Teaching and Learning in/for the Future

A FRAMEWORK FOR EXPLORATION

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Anticipation Guide

**Directions:** Agree or Disagree or Edit?

1. Anyone can teach.
2. Active, or deep learning in students is fostered by note taking and discussions with fellow students.
3. Technology allows teachers to teach more powerfully, more efficiently, and with less effort.
Today’s Mantra: What We Know, What We Do
End of Publishing

https://www.youtube.com/watch?v=Weq_sHxghcg
Overview

1. Introduction
2. Learning Principles
3. Learning Principles
4. Silver Bullets & Mythology
5. Technology, Diversity, and Teaching/Learning
6. Conclusion
Learning Principles

To acquire knowledge of or skill in as a result of study or experience. (OED)
Rest, Tired, Awake, Dream, Snore, Bed, Eat, Slumber, Sound, Comfort, Wake, Night

That's all!
What does the activity tell us?

1. Meaning is **constructed** during experience and **reconstructed** during recall.
2. Construction/reconstruction result from **processing**.
3. Knowledge is **organized**.
4. When specifics are lost, **meaning** remains.
5. **Strategies** are used to function more effectively.
6. We can **assess** the effectiveness of our thinking.
Cognitively

Behaviorally

Affectively

Socially

What we process we learn.

Processing Engagement
Active Learning
Hands On, Minds On
Learning Principles

A fundamental source from which something (learning) proceeds. (OED)
The Need for Clarity

https://www.youtube.com/watch?v=guELpieYIFU
6 Principles for Developing Deep & Flexible Learning

1. Learning through practice at retrieval
2. Learning through varied tasks and purposes
3. Learning at the principle level
4. Learning awareness and control (metacognition)
5. Learning through developmental feedback
6. Learning embedded in prior knowledge & experience

(Engle, 2006; Halpern & Hakel, 2003; Mariano, Doolittle, & Hicks, 2009; Wagner, 2006)
Peer-to-Peer Review/Critique/Feedback

- Peers provide feedback on each other’s writings, drawings, artifacts, presentations, posters.

- Providing feedback on others’ papers fosters better writing in the reviewer and reviewee.

- Resident physicians provide video-based peer feedback on each other’s surgery simulations.

- Rapid feedback in large classes improved achievement over delayed feedback.

Peer-to-Peer Review/Critique/Feedback

The findings show that producing feedback reviews engages students in multiple acts of evaluative judgment, both about the work of peers, and, through a reflective process, about their own work;

that it involves them in both invoking and applying criteria to explain those judgments; and that it shifts control of feedback processes into students’ hands, a shift that can reduce their need for external feedback.

-- Nicol, Thompson, & Breslin, 2013
Peer-to-Peer Review/Critique/Feedback

- ✔ Learning through practice at retrieval
- ✔ Learning through varied tasks and purposes
- ✔ Learning at the principle level
- ✔ Learning awareness and control (metacognition)
- ✔ Learning in response to developmental feedback
- ✔ Learning embedded in prior knowledge & experience

Looking forward: How do we design, develop, and implement instructional experiences that foster these 6 principles?

And, how do we embed assessment so that it synthesizes with student learning and fosters developmental feedback?
Purpose

Need

Student Learning
C, B, S, & A Processing
Active Learning Engagement Hands-On Minds-On
SCALE UP iClickers Lecture/Discuss PBL & CBL Group Work Design Projects Field/Int’l Work

Assessment (as an add-on)

Goals & Outcomes

Learning Environment

C, B, S, & A Processing

Student Learning

Purpose Need
Purpose

Need

Student

Learning

C, B, S, & A
Processing

Learning

Environment

Learning

Artifact

Learning

Assessment

Student

Feedback

Goals &
Outcomes

Course Embedded Assessment

direct

formative

summative

Design Projects
Posters (Session)
Writing
Problem Solving
Case/Mini-Case Studies
Peer Review
Reading Responses
Video Creation
Reflections
25-Word Summaries
Oral Explanations
Problem Sets
Blog/Vlog Posts
MC→Interpretive→Analysis
MC Item Create/Evaluate
Design Critique
Presentation
Self-Created Artifact

25-Word Summaries
Oral Explanations
Problem Sets
Blog/Vlog Posts
MC→Interpretive→Analysis
MC Item Create/Evaluate
Design Critique
Presentation
Self-Created Artifact
Happy Dog

https://www.youtube.com/watch?v=CFjXwG1Nus4
Silver Bullets & Mythology

A simple, miraculous solution to a complex and difficult problem. (OED)

Research, Not Rhetoric
Math 25 Divided by 5

https://www.youtube.com/watch?v=t8XMeocLflc
Silver Bullets & Mythology

A simple, miraculous solution to a complex and difficult problem. (OED)

Gartner’s Hype Cycle

Peak of Inflated Expectations

09 eportfolios

Technology/Introduction

02 eportfolios

Trough of Disillusionment

11 eportfolios

Slope of Enlightenment

16 eportfolios

Plateau of Productivity
Hype: ePortfolios

Silver Bullets & Mythology

A simple, miraculous solution to a complex and difficult problem. (OED)

Gartner's Hype Cycle

Peak of Inflated Expectations

Gateways Courses

Flipping

Gamification

Trough of Disillusionment

Slope of Enlightenment

Plateau of Productivity

Cooperative Learning

Problem-based Learning

Technology/Pedagogy Introduction

Learning Styles
Silver Bullets & Mythology

Mythology

- Cone of Experience/Learning
- Learning Styles
- Multiple Intelligences
- Students’ Tech should be Teachers’ Tech
- Millennials are Multitaskers
- Brain Games build Brain Power (neuroplasticity!)

Research, Not Rhetoric

(de Bruyckere, Kirschner, & Hulshof, 2015; Watson, Terry, & Doolittle, 2013)
Learning Principles

To acquire knowledge of or skill in as a result of study or experience. (OED)
When this experiment is over, you will be asked to recall the words on the list.
What does this experiment tell us?

1. Knowledge is actively constructed.
2. Knowledge construction takes time.
3. Intent to learn needs active construction.
4. Powerful instructional strategies need not be complicated.
Technology, Diversity, & Learning
Speak with Authority

https://www.youtube.com/watch?v=SCNIBV87wV4
✓ Practice at Retrieval
✓ Varying Purpose & Tasks
✓ Principles
✓ Awareness & Control
✓ Developmental Feedback
✓ Knowledge & Experience

Silver Bullets

Learning Myths

Research, Not Rhetoric
Teaching and Learning (in) the Future

A Framework for Exploration

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