2018 Ed Tech Seminar
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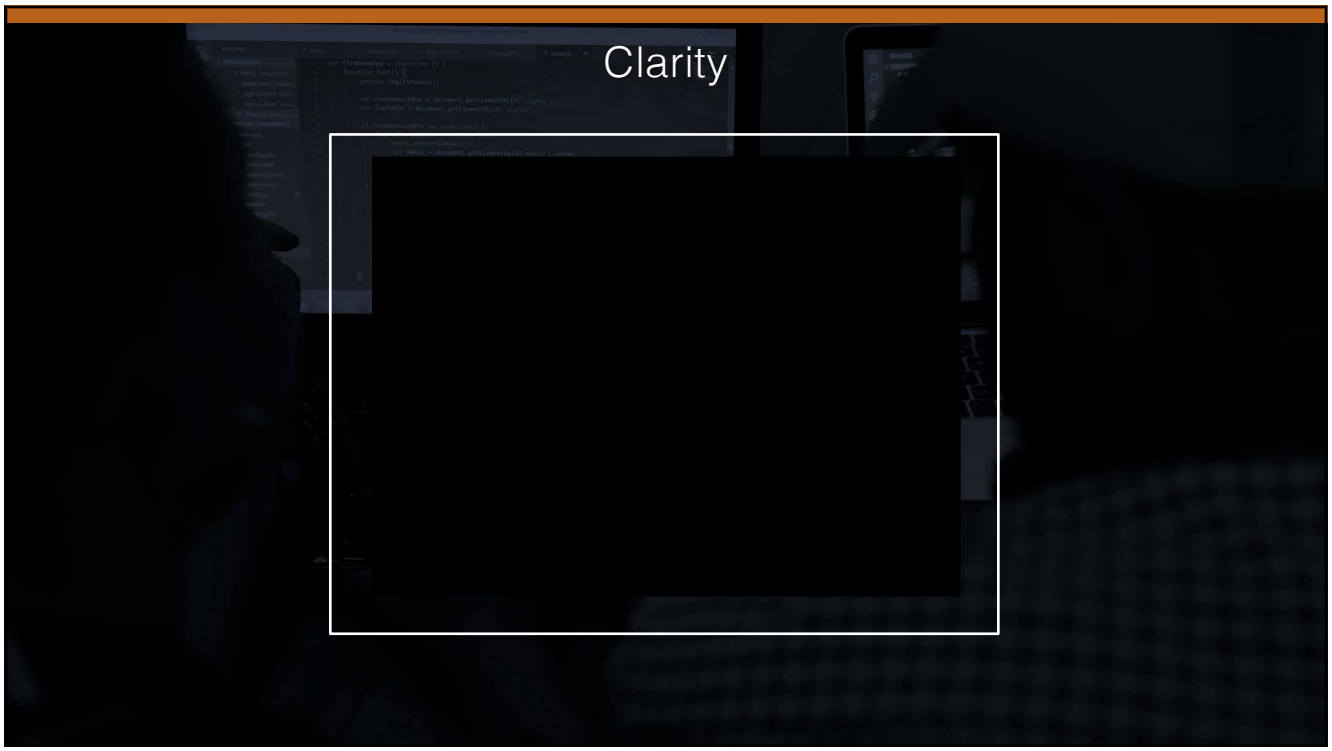
TECHNOLOGY, HUMANITY, AND INTENTIONALITY

The Future of Digital Learning

Peter E. Doolittle
Director, School of Education
Professor, Educational Psychology
Virginia Tech • Blacksburg • Virginia



Robot-Proof

Joseph Aoun

- Robot Economic Apocalypse
- Automation Replacing Jobs
- Robot-Proof Education
  - Creative Thinking
  - Systems Thinking
  - Critical Thinking
  - Cultural Thinking

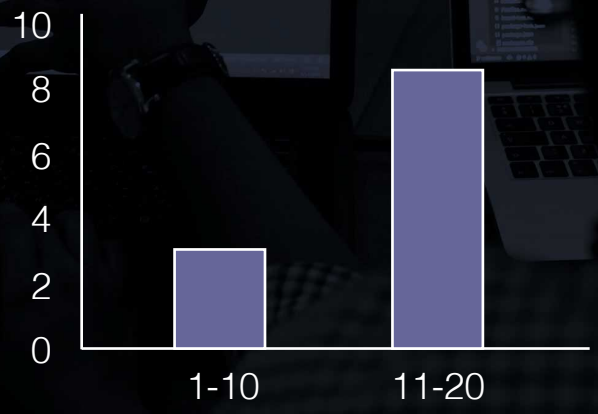
learning first →

Digital Technology

Technology is neither good nor bad
but using it makes it so.

