Why Teach?

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![Diagram showing how professors spend their time](image-url)

*Source: Higher Education Research Institute Survey (1999)*
Why Teach?

• “The task of the teacher, who is also a learner, is both joyful and rigorous. … It is impossible to teach without the courage to love” - Teachers as Cultural Workers, Paulo Freire
**Self-actualization**
- morality, creativity, spontaneity, problem solving, lack of prejudice, acceptance of facts

**Esteem**
- self-esteem, confidence, achievement, respect of others, respect by others

**Love/Belonging**
- friendship, family, sexual intimacy

**Safety**
- security of body, of employment, of resources, of morality, of the family, of health, of property

**Physiological**
- breathing, food, water, sex, sleep, homeostasis, excretion
Principles of Learning:

- Students need to feel comfortable in the classroom in order for them to participate in the learning process (making mistakes only makes them grow)
- Students build on prior knowledge
- Students need effective organizing schemes
- They need frequent practice and timely, constructive feedback in the way that works for them
- Multiple representations enhances learning for all learners
- Understanding the different learning styles can enrich the students’ learning experience
Multiple representations enhances learning for all learners

\[ \tau_c = \frac{1}{8} \rho fu^2 \]
Learning Styles: Type of information preferred

**Intuitive:** memories, ideas, models (35%)

**Sensory:** sights, sounds, physical sensations, data (65%)

Erin Kraal, 2005
Learning Styles: Sensory information

**Visual:** pictures, diagrams, graphs, demonstrations, field trips (80%)

\[
\frac{\partial \ln \rho}{\partial t} = -\mathbf{v} \cdot \nabla \ln \rho - \nabla \cdot \mathbf{v} \tag{1}
\]

Conservation of momentum:
\[
\frac{\partial \mathbf{v}}{\partial t} = -\mathbf{v} \cdot \nabla \mathbf{v} + \mathbf{g} - \frac{P}{\rho} \nabla \ln P + \frac{1}{\rho} \nabla \cdot \mathbf{\sigma} \tag{2}
\]

Conservation of energy:
\[
\frac{\partial e}{\partial t} = -\mathbf{v} \cdot \nabla e - \frac{P}{\rho} \nabla \cdot \mathbf{v} + Q_{\text{rad}} + Q_{\text{visc}} \tag{3}
\]

- \(Q_{\text{rad}}\) obtained from the equation of radiative transfer

**Verbal:** sounds, written and spoken words, formulas (20%)

Erin Kraal, 2005
Learning Styles: Information Processing

**Actively:** through engagement or physical activity (60%)

**Reflectively:** through introspection (40%)

Erin Kraal, 2005
Learning Styles:
Student progression toward understanding

*Sequentially*: logical progression of small, incremental steps (60%)

*Globally*: in large jumps, holistically (40%)

Erin Kraal, 2005
Learning Styles Summary:

- Each student will learn slightly differently from each other (and from you!)
- An individual student may prefer one style over another at different times/subjects/levels
- Students come from so many different (cultural, educational, religious, etc) backgrounds which influence their learning style differences.
- Working in *MULTIPLE* approaches helps *ALL* students.
Ideally, everyone learns

• The class members achieve your objectives for their learning.
• You learn about their learning process and the effectiveness of your strategy and tactics.
• You learn about what the faculty member is trying to do (about teaching).
• The faculty member learns about the students and is renewed by your questions.

[William Ladusaw]
My (Idealist) Advice

• Ask questions of the faculty
  *What are they trying to do?*
  *Why that? How?*

• Observe the students in the class
  *As individuals in a context,*
  *not as a mass of students.*

• Observe yourself
  *How are you responding?*
  *What are you learning?*

[William Ladusaw]
My (Realist) Advice

• Negotiate an effective relationship with the faculty member.
• Negotiate an effective relationship with the class members.
• Establish a balance between the rewards you derive from the experience and your other goals, expectations, and obligations.

[William Ladusaw]
Effective Education:

• The class’ foundation:
  – What are students learning?
  – Why should they learn about this?

• The class’ frame:
  – How is information structured/organized?
  – How are students being evaluated?

• The rest:
  – What learning styles are used to present the information?
  – How are students engaged?