SAMR: Context and Applications

Ruben R. PuenteDura, Ph.D.
The SAMR Model and the EdTech Quintet
**Substitution**
Tech acts as a direct tool substitute, with no functional change

**Augmentation**
Tech acts as a direct tool substitute, with functional improvement

**Modification**
Tech allows for significant task redesign

**Redefinition**
Tech allows for the creation of new tasks, previously inconceivable

**Enhancement**
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[Images of various artifacts and ancient remains]
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Fig. 3: The caption for this technical drawing reads “Mr. Watt’s Patent Rotative Steam Engine as constructed by Macew. Boulton & Watt, Soho, from 1787 to 1800. 10 Horse power.” By 1787, the engine had evolved considerably from the earlier versions, using the sun-and-planet gear to drive the large wheel; the Watt linkage to connect the beam with the cylinder, on the left; and even Watt’s feedback-driven flyball governor—the two balls hanging above and to the left of the large wheel—to control the wheel’s speed. Science Museum / Science & Society Picture Library.
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[Images of artifacts representing each category]
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![Bar chart showing Rock Pigeon data for different months]

- **Rock Pigeon Data**
  - **Count**
  - **Months**: Sept, Oct, Nov, Dec, Jan, Feb, Mar, Apr, May
  - **Values**:
    - Sept: 40
    - Oct: 32
    - Nov: 30
    - Dec: 20
    - Jan: 21
    - Feb: 25
    - Mar: 27
    - Apr: 32
    - May: 45
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Formal Definition of Game (Salen & Zimmerman)

“A game is a system in which players engage in an artificial conflict, defined by rules, that results in a quantifiable outcome.”
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<th>Description</th>
<th>Effect Size</th>
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<tr>
<td><strong>Algebra I</strong>&lt;br&gt;Effectiveness of Cognitive Tutor Algebra I at Scale, by John F. Pane, Beth Ann Griffin, Daniel F. McCaffrey, Rita Karam</td>
<td><strong>S to A</strong></td>
<td><strong>S:</strong> Computerized algebra drills, some tied to real-world scenarios&lt;br&gt; <strong>A:</strong> Tools for basic visualization; adaptive response to student progress</td>
<td>≈ 0.2&lt;br&gt;50th perc. → 58th perc.</td>
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<tr>
<td><strong>Earth Science</strong>&lt;br&gt;Using Laptops to Facilitate Middle School Science Learning: The Results of Hard Fun, by Alexis M. Berry, Sarah E. Wintle</td>
<td><strong>A to M</strong></td>
<td><strong>A:</strong> Interactive tools for concept exploration and visualization&lt;br&gt; <strong>M:</strong> Narrated animation as final project</td>
<td>≈ 0.6&lt;br&gt;50th perc. → 73rd perc.&lt;br&gt;(≈ 1.4 a month later)&lt;br&gt;(50th perc. → 92nd perc.)</td>
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Choosing the First SAMR Ladder Project: Three Options

• **Your Passion:**
  • If you had to pick one topic from your class that best exemplifies why you became fascinated with the subject you teach, what would it be?

• **Barriers to Your Students’ Progress:**
  • Is there a topic in your class that a significant number of students get stuck on, and fail to progress beyond?

• **What Students Will Do In the Future:**
  • Which topic from your class would, if deeply understood, best serve the interests of your students in future studies or in their lives outside school?
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"Practice in a classroom is formative to the extent that evidence about student achievement is elicited, interpreted, and used by teachers, learners, or their peers, to make decisions about the next steps in instruction that are likely to be better, or better founded, than the decisions they would have taken in the absence of the evidence that was elicited."

Resources

- TPCK - *Technological Pedagogical Content Knowledge*. Online at: http://tpack.org