POTENTIAL RAMIFICATIONS OF COMMON CORE STATE STANDARDS ADOPTION ON INFORMATION LITERACY

Jacob Paul Eubanks
Johnson County Library
Overland Park, KS

INTRODUCTION

As of this writing, 45 United States and four territories have adopted the Common Core State Standards (CCSS). The quick implementation on the part of state policymakers is a marked response to the growing demand for career and college ready high school graduates. Current figures suggest that over the next 15 years the need for post-secondary educated workers will out-pace the graduation rates of post-secondary institutions (Carnevale, 2010, p.16). Among the many expectations of this growing workforce is more information literate employees. This literature review explores the reasoning behind the shift to common educational standards and asks the questions: What potential is there for the CCSS to affect the information literacy skills of K-12 students and what ramifications might this have on post-secondary information literacy instruction?

EDUCATION AND THE WORKFORCE

Demand for post-secondary educated workers has grown substantially since 1989. During this period, individuals with a Bachelor's degree or better have seen 82 percent job growth, compared to 41 percent with an Associate's degree and negative 14 percent for those with a high school education or lower (Carnevale, 2013, p. 7). Projections suggest 63 percent of U.S. jobs in 2018 will require an education beyond high school, 36.8 million positions will come available by 2018,3.8 million brand-new jobs and 33 million replacement positions will be vacated by retirees, and 70 percent of the vacated positions will be in occupational categories requiring post-secondary education for which it was not required 30 years ago (Carnevale, 2010, p.

13-15).

Although the number of post-secondary jobs is increasing, post-secondary institutions are not increasing the percentage of graduates at a similar rate. It is projected that by 2018, the post-secondary system will have produced three million fewer graduates than will be required by the labor market (Carnevale, 2010, p. 16). In order to meet the demand for educated workers, it is projected that the number of individuals attending post-secondary institutions must rise from 66 percent in 2011 to 86 percent by 2025, and to achieve this, post-secondary institutions will need to produce about 20.3 million new workers between 2011 and 2025, 15 million of which with a Bachelor's degree or higher (Carnevale, 2011, p. 34). Current projections suggest an eight million graduation rate; 12 million people less than the projected demand for 2025.

DISCREPANCIES IN STATE ASSESSMENTS

In order to meet the growing demand for an educated workforce, policymakers have focused their attentions on standards based reform. Federal policy since the No Child Left Behind Act of 2001 has required state developed standards. This practice has proven to be inconsistent in preparing students for career and college readiness. Inconsistent expectations from state-to-state have resulted in discrepancies between state and federal assessment results. While students demonstrate high level of success on state issued assessment, they perform poorly on the national assessments. Further highlighting the problem, student performance on national assessment varies from state-to-state, raising concerns that many or all state standards are set too low to prepare students to be college and career ready. In a state-led effort coordinated by

the National Governors Association for Best Practices and the Council of Chief State School Officers, the Common Core State Standards Initiative was formed in 2006 to examine the problem. The intent was to increase career and college readiness among high school graduates. According to the Common Core State Standards Initiative, the standards were developed by examining the most effective models from states and countries around the world. Initial drafts were developed by the initiative and submitted for feedback to teachers, postsecondary educators, civil rights groups, English language learners, and students with disabilities; once revised, the standards were opened up for public comment (CCSSI, 2010).

COMMON CORE STATE STANDARDS

The CCSS were developed with the intent of identifying the "cognitive processes and learning strategies students need in order to acquire and retain curriculum content" (Rust, 2012, p. 32-33). The standards are not a curriculum, but a set of developmental goals outlining the levels of ability a student should possess to succeed in college and career. This emphasis on abilities redirects instructional pedagogy towards the actualization of content. As Kevin Baird suggests, the change is in the notion of a learning target, or level of cognitive demand, attached to a content standard (Achieve 3000, 2010, p. 2). The standards are "designed to be robust and relevant in the real world, reflecting the knowledge and skills that our young people need for success in college and careers," and they focus on "core conceptual understandings and procedures starting in the early grades, thus enabling teachers to take the time needed to teach core concepts and procedures well-and to give students the

opportunity to master them" (CCSSI, 2010). The CCSS are built into strands, beginning with either a mathematics or English language arts (ELA) designation (See Figure 1). The ELA strands are defined by 6-10 College and Career Readiness Anchor (CCRA) Standards. These CCRA standards describe cross-disciplinary expectations for student abilities required to be prepared for post-secondary education or workforce training programs. The CCRA standards are over the grade level College and Career Readiness sub-standards (CCR), which outline graduated learning targets for each grade level. Under the CCR are subject specific standards developed for each grade level, layering the proficiencies outlined in the CCRA and CCR to each individual subject. This strand practice ensures a graduated, cross-discipline strategy of learning that directs critical thinking development from Kindergarten through 12th grade.

