SAMR and TPCK: A Hands-On Approach to Classroom Practice

Ruben R. Puente dura, Ph.D.
Phase 1: Building a Basic SAMR Ladder
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

Ruben R. Puenteedura, As We May Teach: Educational Technology, From Theory Into Practice. (2009)
<table>
<thead>
<tr>
<th>Social</th>
<th>Mobility</th>
<th>Visualization</th>
<th>Storytelling</th>
<th>Gaming</th>
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<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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<th>The EdTech Quintet – Associated Practices</th>
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Surveying Seymour Papert’s Four Expectations

- **Expectation 1**: suitably designed formative/summative assessment rubrics will show improvement when compared to traditional instruction.

- **Expectation 2**: students will show more instances of work at progressively higher levels of Bloom’s Taxonomy.

- **Expectation 3**: student work will demonstrate more – and more varied – critical thinking cognitive skills, particularly in areas related to the examination of their own thinking processes.

- **Expectation 4**: student daily life will reflect the introduction of the technology. This includes (but is not limited to) directly observable aspects such as reduction in student attrition, increase in engagement with civic processes in their community, and engagement with communities beyond their own.
# Bloom's Taxonomy: Cognitive Processes

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<th>Anderson &amp; Krathwohl (2001)</th>
<th>Characteristic Processes</th>
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| **Remember**                | • Recalling memorized knowledge  
                              | • Recognizing correspondences between memorized knowledge and new material |
| **Understand**              | • Paraphrasing materials  
                              | • Exemplifying concepts, principles  
                              | • Classifying items  
                              | • Summarizing materials  
                              | • Extrapolating principles  
                              | • Comparing items |
| **Apply**                   | • Applying a procedure to a familiar task  
                              | • Using a procedure to solve an unfamiliar, but typed task |
| **Analyze**                 | • Distinguishing relevant/irrelevant or important/unimportant portions of material  
                              | • Integrating heterogeneous elements into a structure  
                              | • Attributing intent in materials |
| **Evaluate**                | • Testing for consistency, appropriateness, and effectiveness in principles and procedures  
                              | • Critiquing the consistency, appropriateness, and effectiveness of principles and procedures, basing the critique upon appropriate tests |
| **Create**                  | • Generating multiple hypotheses based on given criteria  
                              | • Designing a procedure to accomplish an untyped task  
                              | • Inventing a product to accomplish an untyped task |
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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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Pedagogy

Content

Technology

PK

PCK

TPK

TPCK

TCK

TK

CK
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Phase 3: Responding to 21st Century Learning Needs
Phase 4: Thinking About Trends and Challenges
## Key Trends Driving Ed Tech Adoption

| Fast (1-2 yrs.) | Rethinking the Roles of Teachers  
Shift to Deeper Learning Approaches |
| Mid-Range (3-5 yrs.) | Increasing Focus on OER  
Increasing Use of Hybrid Learning Designs |
| Long-Range (5+ yrs.) | Rapid Acceleration of Intuitive Technology  
Rethinking How Schools Work |

## Important Ed Tech Developments

| Adoption: 1 yr. or less | BYOD  
Cloud Computing |
| Adoption: 2-3 yrs. | Games and Gamification  
Learning Analytics |
| Adoption: 4-5 yrs. | The Internet of Things  
Wearable Technology |

## Significant Challenges Impeding Ed Tech Adoption

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Integrating Personalized Learning | Complex Thinking & Communication  
Safety of Student Data | Competition from New Models of Ed  
Keeping Formal Education Relevant |

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