

UTILIZING A FLIPPED CLASSROOM AND ACTIVE LEARNING IN LIFECYCLE NUTRITION COURSES

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Today's Presenters



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Conflict of Interest Statement

- Braunstein: No conflicts of interest
- Bartok: No conflicts of interest

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Outline for Today's Presentation

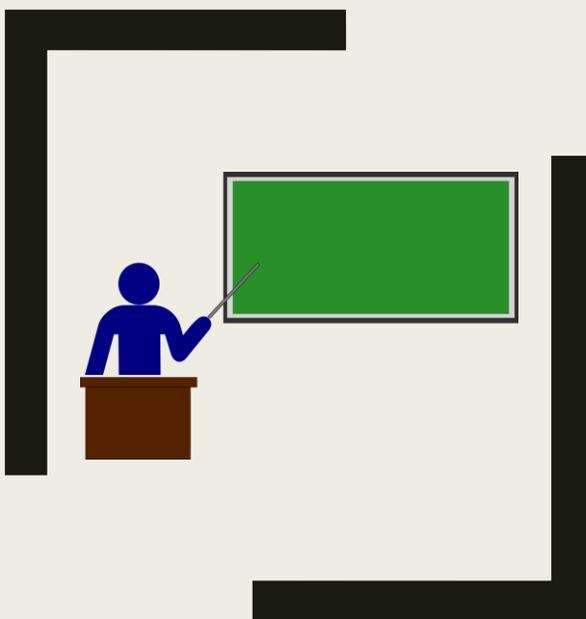
- I. Review Objectives
- II. Review of the "Traditional" Teaching Model
- III. Active Learning Methods
- IV. Flipped Classroom Model
- V. Questions

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By the end of
this session,
participants
should be
able to...

- Compare and contrast flipped classroom and active learning methods of instruction
- Describe practical ways to implement part or all of these teaching methods in a nutrition classroom
- State at least two benefits of using a flipped classroom model or active learning to teach nutrition classes

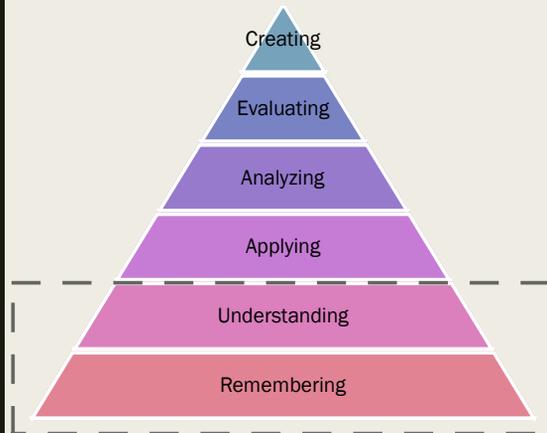
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An illustration of a traditional classroom. A blue stick figure stands at a brown podium on the left, pointing with a white pointer towards a green rectangular board on the wall. The scene is framed by thick black lines representing the room's walls and floor.

THE
“TRADITIONAL”
COLLEGE
TEACHING
MODEL

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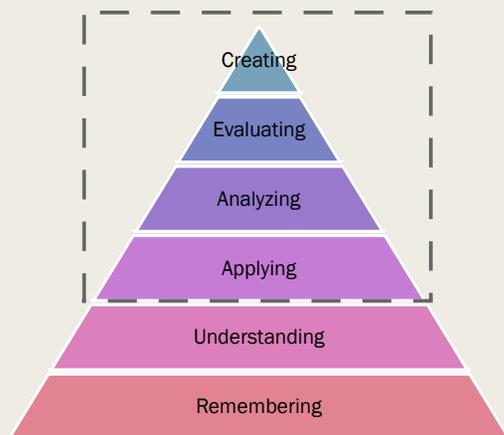
The traditional college teaching model focuses in-class time and effort on instructors lecturing to students.



- Classroom time = teachers transferring knowledge to students (lower levels of cognition)
- Teaching in this style is...
 - active for the teacher
 - passive for the student
 - Teacher-centered

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The traditional college teaching model focuses out-of-class time and effort on students completing assignments at higher levels of learning.



- Out-of-class time = students work on assignments, case studies, and tests that are more challenging
- Students may be alone
- Teachers may not be available to help

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ACTIVE LEARNING METHODS

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Active Learning

- Students engage in an activity and reflect upon ideas and how they are using those ideas.
- Students assess their degree of understanding and skill at handling concepts or problems in a particular discipline.
- Students attain knowledge by participating or contributing.
- Keeps students mentally/physically active in their learning through activities that involve them in gathering information, thinking, and problem solving.