The Education Policy Improvement Center (EPIC) used categorical concurrence statistic measures to compare the CCSS with five highly regarded standards: California, Massachusetts, Texas, the Knowledge and Skills for University Success (KSUS), and the International Baccalaureate Diploma Programme (Conley, 2011b). In this study, categorical concurrence is the mean number of matches between each set of comparison standards and the CCSS (Conley, 2011b, p. 10). EPIC's findings suggest that there was a "general consistency" between the cognitive demands of CCSS with the five comparison standards, and that while the standards did not share the exact same subject matter, the topics in CCSS were "reflected in the comparison standards with a high degree of frequency" (Conley, 2011b, p. 5). Findings demonstrated a closer correlation between mathematics than in ELA, suggesting that

there may be more agreement on the measureable success of the requirements for college and career readiness in mathematics. According to the study, the CCSS for ELA required more of students, with only 17 of the 36 comparison standards being at or above the expectations of CCSS (Conley, 2011b, p. 5).

Preliminary research has shown that the CCSS do reflect the expectations of post-secondary educators. In an EPIC study, post-secondary educators were asked to state if a standard addressed one of five categories of their introductory courses: prerequisite, reviewed, introduced, subsequent, or not applicable (Conley, 2011a, p. 11). If the standard was a prerequisite, reviewed, or introduced, educators were asked to rate its applicability to their course on a four-point scale: Most (4), More (3), Less (3), Least (1) (Conley, 2011a, p.11). The study found that the ELA standards were generally viewed by post-secondary educators as

highly applicable to introductory courses across disciplines; a fact which was made most evident with strands of reading and writing at the subject-level of the standards. It is clear that post-secondary educators rated the subject specific standards more favorably over the core anchor standards because they identified with the more familiar subject specific content. The study's accuracy depends on post-secondary educators providing accurate, informed responses, and while the lack of familiarity of educators with the CCRAs limits the accuracy of their individual ratings, the study does present some insight into the applicability of the CCSS in preparing students for post-secondary education.

INFORMATION LITERACY IN THE STANDARDS

The CCSS do not directly refer to information literacy; however they do outline an information literacy component

FIGURE 1—LAYERS OF COMMON CORE STANDARDS FOR ENGLISH LANGUAGE ARTS (ELA)
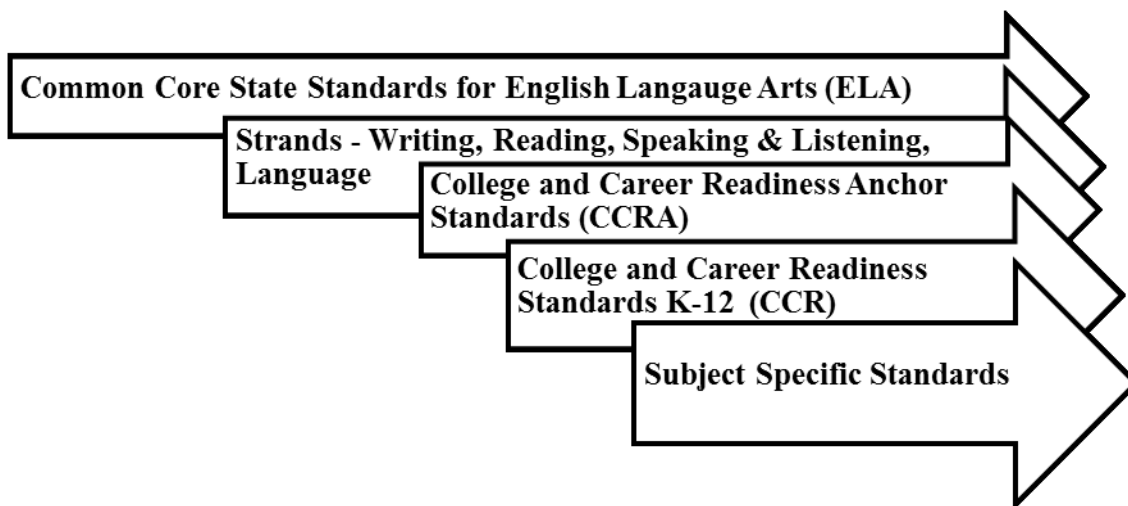
within the CCRA. Under the writing strand of ELA, and under the proficiency to research to build and present knowledge, three CCRA standards outline the importance of inquiry to college preparation (2012):

CCSS.ELA-Literacy.CCRA.W.7
Conduct short as well as more sustained research projects based on focused questions, demonstrating understanding of the subject under investigation.

