

# Introductions

- Names and backgrounds
- Why do we need this training?
- How will this help your career?
- Our assessment efforts

# Diversity in the Sciences

- What do we mean by “diversity”?
- Why should we care?
- Why are some groups under-represented?
- How do we address this issue as instructors?
  - Unconscious bias

# Diversity in the Sciences

- 50% of Ph.D.s are granted to women, but only 15% of full professors are women.
- At top 50 biology departments, only 11% of full professors are African American, Latino, Asian, or Native American.
- There are no differences in mathematical ability between males and females.
- Female applicants tend to require more publications than male applicants to be rated equally when applying for academic positions.

# Multiple Intelligences

- How do we typically define “intelligence”?
- Gardner’s alternative definition(s)
  - Logical-mathematical
  - Linguistic (verbal)
  - Spatial
  - Bodily-kinesthetic
  - Musical
  - Interpersonal
  - Intrapersonal

Video clip #1

# Questioning Techniques: Socratic Questioning

- What question did I ask to successfully elicit a student's response?
- What was my goal?
- Was I successful?
- How could I improve on this technique?

# Questioning Techniques: Verbal Jigsaw

- Pause in mid-sentence to have students fill in the blank
- Most appropriate for material with lots of vocabulary
- Not appropriate if you want students to finish your sentences

Video clip #2



# Questioning Techniques: Semantic Tapestry

- What was my goal?
- Why is accomplishing this goal important?
- Was I successful?
- How could I have improved?
- Key features:
  - Used to develop abstract ideas
  - Incorporates visualization, diagrams, gestures, writing on the board, etc.

Video clip #3

# Questioning Techniques: Framing

- What was my goal?
- Why is accomplishing this goal important?
- Was I successful?
- How could I have improved?
- Key features:
  - Used to introduce or summarize a problem
  - Often prompts students to consider the big picture

# How to get them to participate?

- Tell them it's expected.
- Be supportive, not judgmental or sarcastic.
- Don't cave to the awkward silence.
- Learn your students' names and politely call on them.
- Other ideas?

# Video clip #4

# Cognitive Conflict

- Is her idea correct?
- Why didn't I correct her idea?
- Cognitive conflict:
  - a learner realizes his/her idea doesn't work in a particular situation
  - This must happen in order for the learner to change his/her idea.
- Relations to intellectual need and social interaction

# Misconceptions Discussion

What is your learning style?



# Motivating students

- What do you want your students to be motivated *to do*?
- What do you do as an instructor to motivate these behaviors in your students?

# Motivating students

Amotivation	External Regulation	Introjected regulation	Identified regulation	Integrated regulation	Intrinsic motivation
"I just don't care about school."	"I just want to know what I need to get an A."	"If I don't learn this material, I'll feel guilty or bad about myself."	"I would like to be a student who really understands what I'm taught in school."	"A love for learning is a part of who I am."	"I enjoy school, and I do well in it."

Self-determination

# Motivating students

## Self-determined students:

- are interested in what they're being taught.
- study because they like to.
- study because it's a part of their identity.
- have a love for learning and knowledge.
- focus on the learning, not the grade.
- get better grades.

# Motivating students

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  2. Competence – the need to feel effective in accomplishing one's goals

# Motivating students

How we can help students develop self-determination?

- Support their 3 basic psychological needs:
  1. Autonomy – the need to feel as if one's actions arise from the self
  2. Competence – the need to feel effective in accomplishing one's goals
  3. Relatedness – the need to feel a sense of belonging in a social group



# Motivating students

How can we support students':

- Autonomy?
- Competence?
- Relatedness?

In your groups:

- Choose an item on your list.
- Discuss how you could support self-determination toward that behavior.
- 10 minutes?

# Motivating students

To support students' autonomy:

1. Offer students choices when possible.
2. Don't go on a power trip or demonstrate your authority when it isn't necessary.
3. Provide explanations for rules and protocols.
4. Hold students accountable for their choices, both good and bad.

# Motivating students

To support students' competence:

1. Encourage them to set goals for themselves, especially ones that are unrelated to grades.
2. Encourage them to list their accomplishments and/or learned skills throughout the course.
3. Act as if their genuine goal is to understand the material, even if it seems like their only goal is to get a particular grade.
4. Provide sincere, relevant complements when appropriate.
5. Be empathetic when a student is having trouble.
6. Teach toward understanding, not the test.

# Motivating students

To support students' relatedness:

1. Cultivate a classroom community that is fun.
2. Encourage students to get to know each other by forming study groups, walking to the parking lot together, etc.
3. Help students develop a unique identity in your class (e.g., “our human calculator”, “the bird expert”).
4. Always be respectful of others' ideas and perspectives; insist that your students do so toward each other and you.

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2. Competence – emphasizing only grades, non-specific praise
3. Relatedness – embarrassment, disinterest in your students

# Classroom Discipline Discussion



# Q & A with Experienced TAs