Flipping Your Class

a step-by-step process for designing an effective learning environment



Peter E. Doolittle
Assistant Provost of Teaching and Learning
Executive Director, Center for Instructional Development and Educational Research
Professor, Educational Psychology, Department of Learning Sciences & Technology
Virginia Tech • Blacksburg • Virginia

Anticipation Guide

Directions: Rank the following instructional interventions with respect to which has the greatest impact on student learning (1 = most, 3 = least)

* Use of computer technology in class

  (Timmerman & Kruepke, 2006)

* Use of Inquiry-based teaching methods

  (Furtak, Seidel, Iverson, & Briggs, 2012)

* Provision of performance feedback to students

  (Haddie, 2008)

Overview

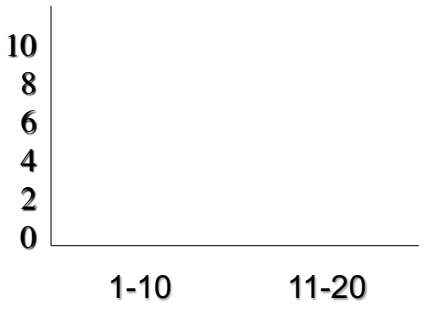
1. Introduction
2. Learning First
3. Flipping Essentials
4. Flipping Design
5. Flipping Strategies
6. Conclusion

Effective Learning Environments

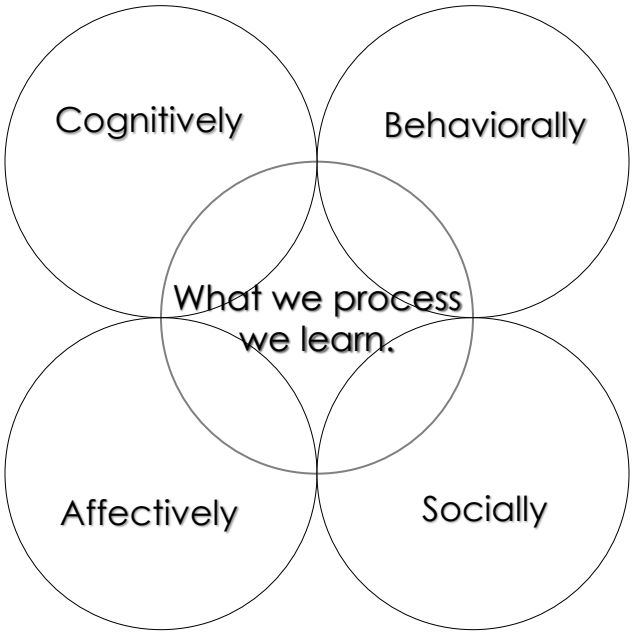
Learning First

The processing of knowledge, experience, and self.

Activity #1



Activity #1 Rationale



5 Essential Learning Principles

Students learn deeply when *they*

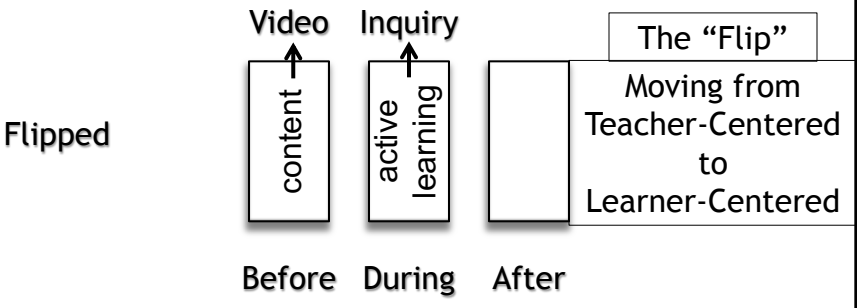
1. **build new knowledge upon prior knowledge**
2. **practice retrieving knowledge with purpose,**
3. **retrieve knowledge across varying contexts & tasks,**
4. **develop underlying principles, not just facts, and**
5. **develop metacognitive awareness and control of knowledge and strategies.**

Less is more.