People First, Learning First

Learning: Part I



Learning: Part I: Debrief

- Meaningful Learning
- Elaborative Learning
- Imagery
- Self-Generation
- Self-Reference Effect
- Encoding Specificity
  - Learning ⟷ Performance

Processing (5/25)

6 Principles for Deep and Flexible Learning

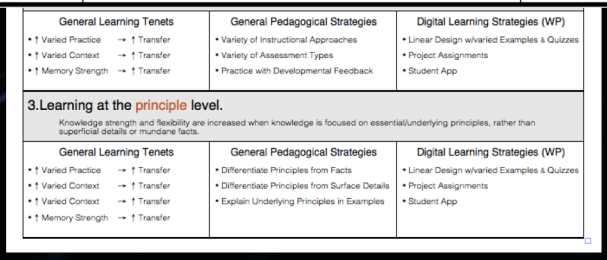
1. Learning through practice at retrieval
2. Learning through varied tasks and purposes
3. Learning at the principle level
4. Learning awareness and control (metacognition)
5. Learning in response to developmental feedback
6. Learning embedded in prior knowledge and experience

(Engle, 2006; Halpern & Hakel, 2003; Mariano, Doolittle, & Hicks, 2009; Wagner, 2006)

1. Learning through practice at retrieval.

Retrieval and use of knowledge strengthens that knowledge in direct relation to how and why the knowledge is retrieved and used.

General Learning Tenets	General Pedagogical Strategies	Digital Learning Strategies (WP)
• ↑ Memory Retrieval → ↑ Memory Strength	• Concept-by-Concept Quizzes	• Homework, Quizzes, Tests, Projects
• ↑ Testing Effect → ↑ Memory Strength	• Productive Assignments (over time)	• Interactive eTextbooks & Student App
• ↑ Spacing Effect → ↑ Memory Strength	• Lower and Higher Order Questions/Tasks	• Online Discussions
• ↑ Encod Specificity → ↑ Memory Strength	• Practice with Developmental Feedback	



General Learning Tenets	General Pedagogical Strategies	Digital Learning Strategies (WP)
• ↑ Varied Practice → ↑ Transfer • ↑ Varied Context → ↑ Transfer • ↑ Memory Strength → ↑ Transfer	• Variety of Instructional Approaches • Variety of Assessment Types • Practice with Developmental Feedback	• Linear Design w/varied Examples & Quizzes • Project Assignments • Student App

3.Learning at the principle level.

Knowledge strength and flexibility are increased when knowledge is focused on essential/underlying principles, rather than superficial details or mundane facts.

General Learning Tenets	General Pedagogical Strategies	Digital Learning Strategies (WP)
• ↑ Varied Practice → ↑ Transfer • ↑ Varied Context → ↑ Transfer • ↑ Varied Context → ↑ Transfer • ↑ Memory Strength → ↑ Transfer	• Differentiate Principles from Facts • Differentiate Principles from Surface Details • Explain Underlying Principles in Examples	• Linear Design w/varied Examples & Quizzes • Project Assignments • Student App

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(Engle, 2006; Halpern & Hakel, 2003; Mariano, Doolittle, & Hicks, 2009; Wagner, 2006)

moving parts →

25-Word Summaries

Learning Environment: Students create clear and coherently organized 25-word summaries that reflects the essential meaning of the current reading.

Learning Artifact Processing: Students analyze and interpret a reading, lecture, video, movie, activity, or experience in order to extract the essential meaning and compose a 25-word summary.

Learning Assessment: 25-word summaries are assessed using a scoring guide focused on organization, clarity of thought and expression, and delineation of a core message.

25-Word Summaries

A Sample:

Through developing, implementing, and assessing model-eliciting activities, engineering faculty members' beliefs and decisions about teaching, learning, and assessment shift from teacher-centered toward student-centered.

25-Word Summaries

Grading: Each Chapter Summary Statement is worth 50 points and will be graded using the following criteria:

1. Structural Format — 10 pts
   a. Is the summary 25 words or less?
   b. Is the summary a coherent sentence, or sentences?
   c. Does the summary avoid a simple listing of concepts, terms, or themes?

2. Clarity of Thought and Expression — 15 pts
   a. Are the ideas expressed well, well thought out, and integrated?
   c. Does every word in the summary have a meaningful purpose?
   d. Are correct grammar and syntax used?

3. Delineation of Core Message — 25 pts
   a. Does the summary accurately reflect the reading's central or essential message?
   b. Are the reading's central or essential messages fully integrated?
   c. Does the summary reflect an understanding of the reading?

