TEXAS WOMAN'S
UNIVERSITY

2023 PRIME Academy
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Processing Guide
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Part I
What is Active Learning?

Introduction

a. Anticipation Guide

   1. Active learning involves students doing things and thinking about the things they are doing.

   2. Active learning-based classes result in more student learning than lecture-based classes.

   3. Active learning works best in small STEM classes focused on problem solving.

b. Words

Connection → Meaning → Learning

Active Learning – Part 1

a. Active Learning: A Beginning

Freeman et al. (2014)	Theobald et al. (2020)
AL vs Lecture Courses (225) UG STEM Courses Exam Scores & DFW Rates • AL → ↑ Exams & ↓ DFWs	AL vs Lecture Courses (41) UG STEM Courses Exam Scores & DFW Rates • AL → ↑ Exams & ↓ DFWs • Larger gains for students from underrepresented groups (narrowed achievement gap)

b. Active Learning Research

First Generation Active Learning Research

Second Generation Active Learning Research

Active Learning – Part 2

   a. Active Learning: Searching for a Definition

Driessen et al. (2020)	Doolittle et al. (2023)
Biology Education Research 2016-2018	STEM & Social Science Research 2017-2022
148 Articles	586 Articles
No Definition	No Definition
Definition	Definition

   b. Emergent Themes from 161 Definitions

      1. Active learning as grounded in student-centered constructivist theory.

      2. Active learning promotes higher-order thinking and deeper learning.

      3. Active learning as an instructional strategy involving activity, participation, and engagement.

Active Learning – Part 3

    a. Fostering Active Learning

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Connection → Meaning → Learning

New Knowledge	Prior Knowledge

Meaningful Learning
Elaborative Learning
Integrated Learning

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    b. Active Learning

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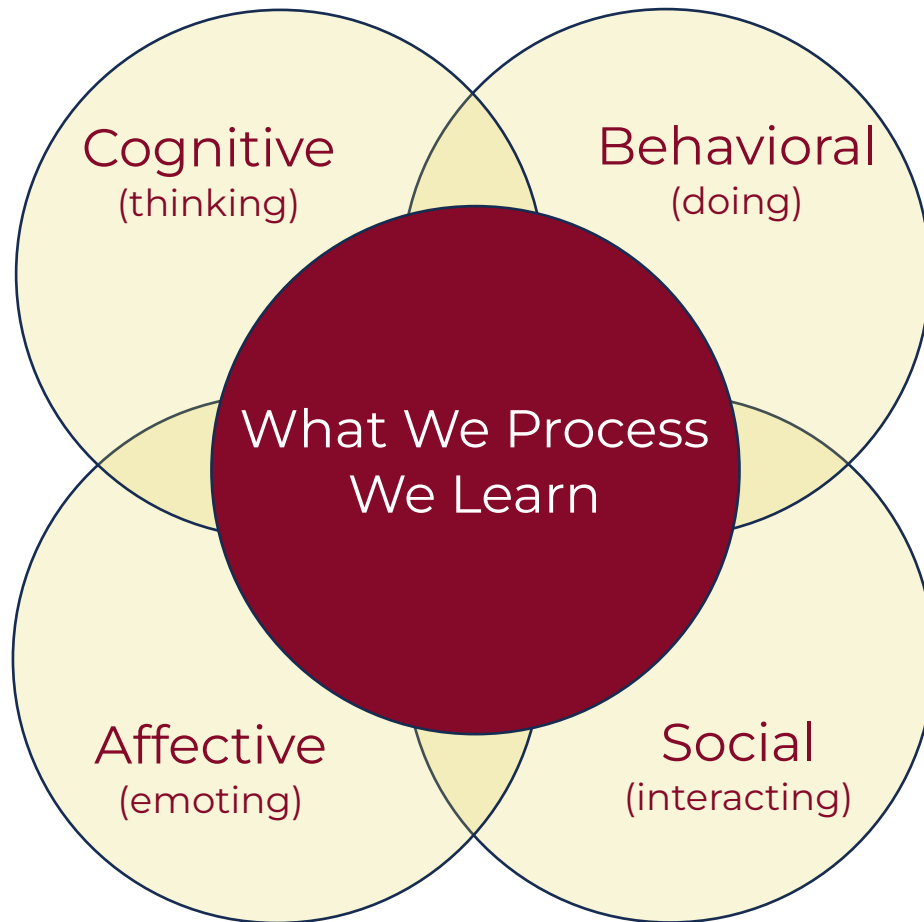**Active**   **Learning**

