, large-scale action designed to demonstrate and promote the connections between the two and the potential benefits of coordinated action to implement them in an integrated and holistic fashion.

As suggested by this two-stage process proposal, that dialogue at first may yield little more than an informed awareness of what the two documents share — and how they differ. But over time, it should support a process through which each initiative might learn from the other and become more effective as a result — to the benefit of students, educators and the nation.

# Appendix A

## THE CCSS AND THE DQP COMPARED IN DETAIL

An attempt to define an alignment between the Common Core State Standards (CCSS) and the Degree Qualifications Profile (DQP) reveals a paradox.

In one sense, the two attempts to define and document learning outcomes are closely comparable. Both the CCSS and the DQP express the assumption that education will become more effective and student learning more assured if there is greater clarity concerning what should be learned stage by stage. Both assume and express the important paradigmatic shift from an emphasis on what is taught to what is learned. And both seek to address national priorities that have been clearly articulated. By advancing clear expectations, both the CCSS and the DQP seek to increase student attainment, thereby promoting greater accomplishment for individuals and greater competitiveness for the nation.

Yet in another sense, a comparison of the CCSS and the DQP reveals deep dissimilarities grounded principally in a long-standing — and decidedly unfortunate — cultural divide in the U.S. between P-12 and postsecondary education. The premises embedded in the two documents, the assumptions evident in how expectations are set forth, and, most especially, the ways in which the two documents seek to define success differ considerably. If there is to be a useful alignment of the two, these differences must be acknowledged and, to the extent possible, interpreted, bridged, and thus, surmounted.

### Intent

Both the CCSS and the DQP share a broad commitment to greater educational effectiveness for the benefit of students and the nation. Within this commitment, distinctive emphases appear, however.

**CCSS:** The Common Core State Standards provide a consistent, clear understanding of what students are expected to learn, so teachers and parents know what they need to do to help them. The standards are designed to be robust and relevant to the real world, reflecting the knowledge and skills that our young people need for success in college and careers. With American students fully prepared for the future, our communities will be best positioned to compete successfully in the global economy."[7]

**DQP:** By establishing "a common vocabulary or sharing good practice," the DQP seeks to achieve "better public understanding of what institutions of higher education do" by creating "reference points for accountability that are far stronger than test scores or tallies of graduates, research dollars, student satisfaction ratings, job placements or patents." Through its emphasis on "the cumulative integration of learning from many sources and the application of learning in a variety of settings," the DQP proposes "benchmarks" for documenting learning and for improving its quality." Hence, the DQP also is meant "to encourage colleges and universities to enhance their assessment practices and/or develop new assessments."[8]

Another important distinction between the two may be found in their different implementation paths: through state adoption in the case of the CCSS and by organizations and individual institutions in the case of the DQP. The implied difference is that the CCSS require state-mandated implementation, while the DQP is intended to be implemented voluntarily after debate and discussion among faculty, administration and others affected. The hope is that the document's cogency, practical usefulness and timeliness will commend it to a broad range of educators and

institutions and lead toward a much-needed consensus. The recommendations advanced above describe an opportunity to bridge these differing perspectives in ways that could strengthen both initiatives.

## Circumstances

Differences between the CCSS and the DQP reflect in part their distinct etiologies. Each arose out of particular circumstances to address issues raised specifically within its sector. However, it is worth noting that one of the key issues the CCSS is designed to address is college and career readiness. In that sense, it is meant to connect the two systems. While precollegiate educators have a lot to learn about postsecondary education, the CCSS opens the door a bit wider for this to occur. But because postsecondary faculty members are largely unaware of the CCSS, the DQP must create connections between its vision and that of the CCSS. That is one reason those on one side of the fence should acknowledge their lack of awareness of the expectations of those on the other, an issue to which this white paper attends.

**CCSS:** While almost every decade has witnessed reform initiatives in K-12 education (e.g., the "Sputnik" reforms of the late 1950s, the Elementary and Secondary Education Act in 1965, its 2001 reauthorization known as *No Child Left Behind*, and the more recent *Race to the Top*), the exceptional promise of the CCSS arises from circumstances that are, in some ways, unprecedented. First, a documented decline in the effectiveness of K-12 education in the U.S. relative to the rest of the world has become both a widely shared concern and an urgent political issue. The awareness that "nations that spend far less (on public K-12 education) achieve higher levels of student performance"[9] has fueled debate at the national level and prompted action at both the federal and state levels. Second, as indicated below, the challenge in this instance has prompted a cooperative effort of governors and state higher education executives in 45 states — an unprecedented leveraging of authority reflecting a compelling political incentive. Third, compelling examples internationally of the pursuit of clearly defined educational outcomes represent another potential "Sputnik" moment. As one Australian observer says, "It is hard to take exception to the notion of schools and teachers focusing their efforts on what students learn and on what they achieve."[10]

**DQP:** Although higher education has seen its share of ambitious reform initiatives, some of which have been mandated by regional accrediting associations, the diversity of the sector and its sustained prestige internationally have weighed against enthusiasm for broadly inclusive reform initiatives. However, three recent factors, all in some sense political, have prompted increased interest in thorough-going change. First, cognizant of the federal investment in student aid and the rising level of debt (and default) resulting from borrowing for higher education, national political leaders have attempted — and continue to threaten — federal intervention in the interest of greater accountability. Second, the development of outcomes frameworks elsewhere (the Bologna Process in Europe, the pursuit of Outcomes Based Education in Australia and the higher education reforms visible throughout the Pacific Rim) has exposed a lack of similar consensus in the U.S. While degree programs in Europe have become more uniform and intelligible, those in the U.S. remain highly heterogeneous and therefore largely inscrutable. Third, the president's stated goal of regaining world leadership in attainment of postsecondary credentials by the citizenry of the U.S. and the related Lumina Foundation Goal 2025 have together drawn attention to the quality of those credentials — how such quality is to be defined, pursued and assured — because without an assurance of quality, the goal is meaningless.

## Contexts

The distinction between "circumstances," i.e., external influences, and contextual, or internal, influences can be useful in understanding differences between the CCSS

and the DQP. But in practical terms, both circumstances and contexts help to determine how an initiative is framed and how each relates to a more inclusive and constructive view of educational advancement.

**CCSS:** The Common Core State Standards did not emerge *ab ovo*. Like the DQP, they draw on exemplary standards developed at the state level, they consider models in other parts of the world, and they reflect a significant body of research on student K-12 performance and on readiness for career and college. They build upon 25 years' worth of standards development work and experience in the K-12 system at the state level.

