

Five Ill Conceived Ideas about Student Learning

Take Five...
Strategies to Improve Teaching and Learning
Tuesday, January 19, 2009 ~ 8:30 a.m. - 12:15 p.m. ~ 337 & 339 Cartwright Center
Sponsored by the UW-L Center for Advancing Teaching and Learning

8:15 Refreshments available outside rooms 337 and 339

Opening Plenary
Welcome: Provost Enz Finken
8:30-9:15 Five Ill Conceived Ideas About Student Learning
Bill Cerbin, CATL

Attend one session from each pair.

9:30-10:00 339 - *Five Strategies to Create Better Objective Tests*
Bill Cerbin, CATL
337 - *Five Ways to Give Feedback on Student Writing*
Bryan Kopp, CATL & English Department

10:15-10:45 339 - *Five Techniques for Collaborative Learning*
Bill Cerbin, CATL
337 - *Five Strategies for Effective PowerPoint Design*
Kristin Koepke, CATL

11:00-11:30 339 - *Five Steps to Bring Diversity into Your Course*
Deb Hoskins, CATL & Department of Women's, Gender and Sexuality Studies
337 - *Five Principles of Online Course Design*
Kristin Koepke, CATL

11:45-12:15 339 *Five Ways to Use Social Networking Tools to Enhance Your Class*
Jo Arney, Political Science & Public Administration Department
Bryan Kopp, CATL & English
337 *Five Strategies to Engage Students in Large Lecture Courses*
Brian Udermann, CATL

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UW-La Crosse
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Test on Student Learning

Student Learning Test

Instructions: For each item select the best answer—even if you have no idea what the best answer is.

- 1) People use what percentage of their brains?
A) 1% B) 10% C) 100% D) 5% when asleep, 20% when awake E) Varies with intelligence
- 2) In the past 25 years significant progress in understanding how the brain works has led to
A) brain-based learning programs that improve student learning substantially B) a better understanding of how learning takes place in the brain
C) new drugs that enhance learning to read D) ways to boost brain usage from 10% to infinity and beyond
- 3) The term *learning style* refers to
A) a special form of intelligence that corresponds to different sensory modalities (e.g., visual, auditory, kinesthetic)
B) a mode of learning—the kind of cognitive processing used during learning, e.g., sequentially—one thing at a time; holistically—all of the parts simultaneously
C. a cognitive ability or capacity for success in certain types of thought, e.g., a person with a quantitative style tends to learn new mathematical concepts quickly
- 4) A person's learning style determines
A) which part of the brain the individual uses during a learning task B) how well they can learn information presented in different modalities (visual, auditory, kinesthetic) C) nothing about their performance on learning tasks
- 5) Research shows that
A) People learn best when instruction matches their individual learning style, e.g., auditory learners are taught using an auditory mode of instruction
B) People learn best when instruction forces learners to use learning styles different from their preferred style, e.g., auditory learners are taught using a visual mode of instruction C) There is no connection between learning style and how well people learn
- 6) Which of the following is the best way to learn and remember something?
A) Hearing it B) Reading it C) Writing about it D) Actively doing it E) This question makes no sense
- 7) Students tend to learn and remember material best when they
A) re-study material several times B) study material and then take a test on it C) study material once and then switch to a completely different topic
- 8) When students do well on a task or assignment, the best way to strengthen their future motivation is to
A) give them extra credit points B) praise their abilities C) praise their effort D) withhold praise E) give them food pellets
- 9) Among the following what is the most important thing a teacher should know about students?
A) what they already know about the subject or topic being taught B) their individual learning styles C) their interests D) how their brains work
- 10) To improve student learning teachers should use
A) active learning B) collaborative learning C) new technologies D) a didactic approach E) problem-based learning
F) brain-based learning G) strategies that support and guide sense-making activities

Answer Key

1. C
2. B
3. B
4. C
5. C
6. E
7. B
8. C
9. A
10. G

BRAIN POWER

1) People use what percentage of their brains?

A. 1%

B. 10%

C. 100%

D. 5% when asleep, 20% when awake

E. Varies with intelligence

To put it bluntly, if you are only using 10% of your brain, then you are in a vegetative state so close to death that you should hope (not that you could) that your relatives will pull out the plug of the life support machine.