Flipping Essentials

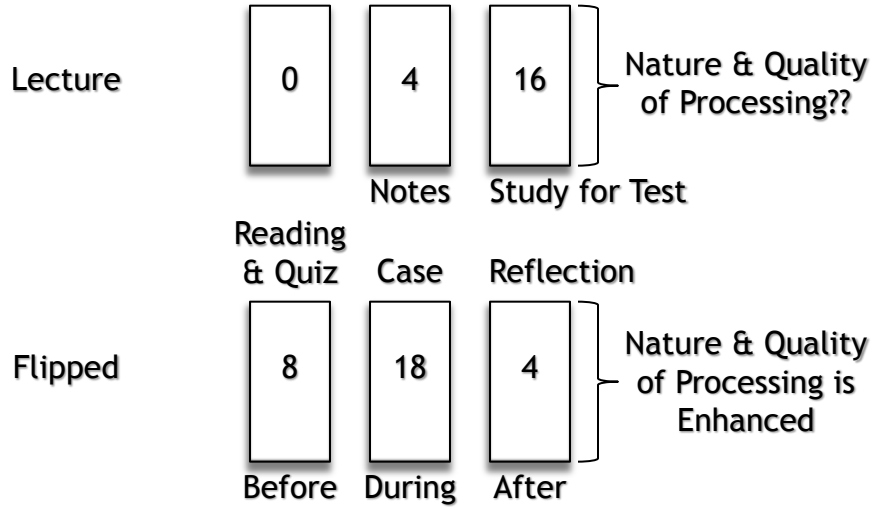
What flipping is and is not.

Flipping Basics

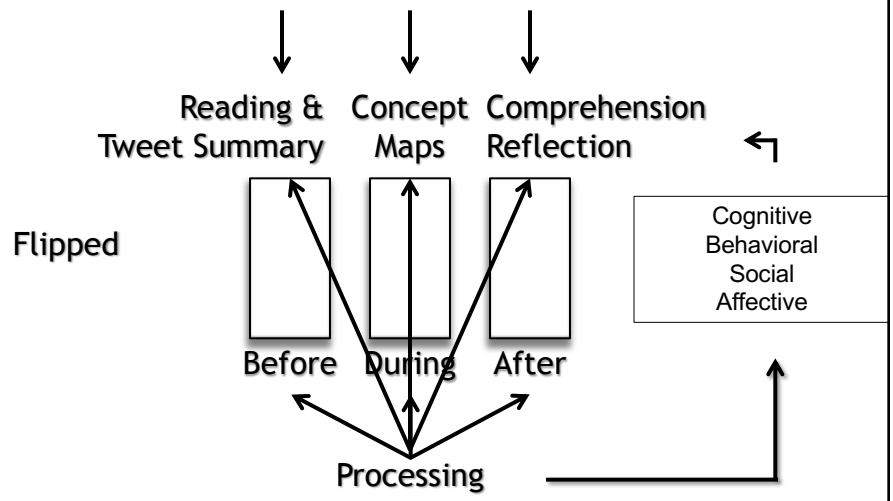


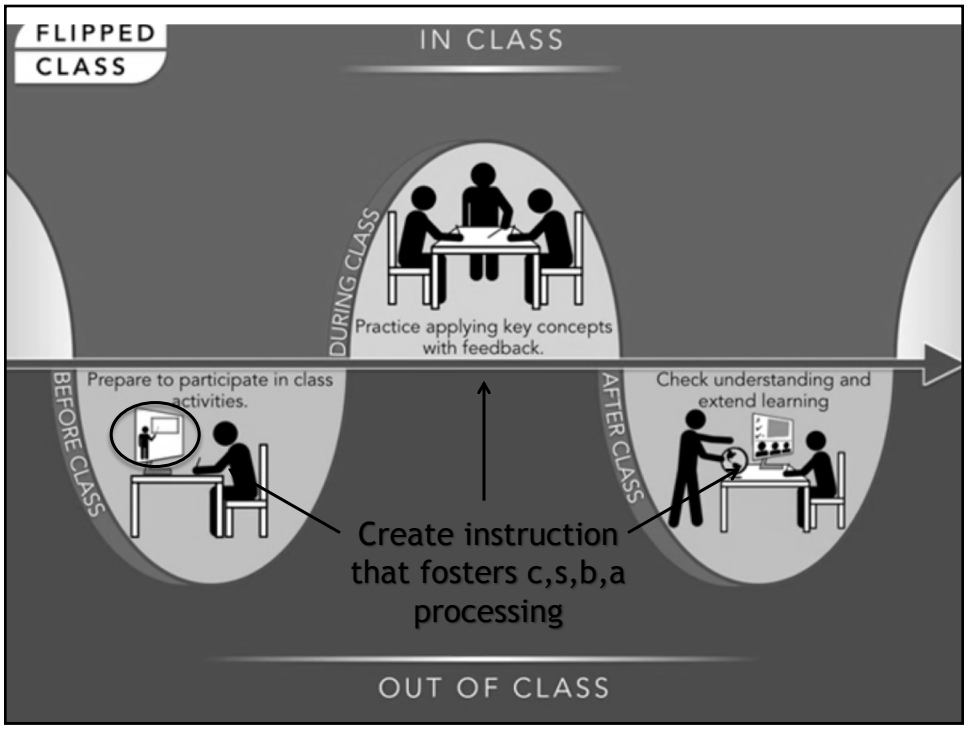
Learning is not magic, it's by design.