**DQP:** In some respects, like the CCSS, the DQP is not a new initiative at all, but a more compelling and carefully structured pursuit of priorities that have influenced higher education for many decades. Those priorities include a heightened emphasis on educational results (as contrasted with "inputs"), the use of assessment to document and improve on such results, a growing recognition concerning the inter-relatedness of ways of knowing, and a more clearly defined appreciation for the value of higher education to the nation (as well as to individuals). Hence, the DQP occupies a clear niche among several related pursuits and addresses a distinctive question.

| QUESTION | RESPONSE |
|---|---|
| What vision should guide a continuum of effective education from secondary through postsecondary education? | AAC&U's LEAP (Liberal Education, America's Promise)[11] |
| Within this vision, what are the broad educational outcomes all students should achieve? | AAC&U's Essential Learning Outcomes[12] |
| Within each discipline (major), can we develop acknowledged, cumulative pathways toward assured competence? | Tuning USA |
| **Irrespective of discipline, what should each academic degree ensure in terms of what students know and are able to do?** | **DQP** |

## Leadership

**CCSS:** Governors and chief state school officers organized a design process led by standards-development and subject-area experts who consulted with researchers, K-12 teachers, subject-matter organizations and postsecondary faculty, and drew upon a wide range of standards documents from the state, national and international levels.

**DQP:** Lumina Foundation convened national meetings focused on the need for a U.S. higher education outcomes framework, contracted with four experts from different arenas (one is a faculty member) to create the draft and enlisted prominent higher education leaders in revisions prior to publication of a "beta" document.

## Assumptions

Although any effort to state the shared assumptions of the CCSS and the DQP may appear reductive and simplistic, there may be value in observing that the two documents share certain important (if fairly obvious) suppositions.[13] Despite important differences in the K-12 and postsecondary cultures and a long-standing lack of communication between them, the most compelling assumption behind the CCSS and the DQP is the same: Academic performance improves when outcomes are specified in detail and results are measured and compared.

1 Curricular content and pedagogical practices *must follow from* a shared understanding of what students should learn — what they should know and be able to do. On a more practical level, this is limited somewhat by the ability to measure in some form what has been learned. Some important learning is not yet subject to any means of measurement or demonstration. The question of what should be taught must always be addressed in the context of consensus on what students should be able to demonstrate they have learned. While much that is taught and learned may extend beyond what can be demonstrated, the component that is demonstrated forms the common and binding element that establishes the foundational expectation.

2 The outcomes as defined are meant to be achievable by all students who possess sufficient motivation and who receive sufficient support — not to separate the fully qualified from the less well qualified. Stated differently, outcomes should not sort students based on innate ability or aptitude. Persistence and application should be at least as important as aptitude to the mastery and demonstration of key outcomes.

3 Accountability on the part of educators follows from the documentation of students' educational outcomes and from the use of such documentation to bring about improvements in institutional performance and student success.

So far as the DQP is concerned, it must be acknowledged that these assumptions have only recently gained significant acceptance — and that such acceptance is by no means universal. Some institutions continue to derive their educational objectives from the structure and emphases of long-standing academic programs. Some regard particular outcomes as a "filter" developed to discriminate between students who earn the right to advance and those who should be directed to other pursuits. Many faculty members resist the notion of either personal or corporate responsibility for documented student accomplishment, preferring to attribute such results solely to the ability and motivation of their students and, perhaps, to the support they and their students receive from the institution. And, with some notable exceptions, relatively few programs and institutions are using the results of assessment to drive continuous improvement.

## Scope

A comparison of the CCSS and the DQP suggests that both are well suited to address their particular audiences and to the pursuit of their distinct priorities. But if the assumptions sketched above point to a shared commitment to improved student learning and more readily documented student accomplishment, they find expression in approaches dissimilar in important respects. In the CCSS, mathematics and English serve

as surrogates for the high school curriculum. With some justification, the CCSS assume that achieving competence with respect to these two critical areas may serve as an indicator of broader (and perhaps less easily assessed) competences. By contrast, the DQP aspires to map expectations that represent the full breadth of the learning expected of those who qualify for associate, baccalaureate and master's degrees. While not meant to be comprehensive — the DQP acknowledges that its examples "illustrate" only — the intent is far more wide-ranging and inclusive.

These differences in scope reflect important differences in scale. The thorough-going implementation and testing envisioned in (and now being pursued through) the CCSS may necessitate a limited, pragmatic focus that can be realized in practical terms. If the priorities of the CCSS are to be accomplished, curricular planners and teachers must be able to create lesson plans and prepare for assessments. Given the expectations explicit in the CCSS and the stakes involved in the effort to meet them, classroom by classroom, school by school, system by system, a broader focus might have proved unmanageable. If one purpose of high school is to give students a taste of the breadth of educational opportunities and to inculcate in them an enthusiasm for learning, we may ask whether the intense focus of the CCSS and the standardized tests being developed to measure their accomplishment will contribute to this important ancillary goal. But if the more critical priority is to ensure for all students a higher and more consistent level of functionality so far as essential capacities are concerned, the CCSS appear well suited to the task.

By contrast, while the CCSS is directed to the large universe of U.S. K-12 public education, the DQP commends itself to case-by-case adaptation according to the priorities of different organizations and institutions in postsecondary education. While the DQP reflects thorough consideration of much prior work in the development of learning outcomes, it claims not to offer a settled consensus, but to accelerate a discussion meant to lead to greater consensus. It offers standards, but it disavows "standardization." As one reflection of this difference, the DQP, like the CCSS, seeks to advance learning outcomes that invite assessment. However, unlike the CCSS, the DQP has not supported a massive, expensive effort to create standardized testing.

Hence, in sum:

**CCSS:** The standards express expectations for student educational accomplishment in English/language arts and mathematics grade by grade — and do so through a highly detailed listing of standards and subordinate standards. As indicated in Appendix B, the CCSS prescribe not only the "domains" the curriculum must address, but also the sequence in which they should be taken up. Unlike the DQP, which imagines a variety of curricular paths to the outcomes it envisions, the CCSS recommend for consideration a limited number of detailed curricular structures.

**DQP:** The qualifications define the competencies students must acquire in order to qualify for the associate, bachelor's and master's degrees. In other words, they define what these degrees should mean, regardless of the discipline in which they are earned. They are organized according to five areas of learning:

- Broad, integrative knowledge
- Specialized knowledge
- Intellectual skills
- Applied learning
- Civic learning

Guidelines "for understanding the learning outcomes" point to (a) their summative nature, i.e., their intention to measure cumulative learning at the point a degree is awarded; (b) their status as illustrative, rather than definitive and comprehensive outcomes; (c) their reliance on "active verbs" that describe "what students should actually do" and their avoidance of more subjective terms that discourage assessment; (d) their intent to define benchmark accomplishment, not the quality of that accomplishment; and (e) the cumulative force of the outcomes, degree by degree: "All outcomes identified for the bachelor's degree assume those listed for the associate degree, and outcomes stated specifically for the master's degree include those for the associate and bachelor's degrees."[14]

## Areas of alignment compared

The CCSS and the DQP may be usefully compared according to the two broad academic priorities that represent the foci of the CCSS: mathematics and English/language arts. Such comparison will indicate at first profound differences in the two bodies of outcomes statements — not simply in the depth of detail, though that difference is considerable, but also in the purposes and applicability of the statements. Yet there are clear affinities as well that suggest how both the DQP and the CCSS might be strengthened, each in the light of the other.