Processing → Connection → Meaning → Learning

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Active learning fosters **deep** and **flexible** knowledge through cognitive, social, behavioral, and affective *processing* of one's knowledge and experience.
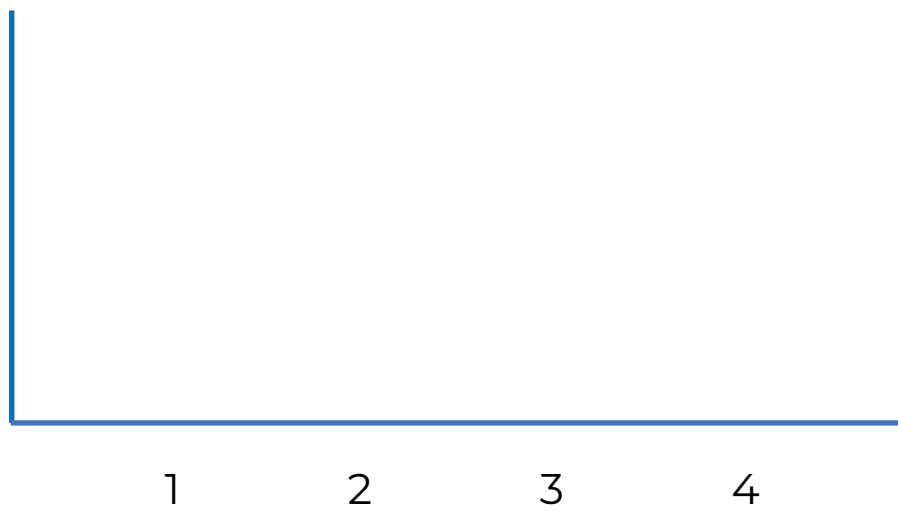
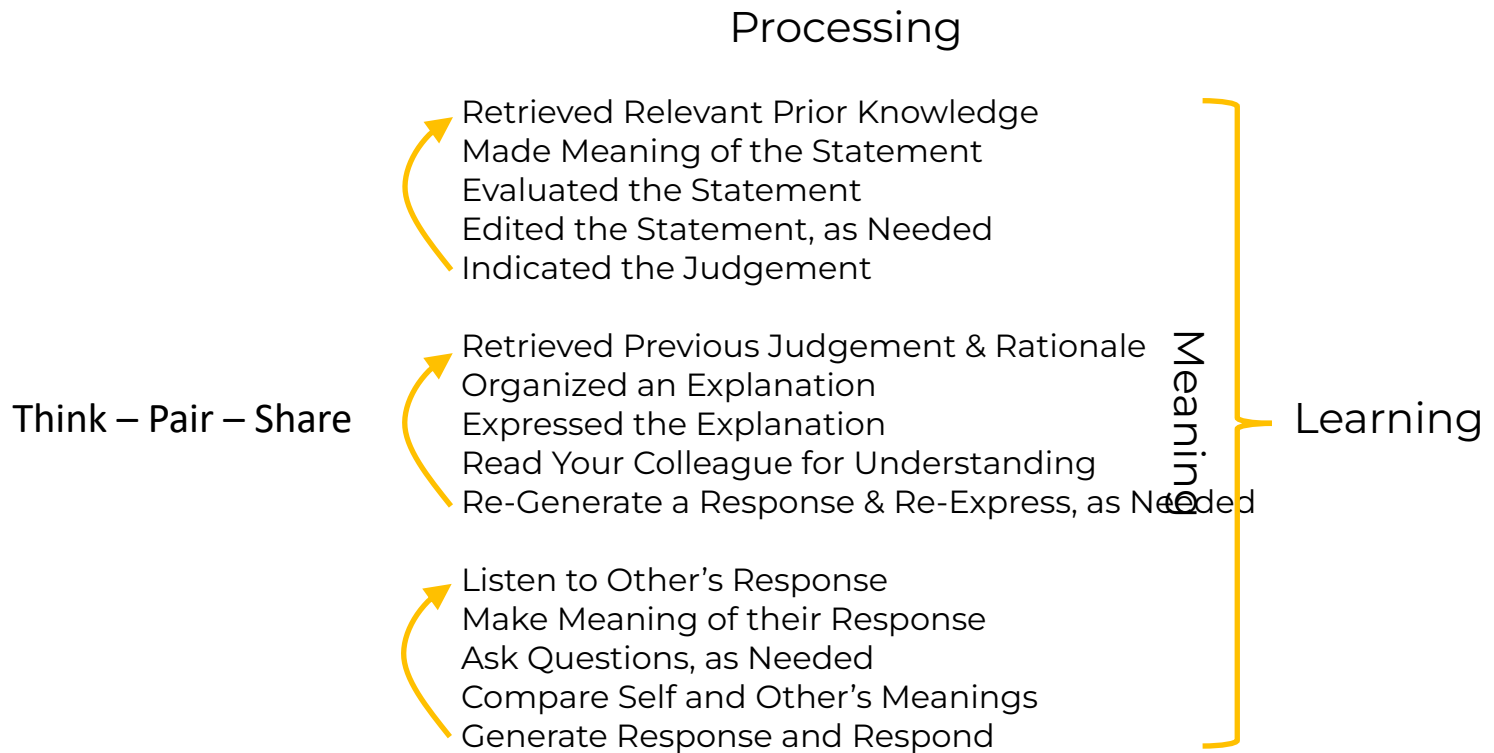Deep

