Response to EdReports Evaluation

Carnegie Learning High School Integrated Math Series

Math Curricula Designed for the Common Core State Standards for Mathematics

Carnegie Learning High School Integrated Math Series is a comprehensive set of instructional materials written specifically for math students, teachers, and classrooms implementing the Common Core State Standards for Mathematics (CCSSM), including the Standards for Mathematical Practice (SMP).

In the planning process of the Integrated Series, the authors, development and research teams reviewed the new standards, the possible sequence of standards as described in Appendix A, and the SMP as outlined in the CCSSM documentation. The authors sequenced the key mathematical concepts to support students as they build their understanding and make connections both from previous years and within mathematical clusters. Each chapter was written to accommodate a variety of learners; each lesson is comprised of several problems to provide opportunities for students to think, reason, and communicate their mathematical understanding.

The Carnegie Learning instructional materials were developed after the release of the final draft of the CCSSM with copyrights of 2012 for Integrated I and 2013 for Integrated II and Integrated III, but before the release of the assessment frameworks and progressions documents. In light of the clarifications of the mathematics standards through the aforementioned documents, we plan to revise our high school instructional materials, to be available in 2018.

Carnegie Learning holds to the notion and shares the beliefs described in the National Council of Teachers of Mathematics (NCTM, 2014) publication Principles to Action:

> "…standards do not teach; teachers teach. …effective teaching is the nonnegotiable core that ensures that all students learn mathematics at high levels and that such teaching requires a range of actions at the state or provincial, district, school, and classroom levels." (p. 4)

Beyond the supports found in the Teacher's Implementation Guide and the Online Resource Center, Carnegie Learning offers extensive professional development to support fidelity of implementation and teacher content knowledge. The range of professional development includes initial implementation training, ongoing in-classroom support, Teacher Content Academies, and administration and technical training.

EdReports Evaluation Provides Inaccurate Representation of Alignment to CCSSM

Carnegie Learning agrees with the NCTM statement, "The EdReports methodology, including its evaluation tool and process, has produced reviews that fall short of providing useful and accurate information about many critical features of materials reviewed, such as how the materials address the Standards for Mathematical Practice and the quality of the instructional activities."

Carnegie Learning disagrees with the EdReports evaluation for the Integrated Series. We do not believe the review is a fair measure of the program's alignment to the CCSSM, particularly the SMP.

The EdReports evaluation process does not address critical features of the instructional design.

The instructional design of the Integrated Series builds a solid conceptual understanding of key topics such that each standard is not a new event. The lesson structure drives conceptual understanding by drawing on previous learning—although this prior learning not explicitly called out—and requiring students to construct and interpret models, use multiple representations, compare and contrast concepts, and explain their reasoning. The goal of the instructional materials is to help students understand why algorithms work, not blindly memorizing procedures, and to make meaningful connections across concepts. The pedagogical approach of the materials focuses on how students think, learn, and apply new knowledge and empowers them to take ownership of their learning. This approach is consistent with the SMP and is clear in thorough review of the introductory materials and activities within the lessons.

The SMP describe varieties of expertise that mathematics educators should seek to develop in their students. The CCSSM document states that designers of curricula "should all attend to the need to connect the mathematical practices to mathematical content in mathematical instruction" (p. 8); the designers of the Integrated Series *did* attend to these important connections. Although the SMP are not explicitly marked, each lesson provides opportunities for students to think, reason, and communicate their mathematical understanding, all critical in the SMP. Many of the ways the SMP are addressed (e.g., Who's Correct, Talk the Talk, Thumbs Up/Down) are explicitly called out as part of the instructional design. Curriculum designers can provide mathematics and ways of building mathematical habits of mind through instructional design, teacher questions, and carefully constructed activities; teachers must know their students and make decisions about how to use the tools provided. Carnegie Learning materials and professional development support teachers and students in developing their ability to

recognize *all* of these opportunities and incorporate these practices into daily routines. Expertise is a long-time goal, and students must be encouraged to apply these practices to new content throughout their school career.

The EdReports evaluation provided contradictory comments and ratings and inconsistent use of the full scope of available resources.

Modeling. The discussion of modeling in indicator 1a.ii provided examples of when and how the modeling components were attended to, even if the lessons fell short. Although evidence described that the materials partially attended to the intent of the modeling process, the materials received 0 points for this indicator. None of the evidence cited the Student Assignment book, which has less scaffolding and provides additional opportunities for students to engage more fully in the modeling process. The CCSSM state, "The Standards should be read as allowing for the widest possible range of students to participate fully from the outset… ;" lessons were written with this lens. Carnegie Learning professional development can help those teachers who need pedagogical assistance to make decisions about how and when to reduce the amount of scaffolding in problems.

Helping students navigate the modeling cycle is part of teacher facilitation. Teacher and student questions are provided to help students develop mathematical habits of mind. At the beginning of the materials, in the student pages, is an introduction to process icons used throughout the materials: discuss to understand, think for yourself, work with your partner, and share with the class. For each icon, questions are asked: "What is the question we are being asked? Does it make sense?" "Do I need additional information to answer the question?" "Could we have used a different strategy to solve the problem?" These types of questions were written as supports to develop students' mathematical habits of mind, including the ability to model with mathematics.

In describing the materials' treatment of the plus standards, the report states that those lessons "could be omitted without interrupting meaning, or the understanding for the student." However, in describing students' opportunities to fully learn each standard (indicator 1b.ii; 2 of 4 points), extension work that could be omitted is cited as distracting student learning from the standards. These statements are contradictory. Omitting content in one place is deemed acceptable but omitting content at the end of a chapter or text is deemed distracting.

Standards for Mathematical Practice. The evidence provided for indicators of Criterion 2e-2h were often stellar, yet each was given a rating of 1 out of 2 points. The summaries for SMP 2 and

3 both include the phrase "The material consistently…" and describe the SMP, yet this metric was given 1 point.

Throughout the evaluation, reviewers stated the materials were too scaffolded. However, in discussing the SMP, reviewers stated insufficient guidance was provided to develop the SMP—despite the instructional design. For SMP 7 & 8, reviewers stated there was too much scaffolding (that would allow a student to see structure and make generalizations on their own) and did not rely on student discussion or problem-solving. Although instructional materials can advise teachers on questions to ask, effective facilitation of student discussion is up to the teacher. Providing pathways to help students see important mathematical connections—the heart of understanding mathematics—was of major importance in the design of the series.

The EdReports evaluation process is limited.

The two-step gateway review process provides a limited view of how the Integrated Series aligns to the CCSSM and SMP and meets the needs of math educators and students. Because the series "partially met expectations" as evaluated for Focus & Coherence and Rigor & Mathematical Practices, it was not evaluated for Usability. This limited evaluation is detrimental to educators looking to utilize this as a resource to guide their selection of mathematics curricula. Gateways 1 and 2 focus on the mathematics present in the materials; Gateway 3 focuses on the usability of the materials. Instructional support for teachers' decision-making on how to use the materials, what aspects of materials to emphasize, and how to differentiate should be assessed in Gateway 3 but seems to have been addressed in Gateway 2.

Summary

The Carnegie Learning High School Integrated Math Series provides instruction, activities, practice, and assessment tools that support educators in creating a learning environment that fosters deep conceptual understanding of mathematics, aligned to the CCSSM and SMP. The curriculum has been thoroughly reviewed for content and attention to the SMP by districts and states around the county and subsequently selected as their core instructional resource for meeting the CCSS and ultimately raising student achievement in mathematics.