Lecturing versus Flipping



Basic Flipped Classroom Design





Does Flipping Work?

Flipping "works" to the extent that the design of the course motivates students to engage in the

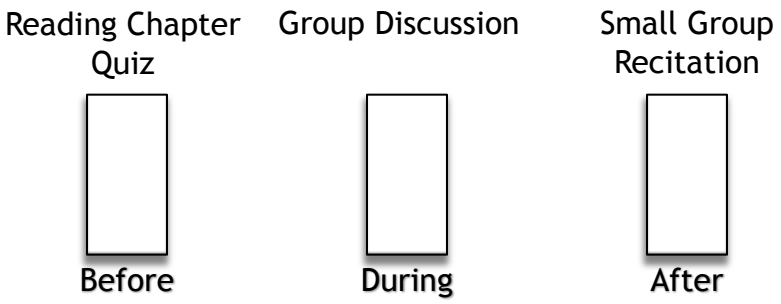
cognitive, behavioral, social, & affective processing (before, during, and after class)

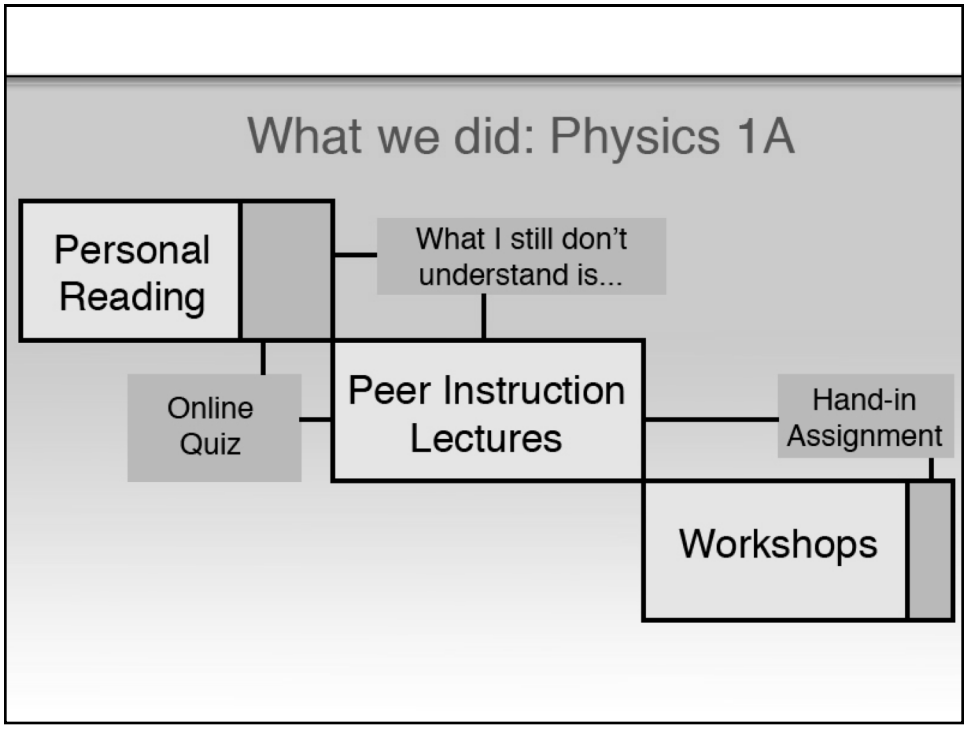
that is necessary to foster the learning and development that aligns with one's outcomes.