Flexible

c. What We Process We Learn

Cognitive (thinking)

Behavioral (doing)

What We Process We Learn

Affective (emoting)

Social (interacting)

Active Learning – Part 4

a. Active Learning in Action

Read the directions on your "task" ½ sheet of paper.
Record your answers *on that ½ sheet of paper*.

1.	7.
2.	8.
3.	9.
4.	10.
5.	11.
6.	12.

      1   2   3   4

b. Think – Pair – Share

Processing

Think – Pair – Share

Retrieved Relevant Prior Knowledge
Made Meaning of the Statement
Evaluated the Statement
Edited the Statement, as Needed
Indicated the Judgement

Retrieved Previous Judgement & Rationale
Organized an Explanation
Expressed the Explanation
Read Your Colleague for Understanding
Re-Generate a Response & Re-Express, as Needed

Listen to Other's Response
Make Meaning of their Response
Ask Questions, as Needed
Compare Self and Other's Meanings
Generate Response and Respond

Meaning

Learning

Processing → Connection → Meaning → Learning

Active Learning – Part 5

Active   **Learning**

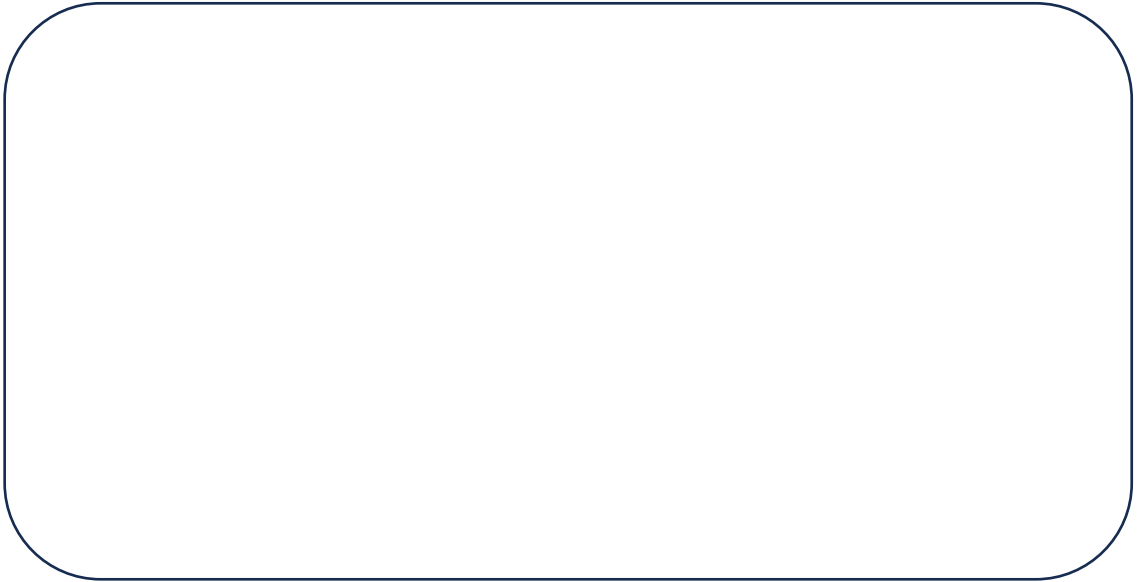Processing → Connection → Meaning →
Learning