Geake, J. (2008). *Neuromythologies in Education*, p. 128.

2) In the past 25 years significant progress in understanding how the brain works has led to

- A. brain-based learning programs that improve student learning substantially
- B. a better understanding of how learning takes place in the brain
- C. new drugs that enhance learning to read
- D. ways to boost brain usage from 10% to infinity and beyond

BRAIN-BASED LEARNING



Basic premise
Instructional practices
and environments
based on how the brain
works will produce
better learning

The Brain-Based Learning Industry

[Brain.org](#)

[More books and articles](#)

[Professional development](#)

BBL proponents are making it up—
proposing classroom strategies *compatible*
with *how the brain works*

Even in cases where the information about
the brain is accurate there are no studies
that test the efficacy of the instructional
methods.

LEARNING STYLES

Common Beliefs about Learning Styles

- People learn differently and each person has a unique learning style
- A person's learning style determines how well s/he will learn new material
- People learn better when taught in a way that is consistent with their learning styles

3) The term *learning style* refers to

- A. a special form of intelligence that corresponds to different sensory modalities (e.g., visual, auditory, kinesthetic)
- B. a mode of learning—the kind of cognitive processing used during learning, e.g., sequentially—one thing at a time; holistically—all of the parts simultaneously
- C. a cognitive ability or capacity for success in certain types of thought, e.g., a person with a quantitative style tends to learn new mathematical concepts quickly

Cognitive Styles	Description
Broad/narrow	Preference for thinking in terms of a few categories with many items versus thinking in many categories with few items
Analytic/nonanalytic	Tendency to differentiate among many attributes of objects versus seeking themes and similarities among objects
Leveling/sharpening	Tendency to lose details versus tendency to attend to details and focus on differences
Field dependent/field independent	Interpreting something in light of the surrounding environment versus interpreting it independently of the influence of the environment
Impulsivity/reflectiveness	Tendency to respond quickly versus tendency to respond deliberately
Automatization/restructuring	Preference for simple repetitive tasks versus preference for tasks that require restructuring and new thinking
Converging/diverging	Logical, deductive thinking versus broad, associational thinking
Serialist/holist	Preference for working incrementally versus preference for thinking globally
Adaptor/innovator	Preference for established procedures versus preference for new perspectives
Reasoning/intuitive	Preference for learning by reasoning versus preference for learning by insight
Visualizer/verbalizer	Preference for visual imagery versus preference for talking to oneself when solving problems
Visual/auditory/kinesthetic	Preferred modality for perceiving and understanding information

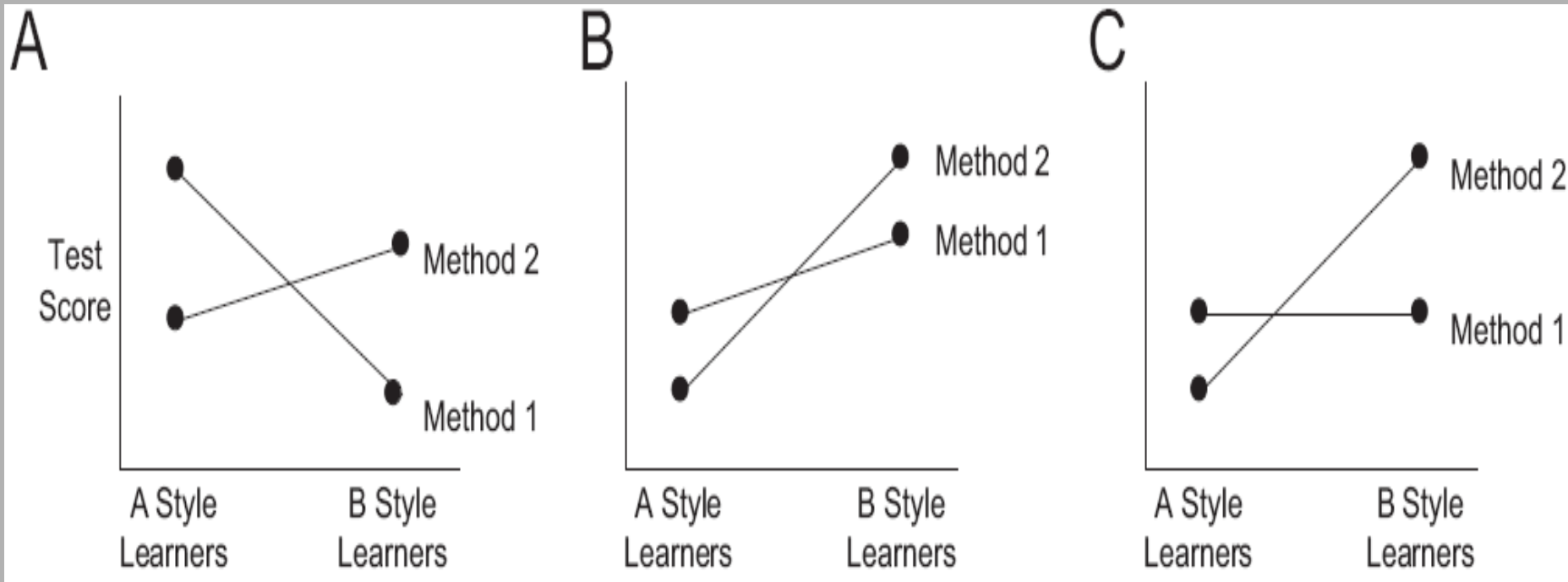
From: Willingham, D. (2009). *Why Don't Students Like School?*