CCSS.ELA-Literacy.CCRA.W.8
Gather relevant information from multiple print and digital sources, assess the credibility and accuracy of each source, and integrate the information while avoiding plagiarism.

CCSS.ELA-Literacy.CCRA.W.   9
Draw evidence from literacy or informational texts to support analysis, reflection and research.

In EPIC's applicability study, it was found that post-secondary educators attached a high level of applicability to W.7 and W.8. These received a mean applicability score of 3.6 and 3.5, while W.9 received a 3.2 mean score (Conley, 2011a, p. 28). Under the CCRA: Text Types and Purposes under the writing strand, is additional evidence of an information literacy component:

CCSS.ELA-Literacy.CCRA.W.1
Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence.

Post-secondary educators rated the following Grade 11-12 CCR standard as having a high level applicability,

demonstrating how the anchor standards are more targeted and more applicable as they become more subject and age specific:

CCSS.ELA-Literacy.W.11-22.2b
Develop the topic thoroughly by selecting the most significant and relevant facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience's knowledge of the topic.

EPIC reported that CCRA W.1 received a 3.7, and that W.11-22.2b received a 3.5 applicability score (Conley, 2011a, p. 28). The average applicability score for statements in the writing strand was 3.3, suggesting that post-secondary educators place a significant level of importance on these particular standards. It is possible that if as-high-a-level of emphasis is placed on these four standards by K-12 educators as is deemed applicable by post-secondary educators, there could be a correlative change in the developmental level of information literacy among high school graduates.

In the reading and the speaking and listening strands of the CCRA standards, there is also a demonstrated emphasis on the evaluation of content. According to EPIC's study, 83 percent of respondents placed a high level of importance on this CCRA in both strands and they reported a 3.3 average applicability score (Conley, 2011b, p. 23, 30). The two statements vary in only one term, "content" vs. "information":

CCSS.ELA-Literacy.CCRA.SL.2
and CCSS.ELA-Literacy.CCRA.R.7
Integrate and evaluate content/ information presented in diverse media and formats, including visually and quantitatively, as well as

in word.

This suggests a commonality among post-secondary educators and the CCSS that a student's ability to listen, read and write critically, and evaluate is closely tied to his or her success in introductory post-secondary courses of study. This emphasis directly correlates with Standard Three of ACRL's Information Literacy Competency Standards for Higher Education (2000).

RAMIFICATIONS OF COMMON CORE DEVELOPMENT ON INFORMATION LITERACY

Norman Webb's Depth of Knowledge (DOK) schema is a key tool educators employ in analyzing the cognitive complexity of educational standards, curricular activities, and assessment tasks. DOK is established by having raters assign one of four levels of cognitive complexity to a standard (Webb, 1997) Level 1: Recall and reproduction; Level 2: Skills and concepts; Level 3: Strategic thinking; and Level 4: Extended thinking (Webb, 2005, pp. 37). According to an EPIC study, 95 percent of comparison standards observed were at or below the DOK expectation level of the CCSS writing standards, with roughly 25 percent below the DOK requirements (Conley, 2011b, p.17). This suggests that a successful implementation of CCSS has the potential for increasing the capacitance for critical and extending thinking skills. In the current model of K-12 education, student experience varies from state-to-state; emphasizing Level 1 recall and reproduction of course content to perform well on state and national assessments. The formalization of a standards system across states that decreases the emphasis on the testing of Level 1 recall and reproduction and increases level 3 and 4 critical and extended

thinking could potentially develop more consistent cognitive abilities among students. While students may demonstrate greater differentiation in the content of their learning, the cognitive complexity has potential to be more consistent, better preparing them for the cognitive demands of the post-secondary classroom. This is still theoretical and dependent upon the application and teaching skills of K-12 educators, but a possible outcome could entail a reduction or elimination of need for traditional one-shot information literacy instruction and an increase in alternative methods of instruction.