1.   Retrieval Effect

2.   Spacing Effect

3.   Generation Effect

4.   Production Effect

5.   Enactment Effect

Active learning fosters **deep** and **flexible** knowledge through
cognitive, social, behavioral, and affective *processing*
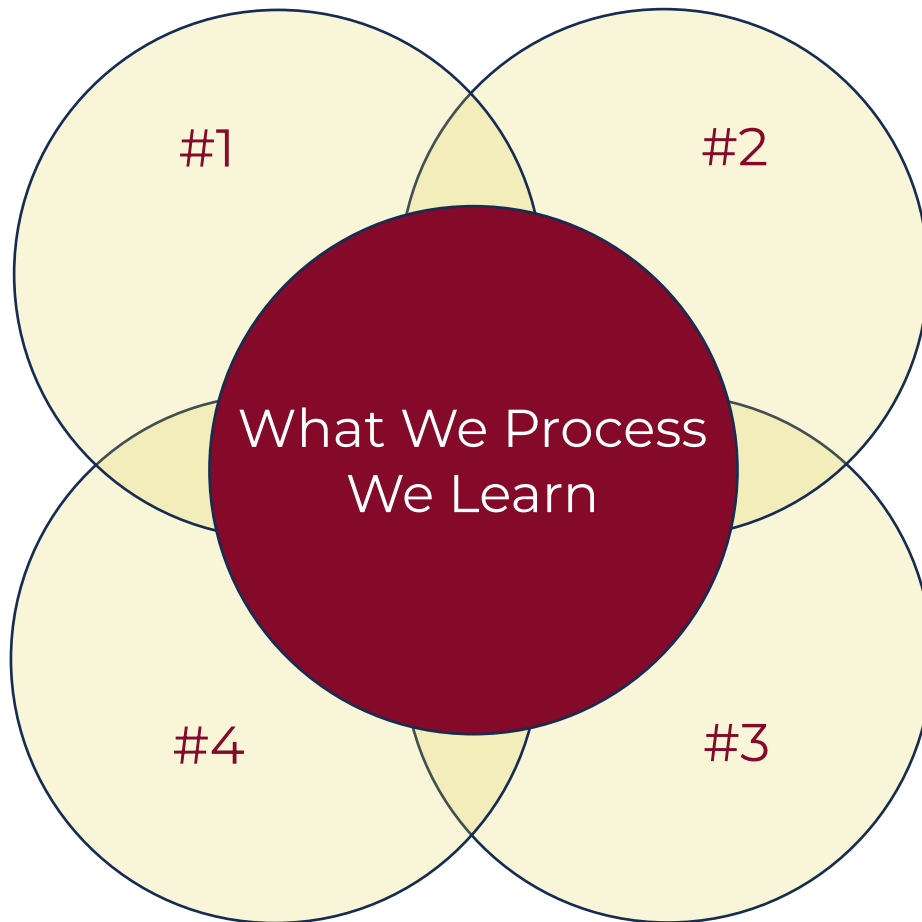of one's knowledge and experience.

Closure

Introduction

   a. Processing

   b. 18 Letters

Planning for Processing

Design Projects
Posters (Sessions)
Writing
Problem Solving
25-Word Summary
Presentations
Peer Review
Blog/Vlog Posts
Case Studies
Reflections

Learning Assessment → Developmental Feedback → Performance Feedback

Direct   Formative   Summative

Learning Artifact → C, B, S, & A Processing

Purpose Need → Goals & Outcomes → Learning Environment → C, B, S, & A Processing → Student Learning

Course Embedded Assessment   Be Better   Assess Better

a. 25-Word Summaries
   • 1-2 Readings per Class (Chapter, Article)
   • Write a 25-Word Summary (essential meaning)
   • Developmental Feedback of 2-3 Paragraphs
   • Grading Based on Scoring Rubric
   • Due Tues; Grade/Return on Wed; Class Thurs
   • 70% of Course Grade

b. Oral Explanations
   • 1 Explanation per Chapter (specific foci provided)
   • 5-10 Minute Oral Explanations (essential meaning)
   • Developmental Feedback of 5-10 Minute Oral Explan
   • Grading Based on Scoring Rubric
   • Due Sun; Grade/Return on Mon; Class Tues
   • 50% of Course Grade

c. Reading Responses
   • 1-2 Response per Class (Article)
   • 4 Questions (RQs, Method, Results, Discussion)
   • Developmental Feedback of 2-3 paragraphs
   • Grading Based on Scoring Rubric
   • Due Sun; Grade/Return on Mon; Class Tues
   • 84% of Course Grade