### Mathematics and English

The CCSS reflect aspirations closely comparable to those implicit in the DQP: Both seek to develop students not only proficient in the use of mathematical operations but cognizant about and capable of mathematical reasoning. Both assume that an important characteristic of mathematical understanding "is the ability to justify, in a way appropriate to the student's mathematical maturity, why a particular mathematical statement is true or where a mathematical rule comes from."[15] However, unlike the DQP, which invites many different curricular approaches, the CCSS insist on a highly focused approach. A curriculum formerly "a mile wide and an inch deep" must now pursue standards that are clear, specific and coherent.[16] But the resulting curriculum should not be simply a sequence of disparate courses. The standards not only "stress conceptual understanding of key ideas," but regularly reiterate "organizing principles such as place value or the laws of arithmetic to structure those ideas."[17] They emphasize a set of Standards for Mathematical Practice that overlay the content-focused grade-level and subject-organized standards as a means to develop mathematical thinking and applications of mathematics to other subject areas.

To a visitor from higher education, the sheer number of standards defined by the CCSS is likely to appear daunting, as is the detail in which the standards are set forth. While the brief chart below may attest to some affinities in the different approaches to expressing outcomes, notwithstanding the differences in grade level, it cannot begin to suggest the massive difference in scale. The statements listed in the chart under the DQP are complete; while there are cross-references within other competencies to the importance of quantitative fluency, the statements quoted are essentially what the DQP has to say on the subject. By contrast, the CCSS standards, while not unrepresentative, are selected from long lists. As but one example, there are five domains for Grade 8: the number system, expressions and equations, functions, geometry, and statistics and probability. Select one at random, say, "Expressions and Equations." Within this domain are three broad categories housing eight different standards, each described with a paragraph. In addition to the standards, each grade level offers a detailed introduction setting forth the pedagogical principles behind what is expected of students and the logical sequence of those expectations. It will, of course, be obvious that the chart *does not seek to match outcomes at comparable levels*, but to suggest simply the large difference in scope and detail. (See Pages 23 and 24.)

These expectations from the "Intellectual Skills" section of the DQP are illustrated in many other sections as well. For instance, the "Applied Learning" section advances the expectation that students are able to use in productive and assessable ways their intellectual skill of communication.

- A student at the associate level should be able to "describe in writing at least one substantial case in which knowledge and skills acquired in academic settings are applied to a challenge in a non-academic setting." He should be able to evaluate what he has learned "using evidence and examples," should apply his learning "to the question," and should analyze "at least one significant concept or method related to his ... course of study in light of learning outside the classroom."[18]
- The recipient of a bachelor's degree must go beyond the proficient application of skills to use them creatively and productively. There are three such expectations in this regard: (1) the construction of "sustained, coherent arguments ... in two media, to general and specific audiences;" (2) the use of a second language to pursue an inquiry in a resource written in that language; and (3) the advancement of an oral argument "to resolving a social, personal or ethical dilemma."[19]
- Finally, at the master's level, the writer should reveal herself as a professional capable of drawing

## Quantitative Fluency (DQP)/Mathematics (CCSS)

| DQP | CCSS |
|---|---|
| **Associate degree**<br><br>The student presents accurate calculations and symbolic operations, and explains how such calculations and operations are used in either his or her specific field of study or in interpreting social and economic trends. | **Grade 8: Functions**<br><br>Compare properties of two functions, each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions). *For example, given a linear function represented by a table of values and a linear function represented by an algebraic expression, determine which function has the greater rate of change.* 8.F.A.2 |
| **Bachelor's degree**<br><br>**The student**<br>• Translates verbal problems into mathematical algorithms and constructs valid mathematical arguments using the accepted symbolic system of mathematical reasoning.<br>• Constructs, as appropriate to his or her major field (or another field), accurate and relevant calculations, estimates, risk analyses or quantitative evaluations of public information and presents them in papers, projects or multimedia events. | **High school: Statistics and probability**<br><br>Make inferences and justify conclusions from sample surveys, experiments and observational studies<br>• Recognize the purposes of and differences among sample surveys, experiments and observational studies; explain how randomization relates to each. HSS-IC.B.3<br>• Use data from a sample survey to estimate a population mean or proportion; develop a margin of error through the use of simulation models for random sampling. HSS-IC.B.4<br>• Use data from a randomized experiment to compare two treatments; use simulations to decide if differences between parameters are significant. HSS-IC.B.5<br>• Evaluate reports based on data. HSS-IC.B.6 |
| **Master's degree**<br><br>• Students who are not seeking a degree in a quantitatively based field employ and apply mathematical, formal logic and/or statistical tools to problems appropriate to their field in a project, paper or performance.<br>• Students seeking a degree in a quantitatively based or quantitatively relevant field articulate and/or undertake multiple appropriate applications of quantitative methods, concepts and theories within their field of study. | **High school: Algebra; reasoning with equations and inequalities**<br><br>Represent and solve equations and inequalities graphically.<br>• Explain why the *x*-coordinates of the points where the graphs of the equations $y = f(x)$ and $y = g(x)$ intersect are the solutions of the equation $f(x) = g(x)$; find the solutions approximately, e.g., using technology to graph the functions, make tables of values or find successive approximations. Include cases where $f(x)$ and/or $g(x)$ are linear, polynomial, rational, absolute value, exponential and logarithmic functions. HAS-REI.D.11 |

## Communications (DQP)/English and Language Arts (CCSS)

Although the DQP expresses a priority on effective written and oral communication, its statement of expectations in this regard is remarkably economical.

| | |
|---|---|
| **Associate** | • Presents substantially error-free prose in both argumentative and narrative forms to general and specialized audiences. |
| **Bachelor's** | • Constructs sustained, coherent arguments and/or narratives and/or explications of technical issues and processes, in two media, to general and specific audiences.<br>• In a language other than English, and either orally or in writing, conducts an inquiry with a non-English-language source concerning information, conditions, technologies and/or practices in his or her major field.<br>• With one or more oral interlocutors or collaborators, advances an argument or designs an approach to resolving a social, personal or ethical dilemma. |
| **Master's** | • Creates sustained, coherent arguments or explanations and reflections on his or her work or that of collaborators (if applicable) in two or more media or languages, to both general and specialized audiences. |

on different strands of her education ("knowledge and/or skills gleaned from at least two academic disciplines in different segments of the curriculum") in order to make a contribution to her profession or field of inquiry.[20]

In sum, so far as "English/language arts" are concerned, the DQP summons higher education to ensure in its graduates an internationally competitive level of multifaceted, self-aware literacy. The standards elucidated are daunting. However, as will appear below, while the *level* of the comparable expectations described in the CCSS should not be expected to match the level of those defined by those of the DQP, they are comparably daunting and far more detailed.

The CCSS approach to English and language arts differs somewhat from its approach to mathematics. For one thing, the grade levels are incorporated within the domains. For another, the expectations are not limited to English/language arts as typically understood; they include "literacy in history/social studies, science and technical subjects." But the expectations are neither less detailed nor less daunting than those in mathematics. Advice on how to approach them suggests their complexity:

The standards comprise three main sections: a comprehensive K-5 section and two content areas – specific sections for grades 6-12, one for ELA and one for history/social studies, science and technical subjects. Each section is divided into strands. K-5 and 6-12 ELA have reading, writing, speaking and listening, and language strands; the 6-12 history/social studies, science and technical subjects section focuses on reading and writing. Each strand is headed by a strand-specific set of College and Career Readiness Anchor Standards that is identical across all grades and content areas.