Michael J. Where's the evidence that active learning works? Adv Physiol Educ 2006

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Literature

- **Active Learning increased examination performance and reduced failure rates compared to traditional learning.** Freeman et al. Active Learning increases student performance in science, engineering and mathematics. PNAS 2014
- **Case-based learning: Higher cognitive learning, developed problem solving and communication skills.** Harman et al. Case-based learning facilitates critical thinking in undergrad nutrition education JAND 2015
- **Group size of 5 or fewer better than larger groups in Team-based learning.** Swanson et al. The effect of team-based learning on content knowledge: A meta-analysis. Active Learning in Higher Education 2019

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Background – experience with active learning in a counseling course



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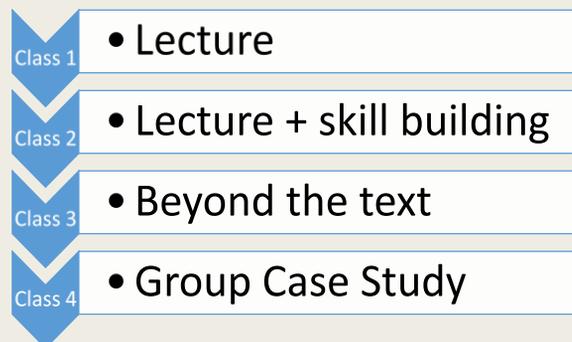
Student reflections from Counseling Class

- 'Having played all 3 roles, I now understand the counseling process a lot better than I did and a lot better than I would have from just reading about it.'
- 'It's true that being counselor can be nerve-wracking, but it helps to remind yourself that the client is probably equally anxious and that a counseling session is a two-way process.'
- 'This overall experience is helping me see that the diet does not make the individual, rather their current way of life and environment is what is affecting their diet.'

Braunstein and Qian FNCE 2019 poster **Active Learning and Reflection Develop Key Skills and Growth Mindset for Students in Nutrition Education and Counseling Course** :

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Course Structure for Lifecycle Nutrition Class: Preconception through Childhood



Preconception • Pregnancy • Lactation • Infancy • Toddler/Preschool • Childhood

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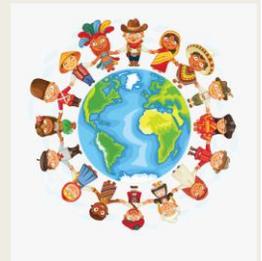
Student Groups

- Students get to identify any student that they want or DO NOT want to be in a group
- Question about how they meet deadlines is used to create groups
- Students given a number for their part of the case: Student 1, Student 2, etc.
- One student chosen to be the 'lead' student for each case

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More about the cases

- Integrate health disparities, cultural competence: Cases include African American, Hmong, Latinx, SE Asian families
- Students are assigned specific parts of the case questions to prepare before Class 4
- Journal article required for each case/each student
- Group submission
- Summary of all the articles students read and reflections submitted at the end of the semester



https://www.clipartkey.com/view/Tbb1J_culture-cultural-diversity-intercultural-competence-unity-of-different/



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Sample Case

- See handout for case studies



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Other Active Learning in the Course

- **Child Feeding Observation Assignment** – individual assignment
- **School Menu Development Project** using child nutrition standards with HealthEPro (www.healthepro.com) web-based software used by school systems – group assignment



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Student Evaluation Reflections

+ Not only do I feel like I learn the information better, I feel like I actually learn how to **critically put my skills to the test** which in turn allows me to fundamentally know and understand the material.

+ It **improved my reading and writing skills** a lot. Also, it gave me an opportunity to **improve my group work skills**. The comprehensive case studies improved my research skills a lot because every time we had to look for a new research article on a specific topic and this way I **studied more articles in this class than any other classes**.

+ Beyond the text section allowed us to **broaden our horizons and look at many different types of research** and **really utilize our critical thinking skills**.

- I had a hard time with this structure. **There was too much information from too many different sources**. There was no way for me to focus on learning the material.

- I'm not exactly sure what the skill building was. I think day 4 was when we talked to our group members, **and for my group personally, it was a waste**.

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Professor Reflections

Benefits

- Group assignments = less grading
- When the groups function well, students learn a lot from each other
- Ability to expand upon issues
- Students gain skills, not just knowledge

Challenges

- Not all students prefer this type of learning
- Group dynamics/group size
- Balancing group and individual assignments
- Students finding high quality articles early in the semester

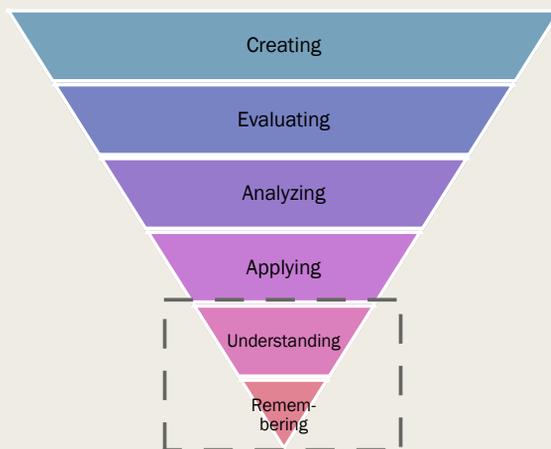
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THE FLIPPED CLASSROOM MODEL