Learning's not magic, it's by design.

Example 1

Will Hossack, Developmental Biology
Salford University, Manchester, England

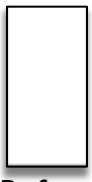


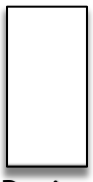


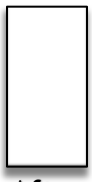
Example 2

Steven Toaddy, Psychology
North Carolina State University

Before	During	After
Content Video	Open-Note Quiz 2 Group Activities	na



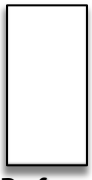


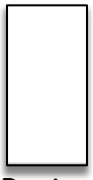


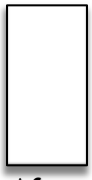
Example 3

Peter Doolittle, Educational Psychology
Virginia Tech

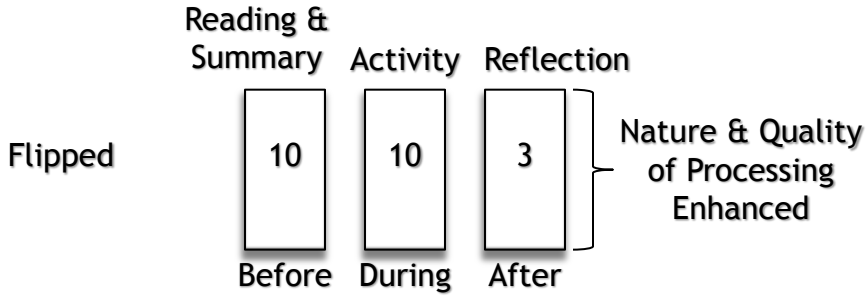
Before	During	After
Read Article 25-Word Summary	Group Activities	Comprehension Reflection





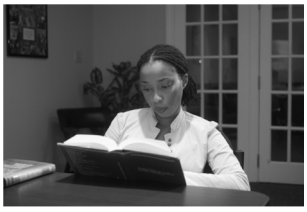


25-Word Summaries & Flipping

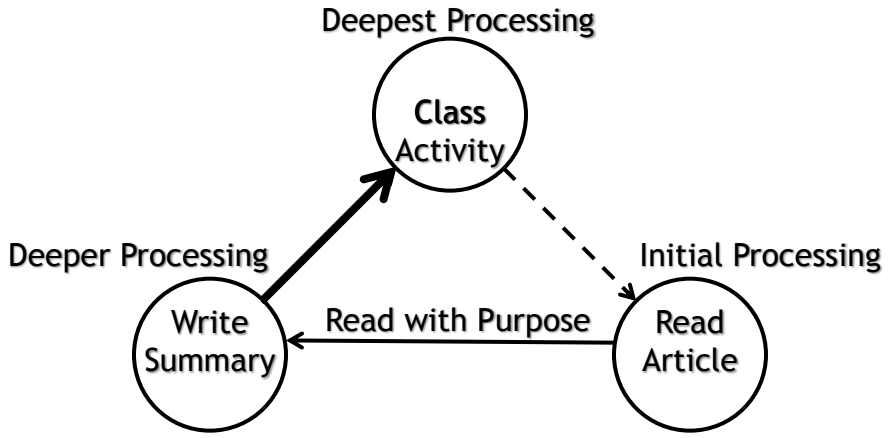


25-Word Summaries

- Opportunity to engage in reflective & critical thinking and extract the essential meaning from a reading, lecture, video, movie, activity, or experience
- Summarize the meaning clearly and concisely, based on student's understanding, in 25 words.