Plus Developmental Feedback

with Dragon Dictate

25-Word Summaries → Processing

- ✓ 1. Learning through practice at retrieval
- ✓ 2. Learning through varied tasks and purposes
- ✓ 3. Learning at the principle level
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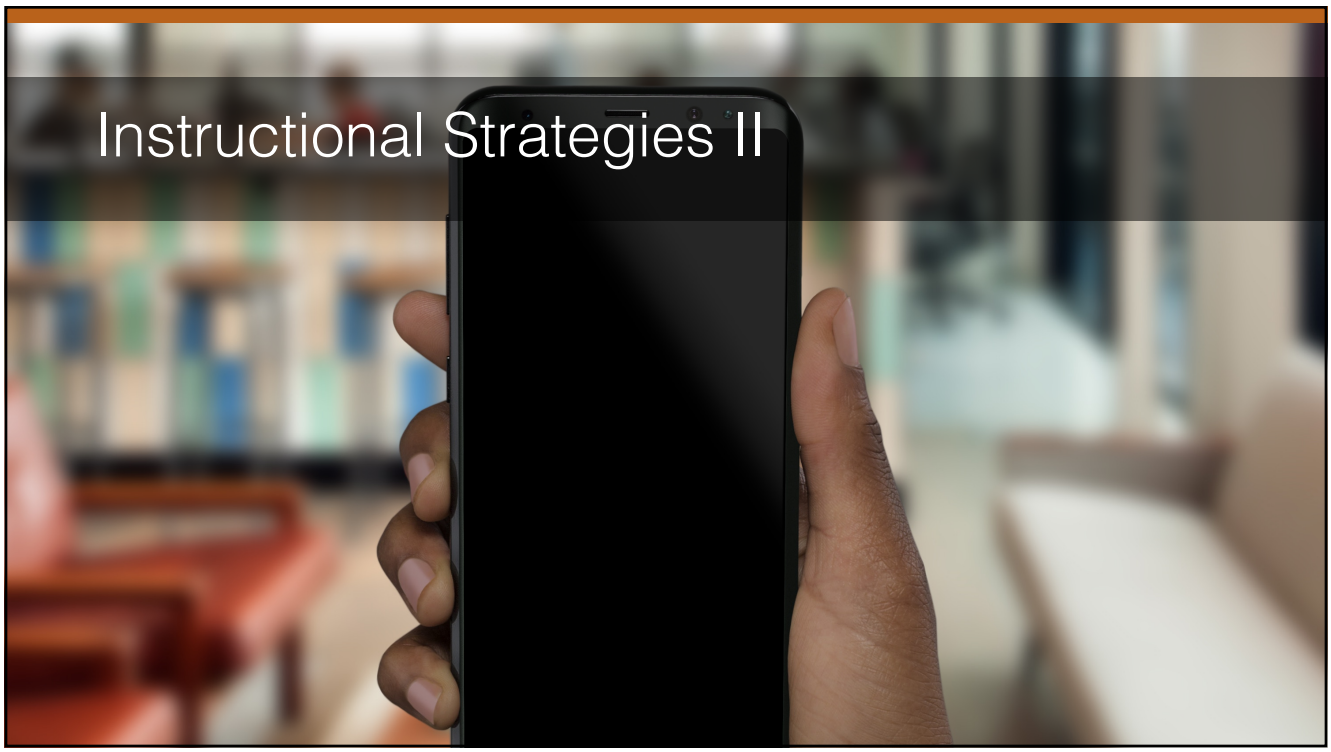


Oral Explanations

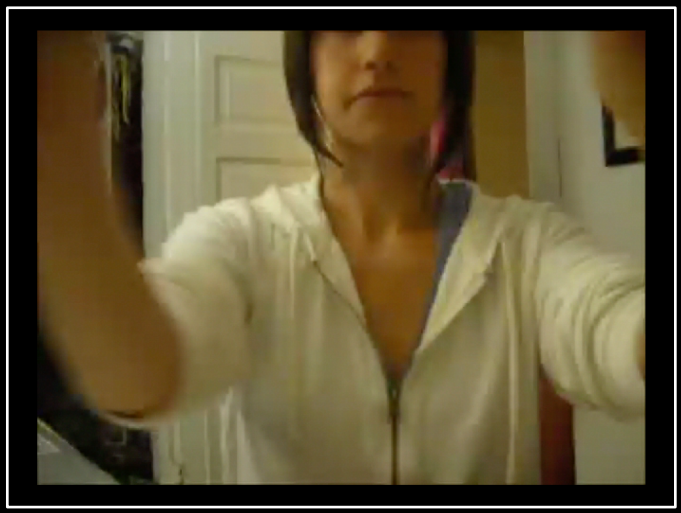
Learning Environment: Students create clear and coherently organized 10-15 minute videos that reflect the student's understanding of the current topic under discussion, plus an application to their lives.

