Defining Rigor

Julie Edmunds, SERVE
What is Rigor? Starting with what you know
Is Rigor Appropriate for Everyone?

• Newmann et al. looked at quality of work in grades 3, 6, and 8
• Exposure to high levels of authentic intellectual work are associated with gains in standardized test scores.
  – Students exposed to high quality assignments had 20% higher gains than national average.
  – Students exposed to low quality assignments had gains 25% lower than the national average.
• Student demographics were not associated with exposure to quality assignments.
Is Rigor Appropriate for Everyone?

- High quality assignments had value for both low-performing and high-performing students (compared to students exposed to low quality assignments)

<table>
<thead>
<tr>
<th>Value Added</th>
<th>Math</th>
<th>Reading</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>+29%</td>
<td>+28%</td>
</tr>
<tr>
<td>High</td>
<td>+17%</td>
<td>+42%</td>
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Is Rigor Appropriate for Everyone?

• CRESST study on quality of classroom assignments, including 10th grade students.

• Students with more intellectually challenging assignments had higher standardized reading scores (even after other factors were taken into consideration).
Rigor is not….

• Something extra you have to do on top of everything else.
• More.
  – More pages ≠ rigor
  – More of the same math problems ≠ rigor
  – More homework ≠ rigor
Rigor is....

• Part of quality instruction.
• Part of a quality schooling experience.

You cannot have quality instruction or a quality school without rigor.
Standards and Assessments:
Do state standards include rigorous expectations for thinking skills and knowledge?
Do state assessments measure these rigorous expectations?

Exit Requirements:
Are the state and local exit requirements rigorous?
Do they align with college entrance and workforce expectations?

Access:
Do policies and procedures support access to rigorous courses for all students?
Are all students encouraged and supported to take rigorous courses?
Are rigorous courses taught by qualified teachers?

Instruction:
Does the teacher use rigorous instructional practices?

Assessment:
Are the classroom assessment rigorous?

Student Work:
Are students able to produce rigorous work?

In the Classroom:

Defining Rigor
Rigor in the Classroom

• Focus on what students are asked to do
• Three main pieces: course content, instruction, assessment
• Course content:
  – Doing a good job with state standards
  – Basic skills coupled with key concepts/important ideas
  – Application of core content to problems
Rigor in the Classroom

• Instruction:
  – Activities that engage students in higher order thinking
  – “Elaborated communication”

• Assessment:
  – Aligned to higher order goals
  – Contain higher order thinking, engage with academic content, and require extended, elaborated responses
<table>
<thead>
<tr>
<th><strong>COGNITIVE CHALLENGE DIMENSION</strong></th>
<th><strong>ALIGNMENT DIMENSION</strong></th>
<th><strong>ASSESSMENT PROCESS DIMENSION</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Does this assignment engage students in substantive content and provide an opportunity to apply highly complex thinking?</td>
<td>Does the assignment reflect a consistently focused alignment among learning goals, standards, and assessment strategies, grading criteria and learning strategies?</td>
<td>Does the assignment exemplify a quality assessment process?</td>
</tr>
<tr>
<td>Does the assignment contain the following quality indicators within this dimension?</td>
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<tr>
<td>❑ Is engaging to students</td>
<td>❑ States the teacher’s learning goals for students</td>
<td>❑ Clearly indicates assessment purpose (diagnostic, formative, summative)</td>
</tr>
<tr>
<td>❑ Leads to deep understanding of content</td>
<td>❑ Lists the state or local standards addressed by the assignment</td>
<td>❑ Uses a highly effective assessment method that tightly matches the purpose</td>
</tr>
<tr>
<td>❑ Allows opportunities for students to reflect on their own thought processes and/or set goals for their own learning (encourages metacognition)</td>
<td>❑ Aligns these learning goals/standards to: the work assigned to students (good match between targeted knowledge/skill and assignment?)</td>
<td>❑ Utilizes an assessment method that provides valid information on student achievement of learning goals/standards</td>
</tr>
<tr>
<td>❑ Makes connections to other concepts within this discipline and/or to concepts in other disciplines</td>
<td>❑ Appropriate assessment strategies (diagnostic, formative, summative)</td>
<td>❑ Provides ample time for students to complete (deadline is feasible)</td>
</tr>
<tr>
<td>❑ Asks students to perform higher order cognitive skills as analyze, apply, evaluate, examine issues, solve problems</td>
<td>❑ Appropriate instructional strategies</td>
<td>❑ Shares expectations/grading criteria with students in advance</td>
</tr>
<tr>
<td>❑ Contains clear, yet rigorous expectations for learning (beyond minimum standards)</td>
<td>❑ Teacher expectations/grading criteria</td>
<td>❑ Clearly outlines expectations/grading criteria in age or grade appropriate language</td>
</tr>
<tr>
<td>❑ Is appropriate in age and grade level</td>
<td>❑ Encourages the study of essential concepts or understandings (the work involved is worthy of the time and energy invested)</td>
<td>❑ Selects grading criteria/feedback mechanisms that support student self-assessment and/or improvement</td>
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<td>❑ Expresses high teacher expectations for completing the work</td>
<td>❑ Mirrors an authentic and challenging task (real world application or connection)</td>
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Rigor Quick Check

Reminder: Look at what students are being asked to do.

Content:
✓ Is the content part of the state standards?
✓ Does it include basic skills and important concepts?
✓ Does the content require students to apply core academic knowledge to problems or issues?

Instruction:
✓ Does the instruction require students to engage in higher order thinking skills?
✓ Are students required to engage in elaborated communication?
✓ Do they have to explain or justify their conclusions or thinking?

Assessment:
✓ Is the assessment aligned to the lesson goals?
✓ Does the assessment measure SCOS content?
✓ Do students have to use higher order thinking skills on the assessment?
✓ Do students have to explain or justify their conclusions or thinking?
How rigorous is this assignment?

- Design a controlled experiment investigating bacterial growth
  - Develop a question
  - Develop a hypothesis
  - Design and carry out the experiment to test the hypothesis (changing only one variable at a time)
  - Write up the experiment and results
  - Use the rubric to evaluate your report before turning it in
How rigorous is this assignment?

• Given a specific colony from the original 13 colonies…
  – Do research to answer specific questions about the colony
  – Write a report answering the questions
  – Create a map of the colony, including natural features and resources
  – Present your report and map to the class
  – Use the rubric to review the report and map before turning them in
How rigorous is this assignment?

• Using the materials in the class and what you have learned about sound…
  – Design a musical instrument that changes pitch at least three times
  – Name your instrument and write a description that includes an explanation of how the instrument makes different pitches
  – Play your instrument for the class, showing how it changes pitch
  – Use the rubric to review the instrument and description before turning them in
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Questions or additional information??

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