



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

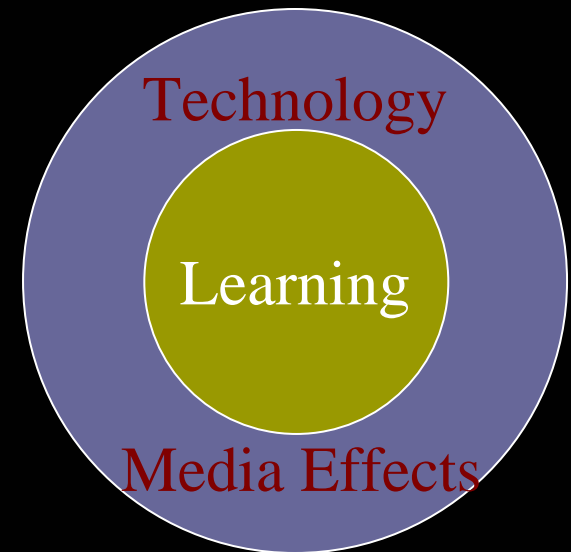
- What learning principles or concepts must be kept in mind when constructing an effective, technology-rich instructional environment?



Guiding Premise

- Most *technology-based* learning principles are simply learning principles in technology-rich environments.

Teaching

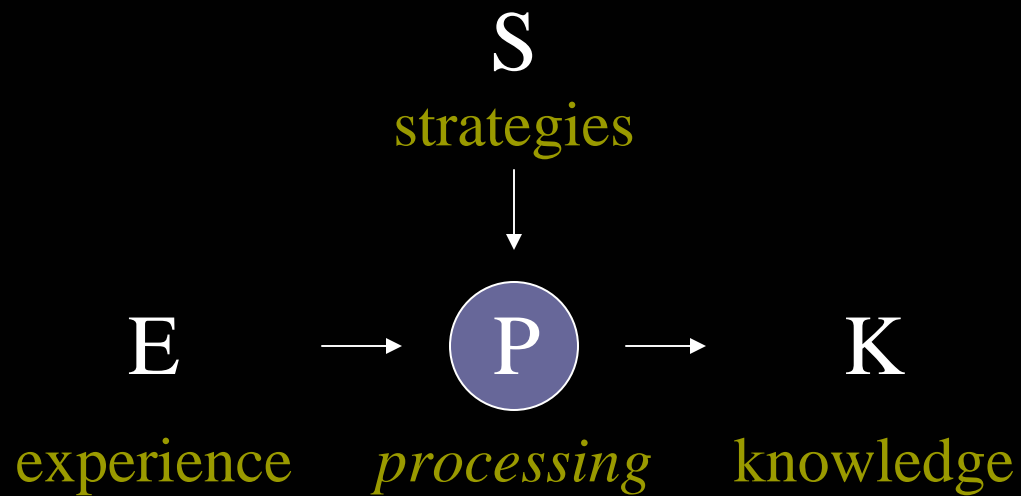


Learning Environment

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



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.

Teaching, Learning, & Technology Principles by Example

Example 1

Example 2

Example 3



Example 4

Example 5

Example 6