Follow the River: 
Designing Robust iPad Flows

Ruben R. PuenteDura, Ph.D.
Pedagogy

Content

Technology

PK

PCK

CK

TPK

TPCK

TCK

TK

AACTE (Eds.) The Handbook of Technological Pedagogical Content Knowledge for Educators. New York: Routledge, 2008.
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

Transformation
Podcasts on iTunes U: http://tinyurl.com/aswemayteach
Bloom's Taxonomy: Cognitive Processes

<table>
<thead>
<tr>
<th>Anderson &amp; Krathwohl (2001)</th>
<th>Characteristic Processes</th>
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</thead>
</table>
| 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 |

Example #1: History
Lesh: Teaching History – Concepts and Criteria

• **Core Concepts:**
  • Causality
  • Chronology
  • Multiple Perspectives
  • Contingency
  • Empathy
  • Change and Continuity Over Time
  • Influence/Significance/Impact
  • Contrasting Interpretations
  • Intent/Motivation

• **Guiding Criteria:**
  • Does the question represent an important issue to historical and contemporary times?
  • Is the question debatable?
  • Does the question represent a reasonable amount of content?
  • Will the question hold the interest of middle or high school students?
  • Is the question appropriate given the materials available?
  • Is the question challenging for the students you are teaching?
  • What organizing historical concepts will be emphasized?
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Example #2: Science
Understanding Science: How Science Works

EXPLORATION AND DISCOVERY
- Making observations
- Asking questions
- Sharing data and ideas
- Finding inspiration
- Exploring the literature

TESTING IDEAS
- Gathering data
- Interpreting data
- Hypotheses
- Expected results/observations
- Actual results/observations
- Supportive, contradictory, surprising or inconclusive data may...
- ...support a hypothesis.
- ...oppose a hypothesis.
- ...inspire revised/new hypotheses.
- Feedback and peer review
- Replication
- Theory building
- Discussion with colleagues
- Publication
- Coming up with new questions/ideas

BENEFITS AND OUTCOMES
- Develop technology
- Build knowledge
- Satisfy curiosity
- Address societal issues
- Inform policy
- Solve everyday problems

COMMUNITY ANALYSIS AND FEEDBACK
- New technology
- Practical problem
- Curiosity
- Personal motivation
- Serendipity
- Surprising observation

www.understandingscience.org
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Example #3: ELA
Flipping the Classroom: ConcepTests

Brief Lecture or Group Discussion (~10 minutes)

ConcepTest (~1-2 minutes)

More than 75% of students answer correctly
The instructor explains remaining misconceptions

Between 30-75% of students answer correctly
Peer Discussion: students try to convince each other (~2-3 minutes)

Fewer than 30% of students answer correctly
The instructor revisits and explains the concept

ConcepTest (~1-2 minutes)

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Example #4: An Apps Flow Set
DS On The Go

5-Card Nancy
Five Card Flickr
FlickStackr
iPhoto
Diptic

PhotoStudioHD
Pixl
SketchBook
Strip Design
VideoGrade

TiltShift Video
Movie Looks
iMovie
Avid Studio
Example #5: iBooks Author
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