Standards for each grade within K-8 and for grades 9-10 and 11-12 follow the CCR anchor standards in each strand. Each grade-specific standard ... corresponds to the same-numbered CCR anchor standard.

Individual, grade-specific standards can be identified by their strand, grade and number (or number and letter, where applicable), so that RI.4.3, for example, stands for reading, informational text, Grade 4, standard 3, and W.5.1a stands for writing, Grade 5, standard 1a.[21]

Again, while sampling a few of the hundreds of standards cannot give an adequate picture of their

extent or depth, it can offer an impression. Let us assume a fourth-grade teacher who must teach with the English/language arts standards in mind. During the year, while keeping an eye on the "anchor standards" mentioned above, the teacher must address nine additional standards concerning the reading of literature and 10 additional standards on the reading of "informational texts" while satisfying two broad standards concerning foundational skills in reading. Then there's writing; again, there are 10 standards, most of which introduce several explanatory (and demanding) subordinate standards. Six additional standards offer direction for the teaching of "speaking and listening," and there are six standards also for "language," i.e., instruction in "conventions of standard English, in "knowledge of language" and in vocabulary building.

Subject area expectations (history/social studies, science, technical subjects) do not apply prior to Grade 6. But in addition to addressing standards similar to those mentioned above, the teacher at grades 6 and above must consider 10 standards bearing on the study of history and social studies and 10 defining the application of the language arts to science and technical subjects. Granted, these standards have close affinities with those covered in the teaching of literature and writing, but they nevertheless represent a distinct set of requisites both the curriculum and the teacher must honor.

## Beyond alignment

As comparisons within the areas of closest alignment have suggested, the CCSS differ substantially from the DQP in quantity (the number of standards, grade by grade, domain by domain), in detail (enabling and inviting objective measurement of performance), and in focus on essentially two arenas of academic performance, mathematics and English/language arts. References to the uses of these capacities in subjects such as the sciences and social sciences may point to further development of the CCSS but do not extend its range significantly. That may be just as well. The sharp pragmatic focus of the CCSS surely represents one of their strengths.

By contrast, the DQP covers a much broader territory. Although it is more inclusive in its view of the disciplines — all can and should contribute to the learning outcomes it defines — its greater breadth arises primarily from a "transformational vision" that "stresses not only the acquisition of more complex and advanced knowledge in these key knowledge areas, but also the creative integration of such knowledge about science, culture and society with the students' specialized interests."[22]

Like the CCSS, the DQP attests to the significance of intellectual skills, both as fundamental to the pursuit of specialized learning and as a platform for gaining the broader acumen essential to lifelong learning. Moreover, like the CCSS, the DQP attaches a particular priority to "two critical fluencies," communications and "quantitative applications." But the DQP regards these skills as a foundation on which a more complex superstructure of learning must arise. There are also similarities between the CCSS and the DQP so far as "applied learning" is understood, but as the term does not have the same meaning for high school and university faculty members, alignment is less secure.

Where the CCSS and the DQP differ most clearly may be found in several emphases of the DQP, that is to say:

- **The DQP emphasizes the application of learning.** The DQP outcomes, which "emphasize a commitment to analytic inquiry, active learning, real-world problem solving and innovation," place a clear priority on "what graduates ... can do with what they know" as "the ultimate benchmark of learning."[23] By their demand for deep understanding, the CCSS show affinities with this emphasis of the DQP but might be more fully developed to express those affinities.

- **The DQP regards the capacity to "engage diverse perspectives" as an essential intellectual skill.** While it may arise in part from a commitment to the value of diversity, this element appears in the DQP as an essential intellectual skill and is defined in terms that include the capacity to understand and manage opposing points of view. The CCSS do not include explicit reference to this capacity.

- **The DQP places an explicit priority on scientific awareness and reasoning**. By contrast, while the limited focus of the CCSS represents a realistic

approach that may ultimately prove more productive within its sector than would a broader curricular initiative, the lack of attention to science seems especially regrettable. There may always be a lack of unanimity as to the content of a sophomore course in biology or a senior course in physics, but deep grounding in "general principles of scientific inquiry and scientific thinking" may be no less crucial to college success than mathematics and English/language arts. Even as new national standards for the sciences are adopted by states, they are unlikely to reach the level of acceptance enjoyed by the CCSS, and are certain to engender controversy in at least a few states.

- **The DQP lifts up "civic learning" as a "discrete category."** While in no way minimizing the importance of knowledge of civic principles, the emphasis of the DQP lies in the educational value for individuals and the broader value for society. Civic learning, an expression of learning offered to serve the public interest as well as individual needs, challenges students to "engage a wide variety of perspectives and evidence and form their own reasoned views on public issues."[24] The CCSS do not include explicit reference to this capacity.

Beyond its broader scope, the DQP offers other compelling strengths: an awareness of the inter-relatedness of knowledge, a conviction that the associate, bachelor's and master's degrees are different *in kind* (i.e., a master's program should be more than a baccalaureate with additional course work), and a potential for further development through its publication as a continuing work in progress, a "beta" version meant for sustained consideration, strengthening and reiteration. Hence the DQP, expressing an encompassing vision of postsecondary study, one in which disciplines exist in an untidy but dynamic relationship with one another, may appear more faithful than the CCSS to the experience of knowledge and the ways in which it is (or should be) used.

Finally, the DQP expresses the understanding that learning may be accomplished in many ways, through diverse curricula, through practical experience, through independent study: Many possible paths may lead to the same outcome. That recognition is in no way meant to imply a finding of fault with regard to the far more highly detailed curricular alternatives recommended by the CCSS. The missions of the two initiatives may be congruent in many respects, but they also differ in many respects. And the cultures they address remain largely discrete — regrettably.

## Implementation

**CCSS:** The District of Columbia and 45 states have adopted the full CCSS. In addition to the approximately 45 "full" adopters, Minnesota has adopted the standards for English/language arts. For different reasons, Alaska, Nebraska, Texas and Virginia have not adopted the CCSS, but they are hardly immune from its influence. For instance, while citing "concerns about federal solutions for state issues," Virginia officials also have affirmed that standards developed there anticipated, and in many respects reflect, the CCSS.[25] There is a common date for full implementation of the CCSS — academic year 2014-15 — and most of the participating states already are working toward that deadline. However, as mentioned above, there is resistance developing that may inhibit or reverse progress in implementation. Legislators in some states (e.g., Indiana, Michigan, Florida, Ohio) are threatening to withdraw their support entirely.

Resources supporting implementation of the CCSS are formidable. A few examples:

- **achievethecore.org** offers "free, high-quality resources to educators now doing the hard work of implementing these higher standards."[26] Assembled by the nonprofit Student Achievement Partners, the web site provides practical resources for use by teachers, articles teachers may find interesting and "voices of educators doing the work of the Core."

- Support documents in English/language arts available at **www.corestandards.org** include three appendices: one explaining research "supporting key elements of the standards," one offering "test exemplars and sample

performance tasks," and a third offering "samples of student writing."