25-Word Summaries

Student Summary

A postmodernism concept of multiplicity, dynamic, and holistic construction of knowledge is favorable in deconstructing the current system, rather, modern concept of a fixed reality. [25 words]

Instructor Feedback

The summary has captured some essential ideas from the reading, although the expression of these ideas needs a bit of refinement. The idea that a postmodernist view of knowledge involves multiple perspectives, dynamic and changing knowledge, and contextually bound value is well captured in the summary. Highlighting the relation to a modern perspective is also nice. The challenge is creating a 25-word summary were every word counts and that the representation of the ideas is both clear and concise.

In the first half of the sentence dealing with postmodernism, the phrase "multiplicity, dynamic, and holistic," is a challenge to decipher. How might this be rephrased to be clearer? Perhaps something like, "in postmodernism, knowledge is viewed as dynamic and holistic, involving multiple perspectives." The second half of the sentence, while capturing a central idea from the reading, "modern concept of a fixed reality," could also be made clearer.

Part of the challenge of the last part of the sentence is that the focus shifts from knowledge to reality, "construction of knowledge" versus "modern concept of a fixed reality." It would be clearer to maintain the focus on knowledge and simply contrast post-modernism's multiple perspectives and dynamic/holistic knowledge with modernisms fixed, objective knowledge. In this case you can end up with a summary such as, "in postmodernism, knowledge is viewed as dynamic and holistic, involving multiple perspectives, while modernism views knowledge as objective and fixed." This revised summary would not capture everything that you included in your summary. The idea of "deconstructing the current system" would still need to be integrated into the revised summary. In addition, the revised summary is not perfect (I'm pretty sure it can be shortened without the loss of meaning, but that will take a bit more time), it's just a way of thinking about how you might create a parallel structure in the summary that will make it easier to comprehend.

Cultivating Meaning

a. In-Class Activity Structure

  - Clear Group Directions

  - Individual Think Time

  - Small Group Interaction Time

  - Large Group Reporting Out

b. Sample In-Class Activity

  Social Constructionism

  List three events, language uses, or social institutions, that you know personally, that have a history (and a little about that history).

  These could be global, national, local, or familial events, language uses, or social institutions of which you are familiar.
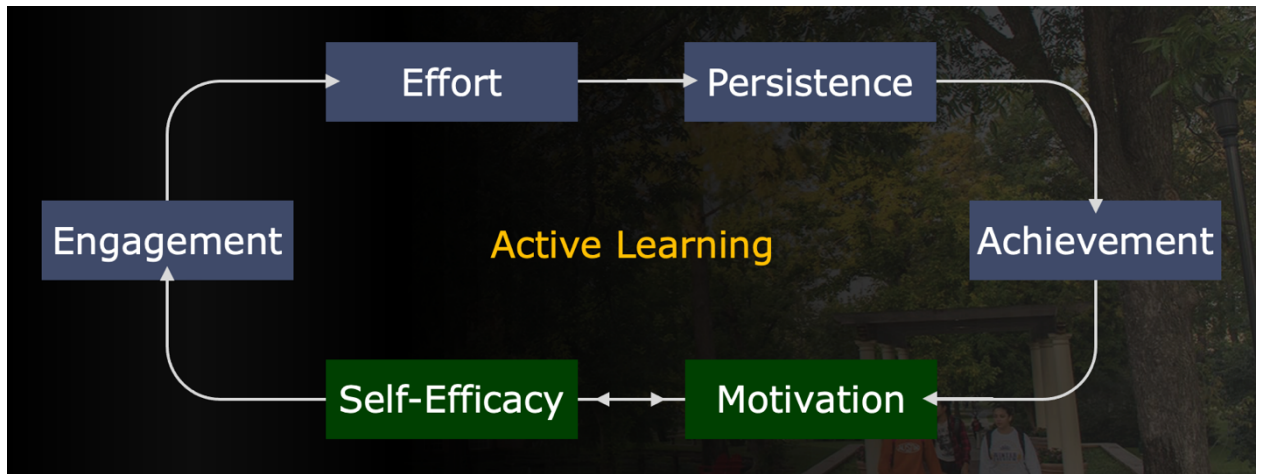
c. Sample In-Class Activity