25-Word Summaries & Flipping



25-Word Summaries

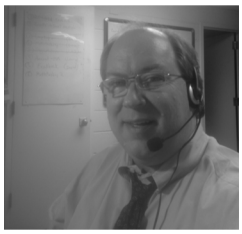
* Students' guidelines for constructing a summary
  1. Provide time to read, annotate, write, and rewrite
  2. Provide time between reading/annotating and writing
  3. Develop a strategy for annotating (notetaking)
  4. Look for important details while reading
  5. Read the entire article before committing to main ideas
  6. Every word counts – write and rewrite
  7. Writing summaries develops over time

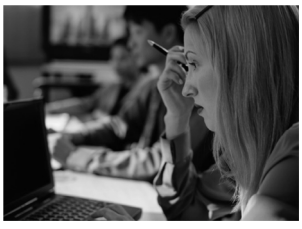
25-Word Summaries

- Rubric for Evaluation
  1. Structural Format 5 pts
     - Is the summary 25 words or less?
     - Is the summary a coherent sentence(s)?
     - Does the summary avoid listing?
  2. Clarity of Thought and Expression 5 pts
     - Are the ideas expressed well and integrated?
     - Does every word have a meaningful purpose?
     - Are correct grammar and syntax used?
  3. Delineation of Core Message 15 pts
     - Accurately reflect the reading's central or essential meaning(s)?
     - Are the reading's messages fully integrated?
     - Does the summary reflect an understanding of the reading?

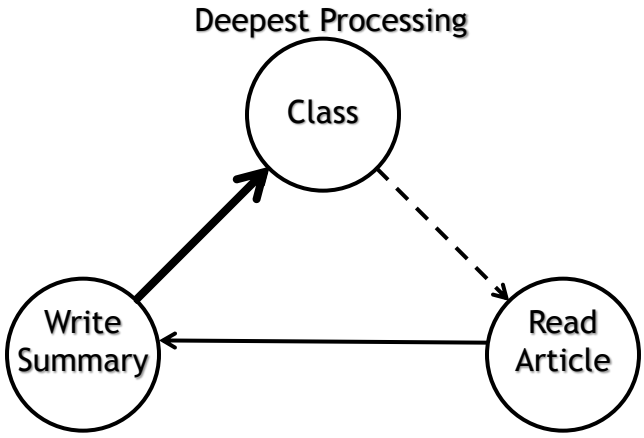
25-Word Summaries

- Rubric for Evaluation
  1. Structural Format 5 pts
  2. Clarity of Thought and Expression 5 pts
  3. Delineation of Core Message 15 pts
- Feedback





25-Word Summaries & Flipping



5 In-Class Activities (all in groups)

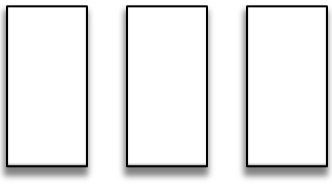
* Jigsaw the Article
  * Divide the article into 5 sections, have each group analyze their section, each group teaches their section
* Share, Synthesize, Share
  * Share summaries in group, write a group summary, share synthesized summery with class
* Quote Connect
  * Extract 20 quotes from the article, have each student read their quote and connect it to the previous quotes

5 In-Class Activities (all in groups)

* Case Study
  * Students read the case and create an answer based on the summary reading
* Graffiti
  * Create a question for each group. Each group gets 3 minutes to answer the question, then the questions are passed to the next group and the answering continues.
* Video Interpretation
  * Small groups review the reading, then watch a video looking for applications of the reading. Small groups then debrief, before the large group debriefs.

Flipping Basics

Flipped



Before During After

Learning is not magic, it's by design.

Learning First (again)

The processing of knowledge, experience, and self.