- An appendix for mathematics that is available at http://www.corestandards.org/assets/CCSSI_Mathematics_Appendix_A.pdf provides four alternate curricular approaches, all "intended to significantly increase the coherence of high school mathematics." Each is highly detailed, and each offers practical guidance for planning a mathematics curriculum intended to enable students to succeed.

- Many states have supplemented the materials available on the national websites with information specific to their educators.

The challenges remain formidable as well, however:

- Assumptions of the CCSS concerning school district readiness may be unrealistic. For instance, many rural school districts do not have the technology required for CCSS testing. "We just don't have the hardware," says the superintendent of one rural Ohio district. "I mean, I hate to even admit to this, but we have some computers that are still operating on the Windows 95 operating system. That's terrible. Windows 95 will not operate with these tests."[27] School systems may lack also the bandwidth that CCSS testing will require, though final bandwidth requirements will not be released by one of the two tests, PARCC, until October 2013. And as one reporter observed, "students who aren't used to working on computers will be at a disadvantage when the computer-based exams are rolled out in 2014."[28]

- The timeline for full implementation appears challenging. The different stages of curricular reform — reaching consensus on intended outcomes, framing curricula to achieve them, developing faculty to teach them and allowing time for student and parent education — must be compressed if the deadlines are to be met.

**DQP:** Without enlisting the authority of state councils, commissions or departments of higher education, Lumina Foundation has encouraged implementation through a variety of approaches. A few of these are the following:

- By offering funding to some regional accrediting associations (WASC, ACCJC, HLC, SACS), the foundation has encouraged several different "top down" approaches: The HLC has created cohorts of institutions using the DQP to define their improvement objectives, WASC has referenced the DQP in revising its accreditation handbook, SACS explored use of the DQP within a cohort of HBCU's, and AACJC has identified a cohort of institutions according to the creativity of their proposals for use of the DQP.
- A grant to the Council of Independent Colleges has enabled the CIC to convene institutions making use of the DQP for diverse priorities, including the reform of general education, the initiation of study abroad, the strengthening of service learning and the launch of a first-year curriculum.
- A grant to the Public Agenda Foundation will support an exploration of faculty responses to the DQP.
- A grant to the Association of American Colleges and Universities (AAC&U) supports assessment of the DQP competences as they relate to student transfer issues.

However, formidable challenges have emerged. In addition to those mentioned in section 2, the following deserve mention.

- Some early adopters of the DQP have bowed to resistance and scaled back their plans for implementation.
- Some observers have erroneously associated the DQP's desirable emphasis on shared standards with an insistence on "standardization."
- Because the distinct role of the DQP within the continuum of related reform initiatives — the AAC&U's Essential Learning Outcomes, the Tuning Process, the validation and crediting of competency-based learning — has not been delineated with sufficient clarity, there is confusion. Could the DQP, as intended, offer

through consensus a coordinative authority for multi-faceted reform? Or is the DQP simply one reform option among many?

## Funding

**CCSS:** Funding associated with the CCSS is substantial at many levels. First, some part of the $4.35 billion in federal Race to the Top education grants is being directed to school systems in response to their commitment to adopt and implement the CCSS. Second, there are substantial funds committed by participating states to the two groups developing the CCSS tests: the Smarter Balanced Assessment Consortium (SBAC) and the Partnership for Assessment of Readiness for College and Careers (PARCC). Third, participating states have allocated funding to develop curricular guides, websites and conferences — all in support of CCSS implementation. However, as a report by Patrick Murphy and Elliot Regenstein, *Putting a Price Tag on the Common Core* (Fordham Institute, 2012), concludes, "The bottom line is that successful CCSS implementation does not have to be wildly expensive — and could also support changes that have a permanent and positive impact on the quality and effectiveness of teaching and learning" (p. 6). The report thus cautions against jeremiads that attribute all education funding increases to implementation of the CCSS. Such estimates typically project the *total* cost of implementing the CCSS "not the net new costs to states" (p. 3). Many states will redirect (i.e., "repurpose") funding from other applications to the CCSS. And the costs in any state will depend on how states approach implementation of the CCSS. The Fordham study distinguishes among "business as usual," "bare bones" and "balanced implementation" models.

**DQP:** Funding is modest. Lumina Foundation convened two meetings in Washington, D.C., in July 2009 and January 2010 to explore the need for — and desirable characteristics of — a qualifications profile. Lumina then compensated the four higher education experts commissioned to draft the profile. Since publication of the DQP, Lumina has funded implementation projects for a small number of grant recipients and paid consultancy fees to some of the authors for work with grant recipients and others using (or considering) the DQP.

## Issues

**CCSS:** In addition to logistical concerns regarding implementation mentioned above, there are concerns about the impact of a heightened emphasis on testing. One is practical: in Ohio, for instance, "students will spend an additional 49 hours a year taking standardized tests."[29] Another is pedagogical. Will the high stakes for CCSS testing encourage simplistic and reductive "teaching to the test"? Will students already alienated by a sense that their teachers are "going through the motions" by following a standardized program become more so? Or, as appears more likely, will the greater intentionality and practical usefulness promised by the CCSS appeal to students and encourage in them a stronger sense of motivation?

**DQP:** Issues raised regarding the DQP typically have referenced both what the DQP does and what it fails to do. The concern regarding "standardization," while misplaced, given the intent of the DQP, reflects an admiration (shared by the DQP) for the wide diversity among U.S. institutions and for the wide range of choice within college curricula. If these are virtues, so the argument goes, then a bid for consensus around a coherent set of degree-level outcomes could undermine them. A more pragmatic view is that a developing consensus on *standards* may be the best possible defense against *standardization*. Another issue that has been raised is the one addressed in part by this white paper, the DQP's inattentiveness to preparedness. Moreover, community college observers have called for attention on the part of the DQP to certificate programs, while some at four-year institutions have proposed inclusion

of "professional doctorates," credentials (in fields such as pharmacy, physical therapy, audiology, etc.) that were once awarded at the baccalaureate or master's levels.

Through a grant to the National Institute for Learning Outcomes Assessment (NILOA) and consultation with the DQP authors and others, Lumina Foundation is developing an agenda for revisions leading to the second "edition" of the DQP in 2014.

# Appendix B

## A MORE DETAILED REVIEW AND ANALYSIS OF THE CCSS

The Common Core State Standards are in many respects the culmination of 25 years of standards-based education dating back to the late 1980s when George H.W. Bush convened a national education summit in Charlottesville, Va. States thereafter undertook the development of content standards voluntarily and optionally, at least until the 2001 passage of No Child Left Behind mandated states to adopt standards. By then, most had. The decentralized nature of educational governance in the United States, where states control education policy for the most part, creates the potential for tremendous creativity and experimentation across states when new policies take root, as was the case with academic content standards in the 1990s. This initial variation in practice led to new approaches, models and strategies for standards development and standards content to be disseminated nationally without any federal presence or mandate.