Learning Artifact Processing: Students analyze and interpret readings, notes, and discussions; organize concepts and ideas; apply to a life issue; create an oral explanation.

Learning Assessment: Video are assessed using a scoring guide focused on organization, clarity of thought and expression, essential content explanation and application.

Example →

Explanation



Oral Explanations

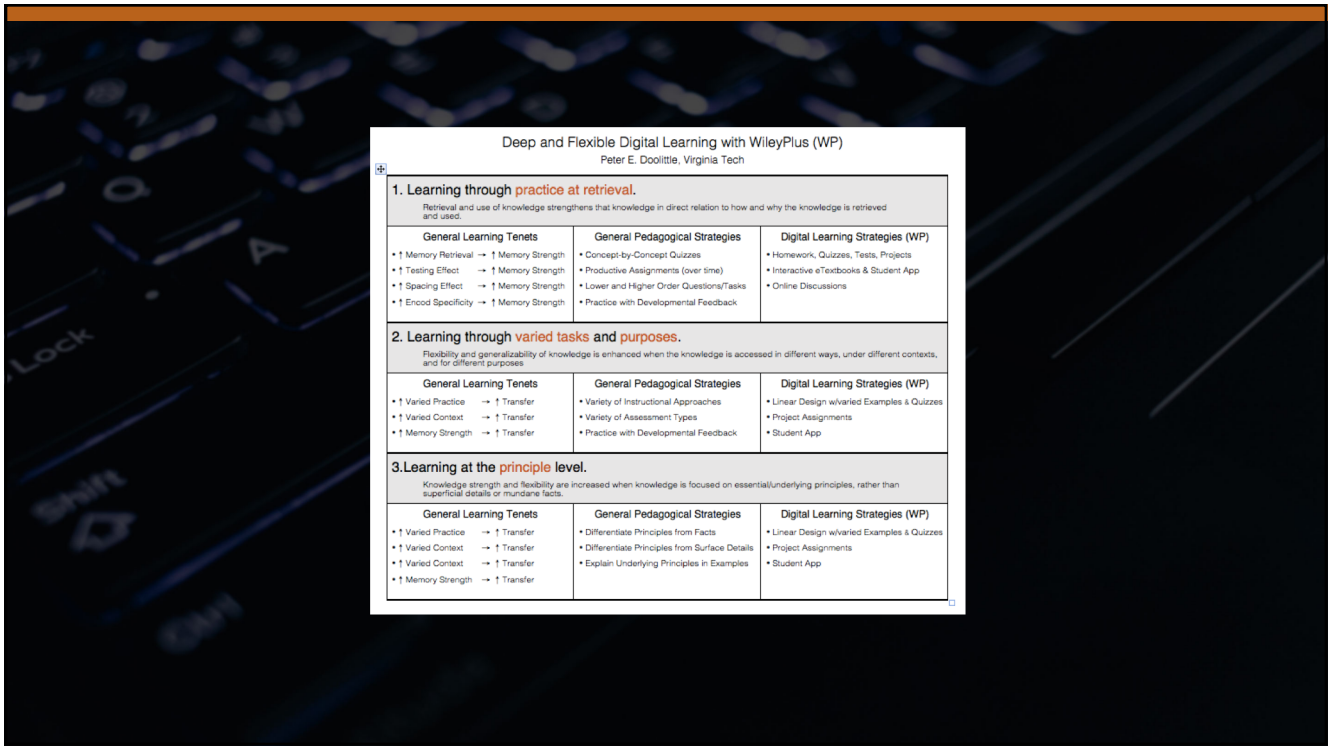
Grading: Each Oral Explanation is worth 100 pts and will be graded using the following criteria:

1. Organization — 20 pts
   a. are introductions and conclusions used effectively?
   b. do the expressed ideas follow a logical progression?
   c. are explanations and applications provided?

2. Clarity of Thought and Expression — 20 pts
   a. are the ideas expressed well, well thought out, and integrated?
   b. are there clear and logical transitions between ideas?
   c. are correct grammar and syntax used?

3. Essential Content Explanation — 30 pts
   a. does the content of the explanation accurately reflect the addressed constructivism?
   b. does the explanation explain, rather than just list, the main concept components?
   c. is the content of the explanation free from personal interjections?

4. Essential Content Application — 30 pts
   a. is a problem, issue, or situation explained clearly?
   b. are concepts from the texts and class used to address the cited problem?
   c. is the application thorough, meaningful, and appropriate?



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