SAMR: A Contextualized Introduction

Ruben R. Puenteura, Ph.D.
Redefinition
Tech allows for the creation of new tasks, previously inconceivable

Modification
Tech allows for significant task redesign

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Ruben R. Puentedura, As We May Teach: Educational Technology, From Theory Into Practice. (2009)
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<tr>
<th>Study</th>
<th>SAMR Classification</th>
<th>Description</th>
<th>Effect Size</th>
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</table>
| **Algebra I**                               | S to A              | S: Computerized algebra drills, some tied to real-world scenarios  
A: Tools for basic visualization; adaptive response to student progress                                                                                                                                    | ≈ 0.2              |
| *Effectiveness of Cognitive Tutor Algebra I at Scale*, by John F. Pane, Beth Ann Griffin, Daniel F. McCaffrey, Rita Karam |                     | 50th perc. → 58th perc.                                                                                                                                                                                    |                    |
| **Earth Science**                           | A to M              | A: Interactive tools for concept exploration and visualization  
M: Narrated animation as final project                                                                                                                                                                      | ≈ 0.6              |
| *Using Laptops to Facilitate Middle School Science Learning: The Results of Hard Fun*, by Alexis M. Berry, Sarah E. Wintle                                                                                      |                     | 50th perc. → 73rd perc.  
(≈ 1.4 a month later)  
(50th perc. → 92nd perc.)                                                                                                                      |                    |
<table>
<thead>
<tr>
<th>Engaged Thinker</th>
<th>Ethical Citizen</th>
<th>Entrepreneurial Spirit</th>
</tr>
</thead>
<tbody>
<tr>
<td>“I collaborate to create new knowledge.”</td>
<td>“I do the right thing because it is the right thing to do.”</td>
<td>“I create new opportunities.”</td>
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- know how to learn
- think critically
- identify and solve complex problems
- manage information
- innovate
- create opportunities
- apply multiple literacies
- communicate well and cooperate with others
- demonstrate global and cultural understanding
- identify and apply career and life skills

Inspiring Education: a dialogue with Albertans. (2010)
Cross-Disciplinary Knowledge/Synthesis

Core Content Knowledge

Information Literacy

Foundational Knowledge

Creativity & Innovation

Cultural Competence

21st Century Learning

Meta Knowledge

Humanistic Knowledge

Problem Solving & Critical Thinking

Communication & Collaboration

Life & Job Skills

Ethical & Emotional Awareness

21st Century Learning

Core Content Knowledge

Foundational Knowledge

Cross-Disciplinary Knowledge/Synthesis

Apply multiple literacies

Information Literacy

Manage information

Creativity & Innovation

Innovate

Create opportunities

Problem Solving & Critical Thinking

Meta Knowledge

Know how to learn

Think critically

Identify and solve complex problems

Communication & Collaboration

Humanistic Knowledge

Life & Job Skills

Ethical & Emotional Awareness

Demonstrate global and cultural understanding

Life & Job Skills

Identify and apply career and life skills

Communicate well and cooperate with others
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![Images of artifacts related to social mobility, visualization, storytelling, and gaming through time.](image_url)
Marzano: Six Steps to Effective Vocabulary Instruction

Step 1: The Teacher Provides a Description, Explanation, or Example of the New Term

Step 2: Students Restate the Explanation of the New Term in Their Own Words

Step 3: Students Create a Nonlinguistic Representation of the Term

Step 4: Students Periodically Do Activities That Help Them Add to Their Knowledge of Vocabulary Terms

Step 5: Periodically Students Are Asked to Discuss the Terms with One Another

Step 6: Periodically Students Are Involved in Games That Allow Them to Play with the Terms

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Learning Environments

- Contextual Search
- Augmented Reality

- Cloud Resources
- Mobile Tools

- Sensors
- Recorders
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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.”

Gersmehl:  
Teaching Geography – Four Cornerstones

• Location  
  • Position in space
• Condition  
  • Mix of natural & artificial features that give meaning to a location
• Links  
  • Connections between places
• Region  
  • Formal region: group of places with similar conditions  
  • Functional region: group of places linked together by a flow
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