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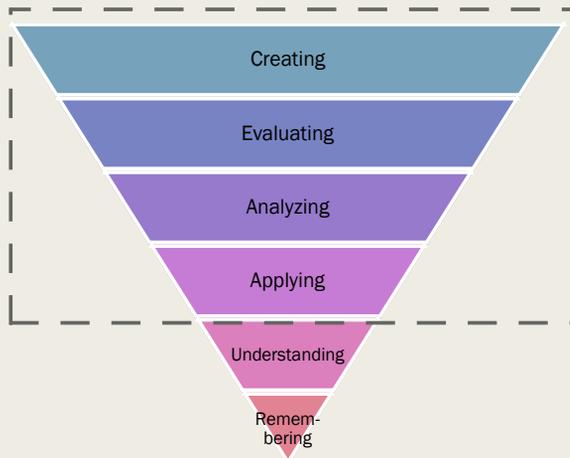
The Flipped Classroom model focuses out-of-class time and effort on lower level learning – acquisition of basic knowledge.



- Out-of-class time = students learning knowledge on own
- Students may:
 - *Read supporting materials*
 - *Watch videos or recorded lectures*
 - *Take notes, complete study guide, write summary*
 - *Take a quiz to assess remembering and understanding*

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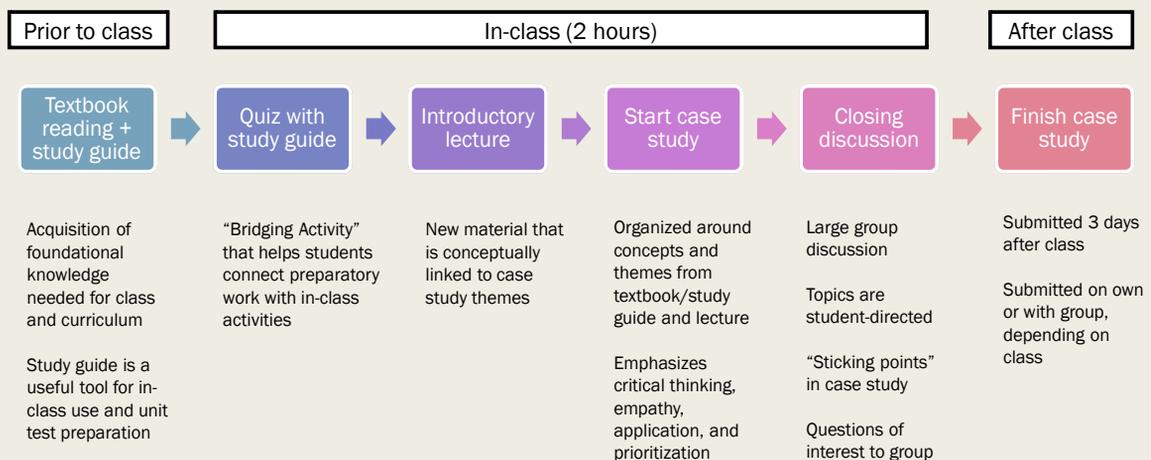
The Flipped Classroom model focuses in-class time and effort on higher level learning – applying, analyzing, evaluating, creating.



- Classroom time = students engage in higher level cognition when actively working with peers and teacher
 - *Case studies applying concepts*
 - *Evaluating various interventions*
 - *Analyzing or comparing strategies or approaches*
 - *Creating summaries, written materials, presentations, infographics, etc.*
- Teaching in this style is...
 - active for the student and teacher
 - student-centered

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What does a flipped classroom look like in life cycle nutrition?



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What does research say about the benefits of flipped classrooms?

- Students can self-pace work, learn on own schedule, access resources during key times, and learn from others (Fulton, 2012)
- Students learn to better self-regulate work and develop social connections to other students in the class (Jdaitawi, 2019)

** Please refer to the additional handout Reference List about the Flipped Classroom

Fulton, K. (2012). Upside Down and Inside Out: Flip Your Classroom to Improve Student Learning. *Learning & Leading Technology*, 39, 12-17.
 Jdaitawi, M. (2019). The effect of flipped classroom strategy on students learning outcomes. *International Journal of Instruction*, 12(3), 665-680.

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What do we and our students say about these approaches?

Drawbacks

- Adjustment for students, instructor
- Lots of preparatory work outside of class ("busy work")
- More grading

Benefits

- Less lecturing!
- Student engagement
- Improves diversity of viewpoints in classroom
- Variety in activities
- Time in class for instructor to grade
- Early identification of at-risk students

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Summary

- Students and faculty find that using active learning and the flipped classroom model to be effective in achieving higher levels of Bloom's Taxonomy
- Pre-class preparation and classroom time looks different than most other classes which takes some getting used to by students; some students prefer traditional learning models.
- Students are able to develop important skills that can be used in the workplace in addition to knowledge acquisition
- The initial development of the cases and assignments takes time but after that less time is spent preparing lectures and grading

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Thank You and Questions

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<https://pixabay.com/illustrations/question-mark-note-duplicate-2110767/>

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