SAMR in the Classroom

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

Modification
Tech allows for significant task redesign

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

Substitution
Tech acts as a direct tool substitute, with no functional change

Ruben R. Puentedura, As We May Teach: Educational Technology, From Theory Into Practice. (2009)
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 do activities that help them add to their knowledge of vocabulary terms.

Step 5
Students are asked to discuss the terms with one another.

Step 6
Students are involved in games that allow them to play with the terms.
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<thead>
<tr>
<th>Study</th>
<th>SAMR Level</th>
<th>Description</th>
<th>Effect Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ligas (2002)</td>
<td>S</td>
<td>CAI system used to support direct instruction approach for at-risk students.</td>
<td>0.029</td>
</tr>
<tr>
<td>Xin &amp; Reith (2001)</td>
<td>A</td>
<td>Multimedia resources provided to contextualize learning of word meanings and concepts.</td>
<td>0.264</td>
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<tr>
<td>Higgins &amp; Raskind (2005)</td>
<td>M</td>
<td>Software/hardware used for text-to-speech, definitions, pronunciation guide for children with reading disabilities.</td>
<td>0.600</td>
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<tr>
<td>Salomon, Globerson &amp; Guterman (1989)</td>
<td>R</td>
<td>Software presents students with reading principles and metacognitive questions as part of the reading process.</td>
<td>1.563</td>
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</table>
Fig. 2. Estimates by 160 gynecologists of the probability that a woman has breast cancer given a positive mammogram, before and after receiving training in how to translate conditional probabilities into natural frequencies.
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The Pen Is Mightier Than the Keyboard: Advantages of Longhand Over Laptop Note Taking

Pam A. Mueller¹ and Daniel M. Oppenheimer²
¹Princeton University and ²University of California, Los Angeles

Abstract
Taking notes on laptops rather than in longhand is increasingly common. Many researchers have suggested that laptop note taking is less effective than longhand note taking for learning. Prior studies have primarily focused on students' capacity for multitasking and distraction when using laptops. The present research suggests that even when laptops are used solely to take notes, they may still be impairing learning because their use results in shallower processing. In three studies, we found that students who took notes on laptops performed worse on conceptual questions than students who took notes longhand. We show that whereas taking more notes can be beneficial, laptop note takers' tendency to transcribe lectures verbatim rather than processing information and reframing it in their own words is detrimental to learning.
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Learning Environments

- Contextual Search
- Augmented Reality
- Cloud Resources
- Mobile Tools
- Sensors
- Recorders
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![Images related to the table entries](image1)(image2)(image3)(image4)
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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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<td>Feedback Loops and Formative Assessment</td>
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Location
Position in space

Condition
Mix of natural & artificial features that give meaning to a location

Links
Connections between places

Formal Region
Group of places with similar conditions

Functional Region
Group of places linked together by a flow
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