The CCSS are designed to represent what students need to know to be college and career ready. The English/language arts (ELA) standards, which state this more forcefully and explicitly than do the mathematics standards, are organized around the College and Career Anchor Standards to make the connection to postsecondary readiness all the more explicit. The more muted mathematics claims are difficult to locate in the document, but the link to college and career readiness does appear explicitly in the introduction of the Mathematical Standards for High School. The Standards for Mathematical Practices contain many attributes important to success in a variety of postsecondary courses, but they are not presented as college and career criteria as are the ELA Anchor Standards.

So the question is: Do these standards truly represent what it takes for students to be ready for a wide range of credit-bearing entry-level postsecondary courses? Over time, the question will be answered by tracking college students who are proficient with respect to the standards relative to those who are not as proficient. However, some tentative answers are needed before long-term studies can be fully completed, a process that can take five years or more. In the meantime, one way to gain some insight into the fundamental assertion that the standards will make students ready for college and careers is to ask postsecondary instructors whether their courses require students to know what the Common Core State Standards demand.

### The potential; some limitations

Two of the key ways in which the Common Core State Standards are different from almost all previous state standards are: (1) They are designed to represent progressions of knowledge, not just grade-level expectations, and (2) Their implementation will require extensive collaboration among educators. They embody the assumption that success in the 21st century requires much more than content knowledge alone. As today's young people enter postsecondary education and pursue career paths, they will need to draw from and apply literacy and numeracy knowledge and skills across a much wider range of new situations and for more varied purposes than was required of those entering college and the workplace even a generation or two ago.

The CCSS were designed specifically to do one thing well: create an overall structure for English and mathematics teaching, learning and assessment in the United States. By intent, they do *not* do several things. Calling out these points is not the same as finding fault with the standards as they exist, but to identify additional areas that, if addressed, will strengthen the implementation of the standards and make students even more college and career ready.

While the CCSS do offer a tip of the hat to reading and writing in the sciences, social studies and technical classes, they clearly are not a substitute for a comprehensive set of standards in these subject areas. National standards for science have recently been released, and these are being implemented in ways that complement the CCSS in many states and school districts. Other areas, such as career and technical education, have developed standards that have the potential to align with the CCSS, although challenges remain to reaching a point of unification among these different standards sets sufficient to standardize expectations for all students.

Social studies may be the least likely candidate for common standards anytime soon because of controversies in the 1990s about history standards. However, for those interested in social studies standards, both the Texas College and Career Readiness Standards and Standards for Success address a variety of social studies subjects with a balanced mix of cognitive skills and a content framework. These two sets of standards fall short of a comprehensive list of all facts, topics, events or important people to be studied at all grade levels. However, they do align well with postsecondary expectations that focus more on thinking skills and ways of knowing than detailed specification of content knowledge.

The performing and visual arts and second language instruction already have standards. These subjects have the built-in advantage of lending themselves well to performance through products, critiques and enactments. Second languages have proficiency standards developed by the American Council of Teachers of Foreign Languages. In addition, Standards for Success cover second languages and visual and performing arts.

The sponsors of the CCSS are careful to note that the standards are not a curriculum, and that it is not their intention that the standards be taught in a uniform fashion. This important acknowledgment of local control traditions in U.S. schools makes sense, particularly because no one knows exactly how best to teach the standards. Experimentation and variation need to be the order of the day until and unless optimal ways of teaching many of the specific standards are identified and validated.

As the overview of the standards suggests, they are complex, multilevel and detailed. Furthermore, they imply close coordination across grade levels because they are built around the notion of a learning progression. In short, they argue for a coherent, structured, highly intentional curriculum. These are characteristics on which most current, school-level courses of study would rate poorly. While it may still prove true that the ubiquitous use of technology and social networking will allow teachers to develop and share materials much more directly, effectively and quickly than in the past, the shift to the teacher as curriculum developer, reviewer and judge is going to require significant skill development for many teachers, as well as time to create new curricula.

The significance of this lack of guidance on curriculum and instruction becomes more acute at the college- and career-readiness level. where alignment with postsecondary practices and expectations becomes particularly important. The expectations that postsecondary instructors have for student learning tend to be significantly different from those held by most secondary school teachers. Similar differences exist regarding the quantity of work that students are expected to produce, the pace at which they are expected to work, and the cognitive challenge levels the work must meet. Secondary school teachers cannot simply develop any curriculum they please and any activities they prefer and then label their courses as aligned with college and career readiness. Bridging the secondary-postsecondary expectations gap through carefully designed and sequenced curricula and instructional techniques represents a major challenge that the CCSS are not designed to solve fully. Alignment issues will require careful attention as curriculum is created so that secondary school programs of study are built around learning progressions that lead to postsecondary readiness.

The CCSS remain relatively silent on how well students must do on each standard or topic to be considered proficient. While to some degree this is the job of the assessments developed by Smarter Balanced and the Partnership for the Assessment of Readiness for College and Careers, teachers need far more guidance than can be provided by a test, even one with the capacity for interim and formative administrations. Performance on many of the standards can be defined

only through student work, and collections of this nature are only now under development.

The reading standards are accompanied by example texts at different grade levels, which can help to suggest the performance expected. Little such guidance is available in the area of writing, but because writing lends itself exceedingly well to the creation of exemplars, this issue should be addressed soon. Particularly important are exemplary research papers, because they can be judged more readily against common, widely accepted criteria. The language standards can likewise be made clearer using exemplars. Speaking and listening may prove somewhat more challenging as areas requiring agreement on what constitutes acceptable performance, although digital audio files will likely be available from the testing consortia. It may take teachers some time to produce a wider range of speaking and listening exemplars.

Performance in mathematics may prove more difficult to judge properly. Although mathematics knowledge and skill are often considered to be fully captured by a test score, the CCSS envision deeper conceptual understanding and the application of mathematics to a range of problems and settings, many outside of mathematics classes. The natural tendency will be to assess mathematics in math classes by means of tests or exercises that expect students to demonstrate declarative and procedural knowledge, where they show they know how to use particular algorithms or procedures in a specified fashion. This type of assessment is unlikely to result in students' demonstrating fully the conceptual understanding necessary to be ready for college and careers.

Complex performance tasks and example assignments, particularly those that allow demonstration of knowledge needed to succeed in other subject areas, are going to be very important to incorporate in mathematics. These more integrated representations of proficient performance on a standard or set of standards can serve to highlight the distinctions and differences between what is occurring currently in most U.S. mathematics classrooms and what the CCSS require. The consortia assessments will provide some tasks, but additional examples will be needed, particularly those that take more time to complete than the tasks developed by the consortia assessments will be able to accommodate.

## MATHEMATICS STANDARDS

The Standards for Mathematical Practice are a set of general statements about mathematical processes and proficiencies, reasoning. and conceptual understanding. Because these are cognitive processes, they cannot be parsed into lists of discrete facts or algorithms. Instead, the standards are overarching organizers to be employed during the teaching and learning of all the mathematics standards. The following eight statements comprise the Standards for Mathematical Practice:

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics.
5. Use appropriate tools strategically.
6. Attend to precision.
7. Look for and make use of structure.
8. Look for and express regularity in repeated reasoning.