If students demonstrate an increased level of strategic and extended thinking skills, then it is arguable that a potential pedagogical shift in information literacy instruction would be beneficial. Increasing the complexity of information literacy instruction by introducing a problem-based pedagogy could potentially increase their development of "knowledge, reasoning and study skills" (Barrows, 1980, p. xiii). Problem-based information literacy instruction focuses on student development through in-class and online collaborative problem solving rather than an introduction to library resources. Kenney suggests that students learning in a problem-based setting become more responsible for their own learning because they must actively engage with the resources, negating their pre-conceived notions of their own abilities, and forcing them to develop new ones (2008, p. 387). Theoretically, a student accustomed to learning content through the cognitive complexity of CCSS should perform well in an information literacy pedagogy built on problem-based principals.

In both the reading and the speaking and listening strands, data showed a large variation in DOK between CCSS and

comparative standards. Two of the comparative standards demonstrated a near 75 percent DOK deficiency when compared with the expectations of the CCSS strands. When examined by post-secondary educators, the CCRA in these proficiencies were rated at a 3.3 and above applicability level, demonstrating the emphasis CCSS places over other standards systems on the increase of post-secondary preparedness (Conley, 2011b, p. 30). EPIC's study was unable to identify corresponding individualized strands and standards due to a lack of similarity in approach, but through such comparison, it does demonstrate an overall increase in the DOK expectations of CCSS when compared with current state and international standards. Such an increase in DOK could potentially increase student abilities to evaluate resources and content.

As a result of CCSS being a graduated developmental strategy, it relies heavily on the long-term implementation of the pedagogy in order to succeed. It is important to acknowledge that this graduated implementation has potential to modify student learning behaviors over time. This modification could potentially require a shift in pedagogy from traditional one-shot direct instruction to a graduated pedagogy of opportunities for group learning, practice, and reflection integrated throughout a student's college career. These students could potentially be better served by an increased emphasis on online developmental tools, multiple stages of library instruction, and more subject- and assignment-specific instruction. In order to conduct such integration, increased pedagogical collaboration would be necessary.

> WHILE CCSS OFFERS A MARKED PEDAGOGICAL SHIFT AND AN INCREASE IN COLLEGE READINESS EXPECTATIONS, THE POTENTIAL LEVEL OF INCREASED INFORMATION LITERACY DEVELOPMENT AMONG HIGH SCHOOL GRADUATES IS STILL OPEN FOR DEBATE.

While the CCSS have been quickly adopted by state governments, the effects of implementation on post-secondary education will be gradual. Early adopters began implementation of the standards with the 2011-2012 school year; states will continue to implement the CCSS through 2014-2015. While conclusive data is still a few years away, the 2013 state assessment results are already showing changes in performance in K-12. For instance, Kansas adopted the Common Core State Standards in 2010. According to the Kansas State Department of Education Report Card 2012-2013, the state experienced a 3.6 percent decrease from 2011-2012 in students meeting previous content standards in reading; the same students demonstrated decreases of 7.1 and 2.2 percent in math and science (2013). The assessments used were the same as those conducted in 2011-2012, reflecting a distinct shift in the recall and reproduction of Kansas students. When looking at individual grade levels, the increase was minimal in grade eleven but grew substantially as researchers looked at earlier grade levels. While grade 11 saw a 1.1 percent decrease in students meeting reading standards, it was 1.9 at grade eight, 3 percent in grade four, and 3.6 in grade

three (KSDOE, 2013). The data from KSDOE demonstrates a clear change in student performance with the greatest impact occurring among students in grades K-8. For post-secondary institutions, this means that the gradient design of CCSS will reduce potential for an immediate impact. Depending on date of implementation and student locale of study, an expected time period for any discernible evidence of modifications in DOK or learning behaviors may be 2016-2020, allowing for current eighth grade students to experience four complete years of CCSS with a greater potential for impact from 2020-2024.

SUMMARY

While the potential effect of the Common Core State Standards on student depth of knowledge and learning behaviors is still just a possibility, it is important for information literacy instructors to know what to look for as states begin implementation of the CCSS. With 45 United States adopting the standards, any potential changes should be consistent among the student populations of most post-secondary institutions. In the next few years, as states adapt standards towards assessing critical and extended thinking rather than recall and reproduction, there should be data to begin assessing actual ramifications of CCSS adoption. While CCSS offers a marked pedagogical shift and an increase in college readiness expectations, the potential level of increased information literacy development among high school graduates is still open for debate. Such pedagogical change is reliant on many factors, which are out of the control of policy makers and educators; additional study of state assessments will be required to verify if the theory behind the standards actually returns results from its implementation.

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