  Cognitive Process

  Explain what did Roediger & Karpicke (2006) find and how do their findings apply to teaching and learning?
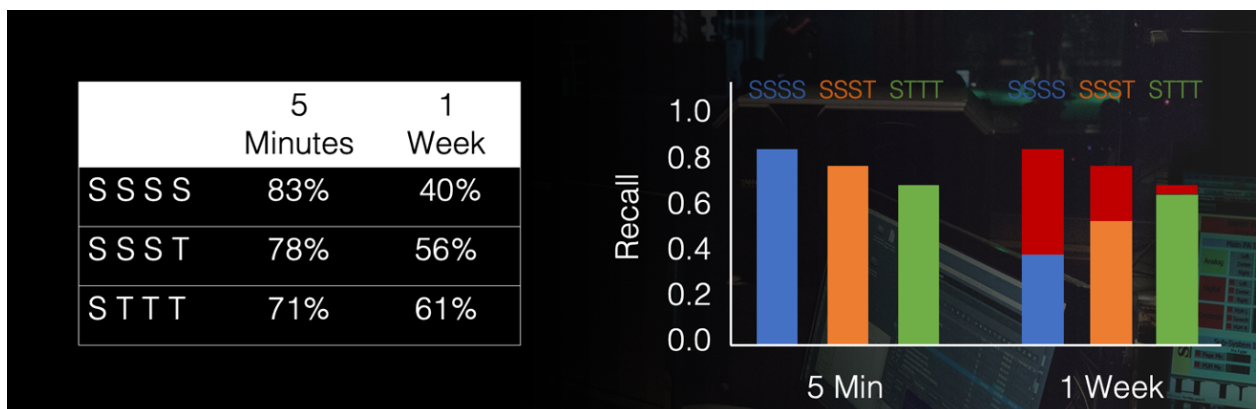
Foster Engagement

    a. Motivation and Engagement

    b. Fostering Self-Efficacy and Motivation

Self-Efficacy	Motivation	
Past Performance	Control	(Agency)
	Constructive	(Useful)
Observation of Others	Competence	(Success/SE)
	Choice	(Options)
Persuasion by Others	Curiosity	(Interest/Value)
	Caring	(Relationships)
Physiological Response	Challenge	(Difficult)

    c. Fostering Engagement

        Control: Summary Cycle, Group Work, Q&A

        Useful: Theory + Practice, Applied Group Work, Readings & Discussions

        Caring: Day 1 Intros, Name Plates, Always Call by Name, Greet, Evaluation + Feedback

Encourage Reflection

1. What aspects of the content addressed in class are still confusing?

   I'm kind of understanding the terms and very abstract things you explained. However, today my brain hurt so much. I think if you could provide us with more examples would be better.

   Breaking the readings out into groups was really helpful, instead of trying to digest it all at once, it helped to hear others thoughts and explanations so I knew where I had the right idea or didn't

2. What elements of the instruction were particularly effective in stimulating learning?

   I loved that you addressed/invited the questions from the class on such deep/new/complex topics, rather than powering through the slides for the sake of "coverage".

   I really liked the "Use at least 8 of these 10 words in a single sentence" exercise, it was a great way to tie in related concepts and I'm going to use it for my students!

   The graphic in your PowerPoint that represented personal narratives and how there are bits that you silence and bits that you voice was really helpful. I also found the group work especially helpful this class. I was trying to figure out why it felt more effective than it has previously, and I think it might be because the groups were slightly larger. It somehow felt easier in the larger group to get everyone to engage and share their perspectives and there was a really good energy.

3. Other comments/thought?

   I really liked this article! It made sense and I knew exactly what it was talking about based on my own life experiences.

   This week's article reminded me of the Oprah interview with Meghan Markle: "Were you silenT or silencED?"

   A little bit more guidance on "how to discuss these ideas outside of class" would help. It's really helpful when you talk about how constructivism usually means cognitive or social constructivism, so please keep those kinds of insights coming.

Closure