These framing standards create intersections between content knowledge mastery and conceptual understanding. They provide opportunities for students to develop and then demonstrate greater command of the mathematics content and procedures they will be taught when learning the material in the content standards. Because the relationship of the framing standards to the content standards is not explicit, it will be up to curriculum developers and teachers to make these connections distinct. Clearly, they can and should be best addressed in a range of subject areas beyond mathematics classes. Students will need multiple opportunities to develop these skills through a range of projects and activities that go beyond traditional mathematics homework assignments, quizzes and tests. Furthermore, as the description of assessments being designed to test the CCSS will illustrate, gauging student mastery of the Standards for Mathematical Practice poses particular challenges.

## Organization

The mathematics standards have three levels of detail. The highest level is the domain, which encompasses a group of related standards under a topic that suggests the key skill being developed, such as number and operations in base 10. Standards are grouped into clusters within a domain.

For example, at the domain level of number and operations in base 10, one cluster of standards is grouped under, "Use place value understanding and properties of operations to perform multidigit arithmetic." Clusters are further defined by more detailed standards. In the case of multidigit arithmetic, the cluster comprises three standards:

- Use place value understanding to round whole numbers to the nearest 10 or 100.
- Fluently add and subtract numbers that total less than 1,000.
- Multiply one-digit whole numbers by multiples of 10 in the range 0 to 90.

### Example of organization of standards, clustered within a domain of the Common Core of State Standards

| | |
|---|---|
| **Domain** | Numbers and operations in base 10 |
| **Cluster** | Using place value understanding and properties of operations to perform multidigit arithmetic |
| **Standards** | Using place value understanding to round whole numbers to the nearest 10 or 100<br><br>Fluently adding and subtracting within 100<br><br>Multiplying one-digit whole numbers by multiples of 10 in the range 0–90 |

This type of organization is consistent with a subject now taught largely as discrete skills and techniques that can be parsed into component parts and pieces.

The mathematics standards follow the same structure and mode of presentation across all levels. For grades K-8, a set of critical areas becomes the focal point, never more than a handful of high-level domain areas. All of fourth-grade mathematics, for example, should consist of multidigit multiplication; multidigit division; fractional equivalence and addition and multiplication of fractions by whole numbers; and analysis and classification of geometric forms on the basis of their properties. These are the domain-level statements.

The domains are fleshed out in narrative form for each grade level to provide an overall picture of what should be accomplished in terms of mathematical thinking and application, not just in content coverage. Next, the clusters of mathematical concepts and content for the grade level are presented. For example, fourth-grade mathematics has two clusters under the domain of number and operations in base 10:

(1) Generalize place value understanding for multidigit whole numbers.
(2) Use place value understanding and properties of operations to perform multidigit arithmetic.

Finally, under the two clusters are specific standards — in the above case, five standards under numbers and operations in base 10. For example, a standard under "use place value understanding" and "properties of operations to perform multidigit arithmetic" is, "fluently add and subtract multidigit whole numbers using the standard algorithm."

The high school mathematics standards are organized only slightly differently. They are listed by conceptual categories. Within each, the standards follow the organizational conventions of the K-8 standards. The conceptual categories for high school mathematics are:

Number and quantity
Algebra
Functions
Modeling
Geometry
Statistics
Probability

None of these is new. All are introduced and developed to varying degrees before high school. At the high school level, however, the emphasis falls on getting to a level of performance consistent with readiness for college and careers. The authors do note that postsecondary success depends on thorough mastery of the mathematics taught in middle school as well, a conclusion consistent with research conducted by EPIC's and others.

The CCSS authors have gone to great lengths to avoid dictating one sequence of mathematics courses for all high schools — thus, the organization of the standards according to conceptual categories that are not necessarily sequential in nature. This approach allows schools either to continue with a traditional set of topics that begins with algebra 1 in eighth grade and continues with specific mathematics subjects each year or to develop an integrated approach through which all of the concept areas are taught and developed further each year.

It is also worth noting that the mathematics standards accommodate higher levels of mathematics expectations for students going on to college majors or careers that are more mathematics intensive, such as engineering. The authors also attempt to integrate overarching standards such as modeling into a range of conceptual and topical areas in addition to identifying modeling as its own conceptual area. Finally, the Standards for Mathematical Practice appear in a separate box on each page where a new domain is introduced. The idea is to remind users that these standards are to be integrated into the more specific standards identified in each domain.

## ENGLISH/LANGUAGE ARTS STANDARDS

The Reading Anchor Standards are derived from the College and Career Readiness Anchor Standards. These 10 standards are restated in differing forms for reading, writing, language, and speaking and listening at grade bands K-5 and 6–12, and for history/social studies, science and technical subjects, but they are the same within each broad topical area at K-5, 6–12 and for the other subjects.

## Anchor standards for reading

### Key ideas and details

- Read closely to determine what the text says explicitly.
- Read closely to make logical inferences from it.
- Cite specific textual evidence when writing or speaking to support conclusions drawn from the text.
- Determine central ideas or themes of a text and analyze their development.
- Summarize the key supporting details and ideas.
- Analyze how and why individuals, events or ideas develop and interact over the course of a text.

### Craft and structure

- Interpret words and phrases as they are used in a text, including determining technical, connotative and figurative meanings.
- Analyze how specific word choices shape meaning or tone.
- Analyze the structure of texts, including how specific sentences, paragraphs and larger portions of the text (e.g., a section, chapter, scene or stanza) relate to each other and the whole.
- Assess how point of view or purpose shapes the content and style of a text.

### Integration of knowledge and ideas

- Integrate and evaluate content presented in diverse media and formats, including visually and quantitatively, as well as in words.
- Delineate and evaluate the argument and specific claims in a text, including the validity of the

reasoning as well as the relevance and sufficiency of the evidence.
- Analyze how two or more texts address similar themes or topics in order to build knowledge or to compare the approaches the authors take.

**Range of reading and level of text complexity**
- Read and comprehend complex literary and informational texts independently and proficiently

## The College and Career Readiness Anchor Standards for writing

College and Career Readiness Anchor Standards for writing serve to frame more specific content standards. The 10 Anchor Standards are organized into four clusters:

## Anchor Standards for writing

**Text types and purpose**
- Write arguments to support claims in an analysis of substantive topics or texts.
- Use valid reasoning and relevant and sufficient evidence.
- Write informative/explanatory texts to examine and convey complex ideas and information clearly and accurately through the effective selection, organization and analysis of content.
- Write narratives to develop real or imagined experiences or events.
- Use effective technique, well-chosen details and well-structured event sequences.

**Production and distribution of writing**
- Produce clear and coherent writing in which the development, organization and style are appropriate to task, purpose and audience.
- Develop and strengthen writing as needed by planning, revising, editing, rewriting or trying a new approach.
- Use technology, including the Internet, to produce and publish writing and to interact and collaborate with others.

**Research to build and present knowledge**
- Conduct short as well as more sustained research projects based on focused questions.
- Demonstrate understanding of the subject under investigation.
- Gather relevant information from multiple print and digital sources.
- Assess the credibility and accuracy of each source.
- Integrate the information while avoiding plagiarism.
- Draw evidence from literary or informational texts to support analysis, reflection and research.