- 4) A person's learning style determines
- A. which part of the brain the individual uses during a learning task
 - B. how well they can learn information presented in different modalities (visual, auditory, kinesthetic)
 - C. nothing about their performance on learning tasks

5) Research shows that

- A. People learn best when instruction matches their individual learning style, e.g., auditory learners are taught using an auditory mode of instruction
- B. People learn best when instruction forces learners to use learning styles different from their preferred style, e.g., auditory learners are taught using a visual mode of instruction
- C. There is no connection between learning style and how well people learn

The Type of Evidence that Would Demonstrate that Learning Styles Have a Differential Effect on Learning



The Evidence Does Not Support the Learning Styles Hypothesis

The contrast between the enormous popularity of the learning-styles approach within education and the lack of credible evidence for its utility is, in our opinion, striking and disturbing. If classification of students' learning styles has practical utility, it remains to be demonstrated.

Paschler, H., McDaniel, M., Rohrer, D., & Bjork, R. (2009) *Learning styles: Concepts and evidence*. Psychological Science in the Public Interest. Volume 9, No. 3, 105-119.

Parents of Nasal Learners Demand Odor-Based Curriculum

<http://www.runet.edu/~thompson/obias.html>

ACTIVE LEARNING TRUMPS PASSIVE LEARNING

6) Which of the following is the best way to learn and remember something?

