Teaching, Learning, & Technology
An Active Guide to Integration

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Overview

- Guiding Question & Guiding Premise
- Working Memory and Cognitive Load
- Complex Multimedia Environments
- Teaching, Learning, & Technology
Guiding Question

What learning principles or concepts must be kept in mind when constructing an effective, technology-rich instructional environment?
Most *technology-based* learning principles are simply learning principles in technology-rich environments.
There is a subtle shift of attention from what *can* be done with the technology to what *should* be done in order to design meaningful instructional applications.

Rouet, Levonen, & Biardeau, 2001, p. 1
A Learning Framework

S
strategies

E → P → K
experience  processing  knowledge
Working Memory

- A Limited Resource
  - Limited Capacity
  - Limited Processing

- Working Memory and Processing of Experience
  - Problem Solving
  - Decision Making
Cognitive Load

- Intrinsic Cognitive Load
- Extraneous Cognitive Load
- Germane Cognitive Load
Strategic Thinking

- Description and Explanation
- Practice and Feedback
- Evaluation and Control
- Generalization and Adaptation
Technology-Rich Environments

- Creating Cognitive Friendly Technologies
- Reducing Cognitive Load
- Fostering Cognitive Processing
5 Principles of Multimedia Instruction

1.

2.

3.

4.

5.