Activity #2 Rationale

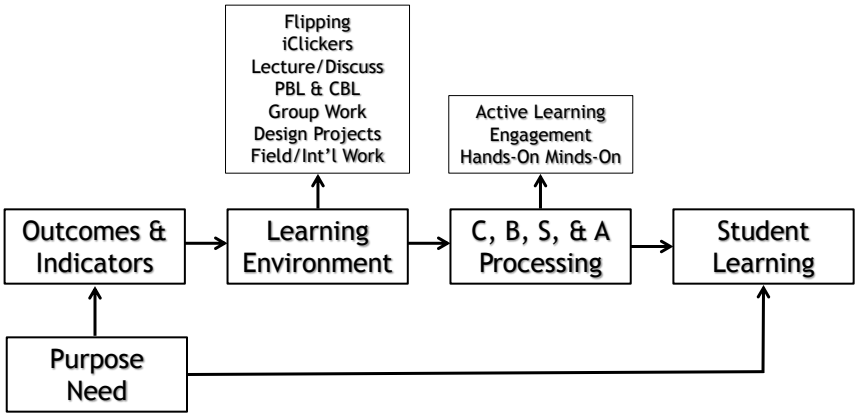
What does the activity tell us?

1. Meaning is constructed during experience and reconstructed during recall.
2. Construction/reconstruction result from cognitive, social, behavioral, & affective 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.

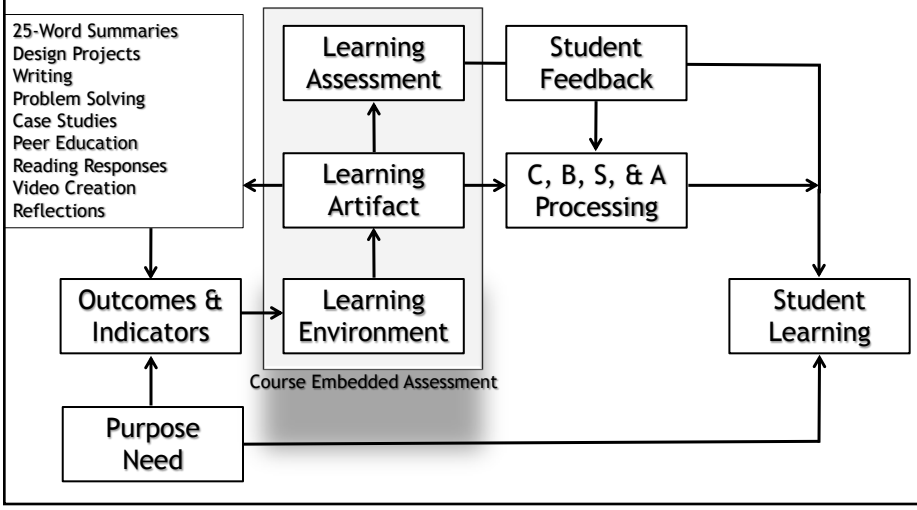
Flipping Design

Effective learning environments are not random events.

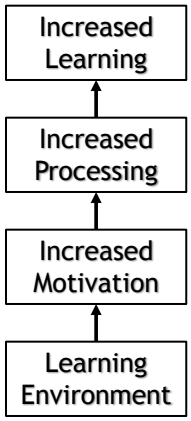
Learning, Teaching, Assessment



Learning, Teaching, Assessment



7 C's of ^intrinsic Motivation



(Deci & Ryan, 2000; Gagne & Deci, 2014; Jones et al., 2013; Schunk, Pintrich, & Meece, 2008)

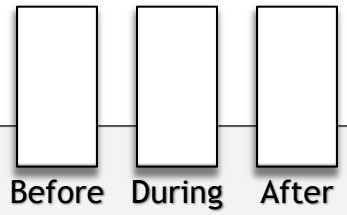
Lesson Sequencing & Design

Week /Day	Topic	Outcome	Processing	Pre-Class	In-Class	Post-Class

Processing

Lesson Design Basics

- Learning Outcomes
- Instructional Introduction
- Instructional Content
- Instructional Activity
- Instructional Assessment
- Instructional Closure
- Instructional Support



Before / Pre-Class

Processing	Assessment
1. Movie Videos	1. Blog/Vlog
2. Content Videos	2. MC Quizzes
3. Group Mini-Projects	3. Article Response
4. Web-based Reading	4. Artifact Creation
5. Web-based Research	5. Tweet Perspective
6. Self-Reflection Response	6. Written Summaries
7. Case Reading & Response	7. Mini-Case Response
8. Simulation Problem Solving	8. Image Interpretation
9. Immersive Envrnmt Exploration	9. 6-second Vine Video
10. Read an Article/Story/Chapter	10. Short Video Responses

