Population

Population Distribution

The world’s population, or total number of people, lives in uneven clusters on Earth’s surface. Some places have many people. Other places are almost empty. Population distribution is the way the population is spread out over an area.

Demography is the science that tries to explain how populations change and why population distribution is uneven. Demographers study rates of birth, marriage, and death. And they ask why people move from one place to another.

Population and Places
People usually don’t move without a good reason. People may move because they can live better in a new place. Other times, people are forced to move, or they move because they cannot feed their families. However, as long as people can make a living where they are, they usually stay in that area. So, reasons with large

Vocabulary

Learn Vocabulary

Rapid population growth hurt Nehru’s efforts to improve living conditions.

- Demanding
- Challenging

Rapid: adjective

Definition: done or occurring in a brief period of time

Examples:
- Better healthcare and increased food production led to rapid population growth.
- The fire spread and led to the rapid destruction of the city.

Common Core Essay Prompt

Cameras in the Classroom—Student Safety or Invasion of Privacy?  

A student has been caught trying to take pictures in the classroom with a camera. The principal of the student's school is concerned about the use of cameras in the classroom. Some students believe that cameras can help them learn, while others argue that they infringe on their privacy. What is your opinion of the use of cameras in the classroom? Do you believe that cameras should be allowed?
Overview

The College and Career Readiness Standards for literacy are changing what students must learn, how literacy is taught, how students demonstrate literacy skills, and how those skills are assessed. Students will need to master complex textual information faster and at a higher level, one that is commensurate with college and career demands. Here, we explore how Pearson’s WriteToLearn™ can address these needs.

WriteToLearn is a web-based tool designed to instill 21st century literacy skills by focusing on writing for content learning across a variety of academic subjects, including science, social studies, and history. It contains essay prompts similar to those used for state writing assessment and college entrance exams, as well as an ever increasing number of College and Career Readiness (CCR) prompts.

To measure academic text more precisely and across a wider grade range, as required by the Standards, Pearson has developed a measure of text complexity, known as the Reading Maturity Metric (RMM), which has greater reliability and validity than previous readability methods. All texts within WriteToLearn include an RMM score.

After discussing RMM, we explore how College and Career Readiness Standards can be implemented today in WriteToLearn to produce desired literacy performance focused on understanding and reasoning about authentic text.

The Mandate: Dramatically Improve Literacy Performance

Literacy combines four skills: reading, writing, speaking, and listening. Central to all of these is vocabulary knowledge. Moreover, the vocabulary that is critical for college and career readiness is not typically heard in ordinary conversation, but rather is acquired by reading. To increase their “academic vocabulary,” students must read increasingly difficult texts. Regrettably, however, in the last 40 years there has been a precipitous decline in how well American students read (Adams, 2011). For example, the average 10th grader now reads textbooks assigned to 6th graders 40 years ago. Yet, the complexity of higher education textbooks has remained nearly the same, creating a gap between secondary education and college. By way of illustration, USA Today (September 25, 2012) reported on studies done by the College Board and ACT showing that over 50% of 2012 US high school graduates who took the SAT or ACT did not have the skills necessary to succeed in college. Focusing just on the SAT’s critical reading and writing components, the college readiness percentages were 49% and 45% respectively. The new Standards were developed to ameliorate America’s declining literacy and to “mind the gap.”

To close the gap between secondary and college and career readiness education reading requirements, American students must read ever more complex text as part of their primary and secondary schooling. In the past, text difficulty has been measured by readability formulas that only take into account surface features of text, such as sentence length and word frequency. For the purpose of measuring text from multiple disciplines, such as the sciences and literature, there needs to be a more precise measure that works from primary grades through higher education and incorporates the semantics of a text. To this end, the Gates Foundation initiated a coordinated effort to improve how text is measured.¹

Measuring Text Complexity

Pearson scientists joined the Gates Foundation effort and invented a superior measure of text complexity—one based on deriving a unique reading maturity curve for each word in the language by applying artificial intelligence techniques (see Kireyev and Landauer, 2011; Landauer et al., 2011; Landauer, 2011). An individual “word maturity curve” calculates how a word changes from its first grade meaning to asymptote at its adult meaning. Clearly, some words, such as “dog” are mastered early, whereas others, such as “phenotype” approach their adult meaning much later. Pearson’s Reading Maturity Metric (RMM) includes word maturity combined with several other computational language measures. In the Gates Foundation study, RMM was shown to predict expert ratings of text difficulty over 30% better than standard readability measures.

RMM was also validated by its correlation with assessments that should be measuring nearly the same thing, including (1) human ratings of text, and (2) tests of student vocabulary knowledge, such as the Peabody Picture Vocabulary test (Maddux, 1999), where test takers select the correct picture corresponding to a word or give the right name to a picture. The correlation

¹ A complete report on the Gates funded text complexity work can be found at: https://files.eric.ed.gov/fulltext/EJ909920.pdf
between the Peabody Picture Vocabulary Text and RMM was 0.74 and was nearly the same magnitude for several other standard measures of vocabulary, such as the Kaufmann Assessment Battery for Children's Expressive Vocabulary (Kaufmann & Kaufmann, 1985).