**Range of writing**
- Write routinely over extended time frames (time for research, reflection and revision) and shorter time frames (a single sitting or a day or two) for a range of tasks, purposes and audiences.

## The Language College and Career Readiness Anchor Standards

The Language Anchor Standards for College and Career Readiness address some of the more skill-specific components of language use. Their three clusters are Conventions of Standard English, Knowledge of Language, and Vocabulary Acquisition and Use. The standards are cited or paraphrased as follows:

## Anchor Standards for language

**Conventions of standard English**
- Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.
- Demonstrate command of the conventions of standard English capitalization, punctuation and spelling when writing.

**Knowledge of language**

Apply knowledge of language to
- Understand how language functions in different contexts.
- Make effective choices for meaning or style.
- Comprehend more fully when reading or listening.

**Vocabulary acquisition and use**

Determine or clarify the meaning of unknown and multiple-meaning words and phrases by
- Using context clues.
- Analyzing meaningful word parts.
- Consulting general and specialized reference

materials, as appropriate.
- Demonstrate understanding of figurative language, word relationships and nuances in word meanings.
- Acquire and use accurately a range of general academic and domain-specific words and phrases sufficient for reading, writing, speaking and listening at the college and career readiness level.
- Demonstrate independence in gathering vocabulary knowledge when encountering an unknown term important to comprehension or expression.

## Anchor Standards for speaking and listening

These standards are organized into two clusters:

### Comprehension and collaboration

- Prepare for and participate effectively in a range of conversations and collaborations with diverse partners, building on others' ideas and expressing their own clearly and persuasively.
- Integrate and evaluate information presented in diverse media and formats, including visually, quantitatively and orally.
- Evaluate a speaker's point of view, reasoning, and use of evidence and rhetoric.

### Presentation of knowledge and ideas

- Present information, findings and supporting evidence such that listeners can follow the line of reasoning and the organization, development and style are appropriate to task, purpose and audience.
- Make strategic use of digital media and visual displays of data to express information.
- Enhance understanding of presentations.
- Adapt speech to a variety of contexts and communicative tasks, demonstrating command of formal English when indicated or appropriate.

# Appendix C

## THE 'REACHING THE GOAL' STUDY

In 2011, the Educational Policy Improvement Center published the results of a study titled *Reaching the Goal: The Applicability and Importance of the Common Core State Standards to College and Career Readiness*.

Our researchers began by having a nationally representative sample of postsecondary instructors from a wide range of courses and institutions rate each Common Core standard on its applicability and importance to their courses. We recruited instructors from more than 500 two- and four-year institutions in 25 course categories. Instructors from just under 2,000 courses reviewed the Common Core State Standards. First, we asked them to rate the applicability of each standard to their course. If the standard was applicable, we asked them to rate the standard's importance to success in the course. Each instructor was given the opportunity to rate both ELA and mathematics. The two ratings, applicability and importance, and several supplemental questions, provided the data for our findings.

The 25 course categories included 14 from courses commonly associated with general education requirements for a bachelor's degree and 11 that might be better considered career-oriented, often required for two-year certificates or, in some cases, a bachelor's degree in a career area. We selected courses to be representative examples of common offerings in seven major subject areas: English/language arts, mathematics, science, social science, business management, computer technology and health care.

The instructors rated the applicability of the standards for success in their courses in five categories: prerequisite, reviewed, introduced, subsequent and not applicable. If they rated applicability in the first three categories, they also rated the importance of the standards: least, less, more and most.

In general, we found that all instructors rated the ELA and literacy standards for nonliterary reading and writing as being applicable, particularly when results from the English/language arts strands of reading for informational texts and writing were combined with results from the literacy, subject-specific versions of these same strands. With few exceptions, a large percentage of instructors across all content areas rated the speaking and listening strand and language strand as applicable.

For the mathematics standards, instructor applicability ratings varied by standard type and domain. For example, the Standards for Mathematical Practice were rated as applicable by almost all mathematics instructors and a large majority of other instructors as well, whereas both functions and geometry were rated applicable by a relatively small percentage of the sample. Not every mathematics standard was applicable to every one of the 25 course categories — hardly surprising given the wide range of courses included in the study and the fact that we made all standards available for review by all respondents. Also not surprising were the variations in the applicability ratings for the eight ELA and literacy strands and the six mathematics conceptual categories and mathematical practices across different content areas. This variation does raise interesting questions, not so much about the standards as a whole, but about the knowledge and skill an individual student needs in order to be considered college and career ready for a particular postsecondary program of study, a point taken up in the discussion of student profiles in chapter 10 of the study.

If essentially all of the Common Core standards are applicable to a range of postsecondary courses, how important are they to success in those courses? Almost every standard received an average importance rating well above 2.5, the midpoint between "less important" and "more important" on the four-point scale. Most

exceeded 3, meaning they are "more important." Therefore, interpretation of the importance ratings is relatively straightforward; respondents who considered a particular standard applicable also considered it to be important.

The ELA and literacy standards on the whole received higher importance ratings than did the mathematics standards. Mathematics had more standards below 2.5 — 25 of 200. Some of these were standards identified as being more specialized in nature. Only two of 113 ELA and literacy standards had means below 2.5. The language strand, while receiving high applicability ratings, also received the lowest importance ratings. These standards relate to use of the English language and include spelling, punctuation and usage conventions and are specific in nature — more specific than other ELA and literacy standards. The lower importance ratings were taken to mean that the instructors felt that mastery of the basics of English grammar and conventions was necessary but not sufficient for success in their courses.

Standards that relate to students' mastering comprehension of nonfiction text with grade-appropriate complexity received high importance ratings, both generally and as they applied to specific content areas. Instructors placed relatively greater emphasis on standards that require students to extract key ideas and details from text, possess general writing skills (especially the writing process), use research to support written analysis, and write routinely over both extended and shorter periods of time.

Mathematics standards with the highest ratings included standards related to reasoning quantitatively and interpreting functions. Three algebraic concepts also received high importance ratings: create equations that describe numbers or relationships; interpret the structure of expressions; and solve problems with different equations. All respondents rated the geometry category relatively lower. The Standards for Mathematical Practice, which authors of the CCSS stated should be applied across all applicable standards, are particularly noteworthy because they received the highest importance ratings and because the ratings came from a very broad cross-section of respondents.

The conclusion, then, is that postsecondary instructors across a wide range of subjects and institution types indicate that the standards as a whole are applicable to and important for success in their courses. Results from several additional supplemental questions reinforce this conclusion. When asked whether the standards were a coherent representation of the subject area they represented, nearly 84 percent of respondents indicated the ELA standards were, and about 62 percent of respondents said that the math standards met this criterion. Particularly telling and somewhat surprising, when asked whether the standards reflect a level of cognitive demand sufficient for students who meet the standards to be prepared to succeed in their course, more than 95 percent of the nearly 1,800 respondents agreed that they did. This level of agreement across such a wide range of postsecondary faculty is rare indeed. The statement can be made with some confidence that the Common Core State Standards are applicable to — and important for — success in entry-level college courses and are at a level of cognitive challenge necessary to prepare students for them.

# Endnotes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