During / In-Class

Processing
1. Simulations
2. Problem Sets
3. Case-Studies
4. Data Analysis
5. Serious Games
6. Artifact Critique
7. Skyped Speakers
8. Class Presentations
9. Explanatory Video Creation
10. Small/Large Group Discussions

After / Post-Class

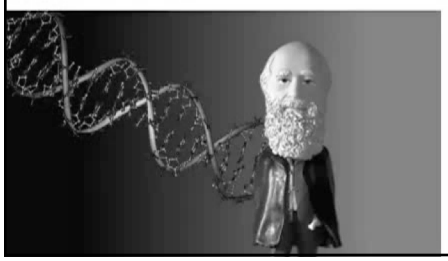
Processing
1. Blog/Vlog
2. Reflection
3. Problem Sets
4. Peer Critiques
5. Writing Revision
6. Class Feedback
7. Mini-Case Studies
8. Team-based Revisions
9. Improvement Inventory
10. Personal Application Case

Flipping Strategies

Duke
UNIVERSITY

Bio202
Introduction to Genetics and Evolution

Mohamed Noor



9 Guidelines for Using Video

1. Provide an introduction to the video. Why are students watching? What are the objectives? Gain students attention.
2. Keep each video short: 10 minutes or less (5!). Divide longer episodes into short segments. More segments, more learning (less is more). Keep each video simple, uncluttered, and focused.
3. Align audio and video messages.

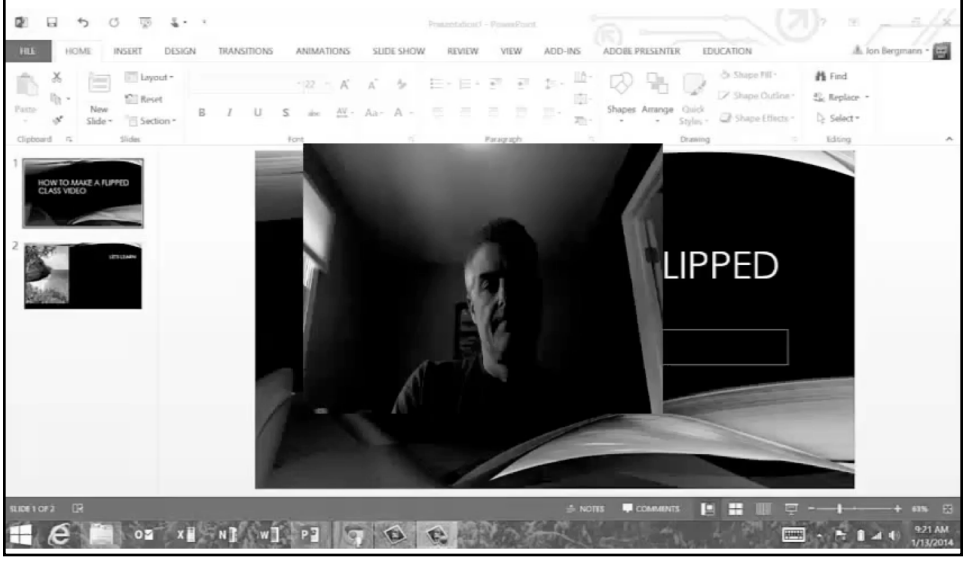
9 Guidelines for Using Video

4. Use a friendly tone when narrating. Engage and connect with the learner. Show yourself.
5. Plan and practice creating the instructional video.
6. If recording a class, speak clearly, repeat student questions, and provide an outline.

9 Guidelines for Using Video

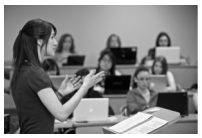
7. Provide the content in multiple formats for students with special needs.
8. Provide a post-video processing activity. The activity may be pure processing or a learning assessment.
9. If a mastery approach is to be used, there needs to be additional instruction between repeated assessment attempts.

Screencast-O-Mattic



Closure

Flipping You Class
to Foster Deep Learning



Peter E. Doolittle
Assistant Provost of Teaching and Learning
Executive Director, Center for Instructional Development and Educational Research
Professor, Educational Psychology, Department of Learning Sciences & Technology
Virginia Tech • Blacksburg • Virginia