Pearson's Reading Maturity Metric also identifies the most important words in a text; i.e., those words that are key to comprehending a reading. In WriteToLearn these important vocabulary words are taught by exposure to and assessment of the words in self-defining sentence contexts. Target Cloze sentences containing the important word in the best possible sentences for learning are found automatically using large collections of text (e.g., over a billion running words of text) and Artificial Intelligence rules. The example below from WriteToLearn shows an automatically selected Cloze sentence and distractor words that share important attributes with the target word, such as part-of-speech. Some of the words legitimately fit the sentence, but one is better than the others. Students can hear their choice read in the sentence, which for some students makes the task easier.

The application keeps track of student performance and gives a dictionary definition if the correct word is not selected until the third attempt, as shown below. Also, new Cloze items for words that were missed by the student are presented at spaced practice intervals optimized to consolidate learning.

Words taught in context are learned better than studying dictionary definitions, which produce little vocabulary growth. Seeing a word in revealing contexts mimics the way language is acquired naturally.
Using Critical Thinking Skills to Improve Writing

The Standards mandate reading source documents and using student writing to demonstrate the ability to synthesize and summarize informational text, formulate an argument, and respond appropriately to the source documents.

The Standards stress close reading of text and ask students to demonstrate comprehension by writing in response to the text. These new task demands are considerably more challenging than describing an ideal vacation or one’s favorite celebrity! The CCRS curriculum changes are being introduced because students have not been paying enough attention to the text, and in fact are not reading enough or reading the right reading genres to prepare them for a career or college.

The Standards arose against a backdrop of accumulated research summarized in Reading Next (2006) and Writing Next (2007). These reports provide recommendations for effective literacy program-based practices, shown to be effective across hundreds of controlled classroom studies. The most effective teaching strategies for reading and writing include:

- Teaching students strategies for planning, revising, and editing their compositions (Writing Next, effect size 0.82)
- Teaching students how to summarize texts (Writing Next, effect size 0.82)
- Direct, explicit comprehension instruction (Reading Next)
- Effective instructional principles embedded in content (Reading Next)

The most effective instructional practices include content-based activities, which require information comprehension and synthesis and are evident in students’ written work.

Responding to Informational Text

Summarizing informational text, one of the hallmark CCRS and Writing Next tasks, has been front-and-center in WriteToLearn since its launch in 2007. Summary writing requires students to understand the meaning of the text and put it in their own words. Summarizing improves retention of the information in the text. It reveals misunderstandings and lack of comprehension. It is also a component skill of many more complex tasks.

WriteToLearn presently contains approximately 1,000 cross-curricular informational texts ranging from grade 3 through 12 for students to read and summarize. Students practice summary writing across diverse academic content areas and receive instant feedback on their understanding of the text. The feedback shows how well the summary covers the content of the major reading sections of the text, thus directing the student back to the text to where comprehension was weak. The student then rereads the content and revises the summary. The read, write, and revise cycle promotes close reading and critical thinking about what has been read. WriteToLearn feedback includes: content coverage by section; intelligent hints to important content that was missed; and feedback on length, potentially irrelevant content, redundant content, and direct copying from the source text.

Translating Essay Writing into the CCRS Framework

The CCRS require students to spend much more time writing. Students should write every day in every class. WriteToLearn gives students that writing practice with immediate feedback, so they can review, revise, and continue to practice their writing, including composing the types of texts required by the Standards: narrative, informational, and argument.

The new Standards change writing in important ways. For a 5th grader, the ability to express an opinion suffices; for a 6th grader, supporting evidence must be in the essay, whereas an 8th grader must be able to analyze a source document and produce claims based on the source document. The tasks focus on evidence-based writing to authentic texts and are designed to evoke critical thinking strategies. Rubrics need to be specific to the text type used as the source reading. For example, is it a narrative reading or an informational reading?

The CCRS replace the 5- or 6-trait rubrics that the American English Language Arts community has embraced for the last several years. Content and assessment experts established rubrics and prompts that were analyzed with student field test data in 2013. In the 2014 school year, the major consortia implemented the revamped writing assessments.
WriteToLearn supports these changes to the Standards by including new types of prompts. While narrative and informational prompts have always been available, argument prompts have been added. WriteToLearn's scoring and feedback will continuously be adapted to CCRS as new rubrics are created and CCRS evolve.

An example of the new College and Career Readiness-aligned prompts currently in WriteToLearn are shown below:

![Prompt Example](image)

**Conclusion**

WriteToLearn has shown to dramatically increase student literacy skills because students practice relevant literacy skills—reading, writing, and vocabulary. And the feedback they receive is immediate and relevant to the task. Immediacy of feedback is a strong motivator to spend additional time improving the final written product. As with computer games, WriteToLearn makes students want to spend more time on literacy tasks and receive immediate gratification for their efforts. Achieving a passing threshold within the application can become a goal in itself. And the student understands that he or she controls the learning outcome.

The Standards will change the focus of students' efforts and will demand more evidence of conceptual and linguistic competency. The learning target moves from writing something cogent that often fails to tap deep stores of knowledge to new tasks that require students to entertain and actively weigh competing hypotheses based on data.

A nagging concern on the part of educators and the public is that we may be asking too much of our students too quickly. Certainly the first several years of implementation will not be without frustration, pain, and soul searching. But for students to graduate from high school, matriculate at institutions of higher learning, and compete for the desirable jobs in a global economy, a more rigorous educational model is needed.

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2 For controlled classroom experiments and case studies demonstrating the effectiveness of WriteToLearn see: https://cdn2.hubspot.net/hubfs/559254/WTL/resources/WTL_EfficacyReport.pdf?st=153151110590

References


To understand Pearson's automated essay grading service see: