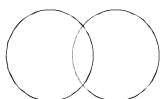


Reframing Learning Styles:

Engaging Traditional & Nontraditional Learners



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Presentation Overview

- The Diverse Range of Learners
- Four Principles for Learning
- Your Most Effective Learning Styles?
 - *Note the plural form*
- Learning Styles & Teaching Strategies
- Implications?

What does it mean . . .



. . . to work in the area of the lune?

Practical tools, techniques to optimize learning



- Incorporate the principles & tools into this presentation
- Focus: to optimize learning in diverse range of learners
- *What is learning, anyway?*

☐ The Diverse Range of Learners



- Providing *access* to a diverse group of learners
 - Traditional
 - Nontraditional
 - Combination

Parallels with the concept of Universal Design



- Designing services and environments to be *accessible* by as many people as possible
 - Regardless of age, ability or situation
 - Example: *curb cuts*

Engaging the diverse range in teaching?



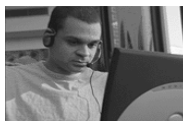
- Apply principles to lecture, handouts
- Incorporate materials for different learning styles
- Getting past the one-dimensional approach
 - . . . even beyond two dimensions

□ Four Principles for Learning

Students will retain the material better if . . .

- 1) . . . teaching offers a variety of input modalities
- 2) . . . they participate actively
- 3) . . . we avoid cognitive overload
- 4) . . . the material is meaningful

1) A variety of input modalities



- Provides broader base for diverse learners
- Allows students to combine input modalities:
 - Increases retention
- **Examples:**
 - Hearing & seeing lecture
 - Hearing & seeing materials
 - Kurzweil 3000
 - NaturalReader

How people learn: Retention patterns

(From Lall, G.R., *Ways Children Learn*)

- What is heard 20%
- What is seen 30%
- What is heard & seen 50%

- What is verbalized 70%
- What is said & done 90%

What is the difference between these groups?

2) Active participation



- The passive/active divide
 - As demonstrated by Evel Knievel . . .
- What does it mean for our students?

Today's college lecture . . . *how far have we really come?*



3) Avoid cognitive OVERLOAD

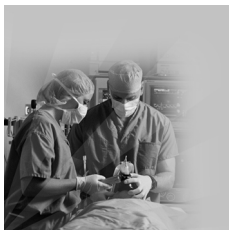


- We try to go from Plato to NATO in 16 weeks
– Howard Gardner, Harvard
- Provide a **cognitive framework**
– Organizing the material increases functional capacity of working memory
- Deliver material in manageable units

4) Keep the material meaningful

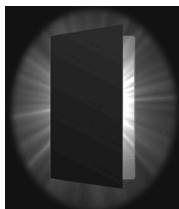
- **Understanding:**
– The ability to apply what is learned in one context to another
• Howard Gardner, Harvard University
- **Teach for understanding:**
– Make material meaningful so students can apply it beyond the four walls of the classroom
• ... in their everyday lives

Why focus on *applying* the information?



- “I didn’t realize what I’d learned until I had a chance to APPLY it.”
– Denzel Washington

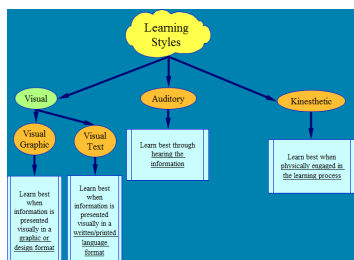
□ Your Most Effective Learning Styles? The Learning Styles Profile¹



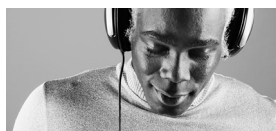
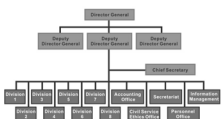
- *Visual graphic?*
- *Visual text?*
- *Auditory?*
- *Kinesthetic (tactile)?*

¹Myra Lerch, Butte College
 Some items modified from two sources:
 Jeffrey Barsch, Ventura College
 Catherine Jester, Diablo Valley College

Four learning styles



How do you learn best?



□ Learning Styles & Teaching Strategies



- How can we optimize the learning process?
- Understanding your learning styles profile
 - . . . and having students do the same
- Think in terms of your **strongest two**

Visual graphic learners . . .



- . . . learn best when information is presented:
 - Visually
 - In a **graphic / design** format

Visual graphic teaching strategies

- **Create charts, maps, diagrams**
 - Example: Concept mapping – *Kurzweil 3000 / Inspiration*
- **Use color to convey (& organize) information**
 - Example: Use highlighters in text, with
 - Main idea = yellow
 - Supporting details = green
- **Encourage use of flash cards**
 - With drawings, symbols, limited written information
- **Use visualization – create mental motion picture**
 - Include **ACTION!**
 - Example: *How noise-induced hearing loss is caused*
- **View videotapes**

Suggestions: Visual graphic teaching strategies?

Visual text learners . . .



- . . . learn best when information is presented:
 - Visually
 - In a written/printed language format

In the words of a student . . .




- . . . how he had difficulty in class:
- “The material doesn’t stick; the instructor just stands there and talks.”
- Transferred to another section and did well

**Visual text
teaching strategies**

- **Provide outline of lecture**
 - *Example: Inspiration – Outline view*
- **Encourage note taking**
 - . . . and review of notes
 - On handouts, provide empty space for notes
 - Encourage students to text themselves to remember important items (*Example: review session*)
- **Encourage use of flash cards** (With more text)
- **Encourage use of “sticky” notes in visible places**
 - *Example: Mirror, front door, remote control!*
- **Write important information on board**
 - . . . in a consistent location

**Suggestions: Visual text
teaching strategies?**

Auditory learners . . .



- . . . learn best through hearing information
- **Optimize listening**
 - Sit near front of class
 - Avoid background noise

In the words of a student . . .



- . . . how she thinks about a car engine:
- “To you, it may look like a puzzle.
- To me, it looks like a masterpiece.”
- *Alicia, Automotive Tech student*

Kinesthetic teaching strategies

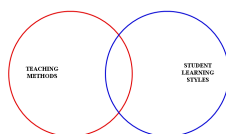
- **Provide opportunity for active participation**
 - Example: PowerPoint slides pose a question
 - Example: Quick pair activity – Clever Martian
- **Encourage students to actively manipulate study materials**
 - Examples: Cut map into pieces & reassemble them; move flashcards around on desk; walk while reviewing flashcards
- **Encourage students to highlight/underline notes**
 - Examples: Minute Paper or review at end of class
- **Use physical models, tactile materials**
 - Examples: Anatomy, chemistry, relief maps, pi af images
- **Spelling:**
 - Examples: Use Scrabble tiles to spell challenging words; use fingerspelling (sign language alphabet)

Suggestions: Kinesthetic teaching strategies?

☐ Implications?

- We can optimize learning in our students through:
 - Applying our understanding of learning styles to engage diverse range of learners
 - Developing their understanding of different learning styles
 - . . . and their *individual learning profile*
 - Also: Emphasizing how *combining* input increases retention
 - Creating opportunities for ACTIVE participation

Getting back to the Venn diagram . . .



- Taking the message from Anne Fadiman
 - *The Spirit Catches You and You Fall Down*
- Applying it in the teaching process
- Working in the area of the lune

Minute Paper

- Use final minutes of class to reflect on main ideas
 - American Society of Engineering Education
- “We learn not so much from our experiences as we do from *reflecting on those experiences.*” (Derek)
- Which two strategies can I incorporate in my teaching?
