Understanding SAMR

Ruben R. Puentedura, Ph.D.
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Modification
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<table>
<thead>
<tr>
<th>Social</th>
<th>Mobility</th>
<th>Visualization</th>
<th>Storytelling</th>
<th>Gaming</th>
</tr>
</thead>
<tbody>
<tr>
<td>200,000 years</td>
<td>70,000 years</td>
<td>40,000 years</td>
<td>17,000 years</td>
<td>8,000 years</td>
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<tr>
<th>Study</th>
<th>SAMR Classification</th>
<th>Description</th>
<th>Effect Size</th>
</tr>
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</table>
| Algebra I  
*Effectiveness of Cognitive Tutor Algebra I at Scale*, by John F. Pane, Beth Ann Griffin, Daniel F. McCaffrey, Rita Karam | 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  
50th perc. → 58th perc. |
| Earth Science  
*Using Laptops to Facilitate Middle School Science Learning: The Results of Hard Fun*, by Alexis M. Berry, Sarah E. Wintle | A to M | A: Interactive tools for concept exploration and visualization  
M: Narrated animation as final project | ≈ 0.6  
50th perc. → 73rd perc.  
(≈ 1.4 a month later)  
(50th perc. → 92nd perc.) |
An authentic connection between academic disciplines and real world experience

A framework and workflow to develop 21st century skills

The purposeful use of technology for researching, analyzing, organizing, collaborating, communicating, publishing and reflecting.

The opportunity for learners to do something important now, rather than waiting until they are finished with their schooling

The documentation and assessment of the learning experience from challenge to solution

An environment for deep reflection on teaching and learning

A process that places students in charge of their learning

These attributes enable Challenge Based Learning to engage all learners, provide them with valuable skills, span the divide between formal and informal learning, and embrace a student's digital life.

Key Components

The Challenge Based Learning process begins with a big idea and cascades to the following: an essential question, a challenge, guiding questions, activities, and resources, a solution, implementation, evaluation, reflection, assessment, and publishing.

The Big Idea:

The big idea is a broad concept that can be explored in multiple ways, is engaging, and has importance to learners, and the larger society. Examples of big ideas are Resilience, Separation, Creativity, Health, Sustainability, and Democracy.

Essential Question:

By design, the big idea allows for the generation of a wide variety of essential questions. Eventually the process narrows to one essential question that reflects the interests of the learners and the needs of their community.

The Challenge:

From the essential question a concise challenge is articulated that asks the learners to create a specific solution that will result in concrete, meaningful action.

Guiding Questions, Activities and Resources:

Generated by the learners, guiding questions represent the knowledge needed to successfully develop a solution and provide a map for the learning process. The learners identify lessons, simulations, activities, and content resources, to answer the guiding questions and set the foundation for them to develop innovative, insightful, and realistic solutions.

Solutions:

Each challenge is stated broadly enough to allow for a variety of solutions. The solution should be thoughtful, concrete, clearly articulated and actionable in the local community.
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Hippasus

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