A. Hearing it

B. Reading it

C. Writing about it

D. Actively doing it

E. This question makes no sense

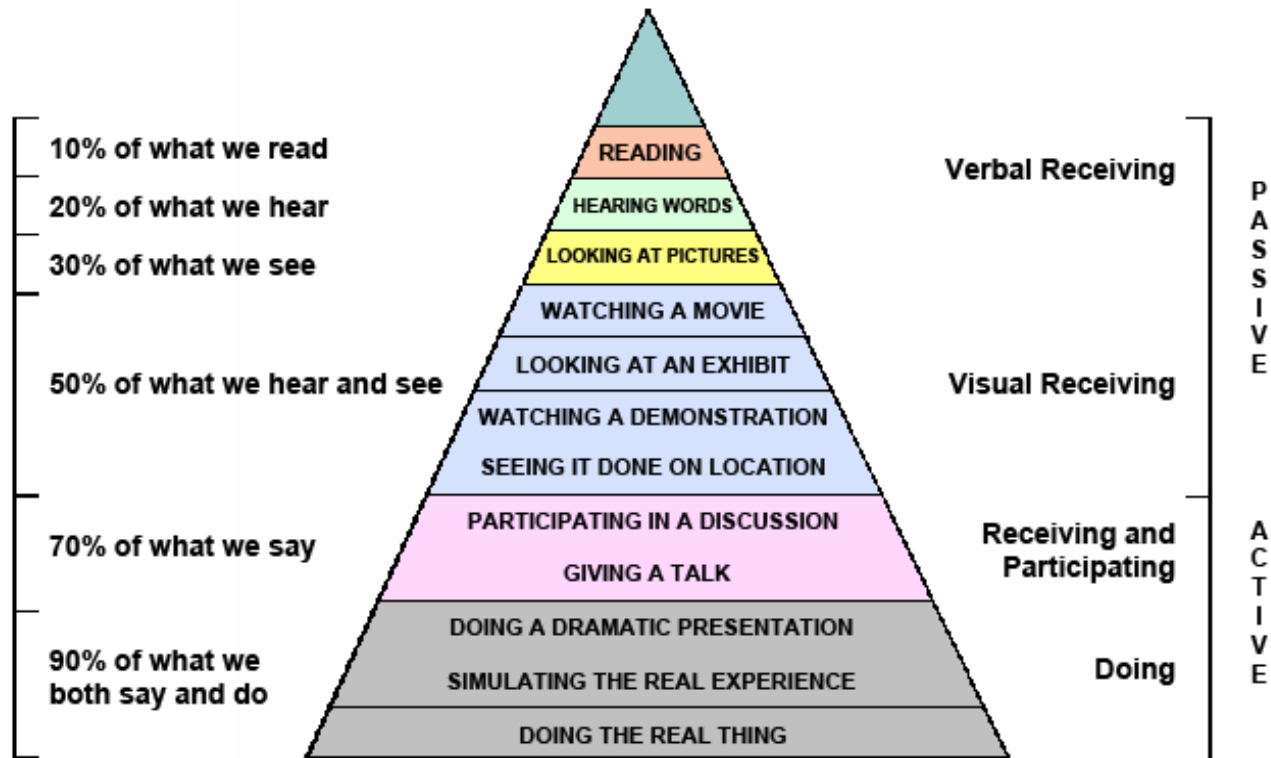
Common Beliefs about Active Learning

- AL is superior to passive learning
- Students will only learn deeply if they are actively involved
- AL tends to be viewed in terms of what students are physically doing—that students learn best by doing
- Synonymous terms—*learning by doing*; *hands on learning*

CONE OF LEARNING

WE TEND TO REMEMBER OUR LEVEL OF INVOLVEMENT

(developed and revised by Bruce Hyland from material by Edgar Dale)



Edgar Dale, *Audio-Visual Methods in Teaching* (3rd Edition). Holt, Rinehart, and Winston (1969).

The Cone of Experience is Science Fiction

- The percentages about how much people remember from each type of learning are made up.
- The ordering of the learning activities from passive to active is wrong-headed. Any of the items could be *active* or *passive*.
- What matters is not what students do physically but what they do mentally while learning.

What matters is not students' physical activity but their mental activity

- Classroom demonstrations
- Active learning projects

A Few Well Established Ideas about Learning

- Test enhanced learning
- Motivation
- The importance of prior knowledge
- Using strategies that engage students in sense making *mental* activities

TEST ENHANCED LEARNING

7) Students tend to learn and remember material best when they

A. re-study the material several times

B. study the material and then take a test on it

C. study the material once and then switch to a completely different topic

MOTIVATION

8) When students do well on a task or assignment, the best way to strengthen and support their future motivation is to

- A. give them extra credit points
- B. praise their abilities
- C. praise their effort
- D. withhold praise
- E. give them food pellets

9) Among the following what is the most important thing a teacher should know about students?

- A. what they already know about the subject or topic being taught
- B. their individual learning styles
- C. their interests
- D. their ability levels/IQ

The most important single factor influencing learning is what the learner already knows. Ascertain this and teach him accordingly.

Ausubel, D. (1968). Educational Psychology:
A Cognitive View

10) To improve student learning teachers should use

- A. active learning
- B. collaborative learning
- C. new technologies
- D. a didactic approach
- E. problem-based learning
- F. brain-based learning
- G. strategies that support and guide sense-making activities

References

- Willingham, D. (2009). *Why don't students like school?* Jossey-Bass Publishers, San Francisco, CA. Also see short videos by Willingham, [Learning Styles Don't Exist](#) and [Brain-Based Education: Fad or Breakthrough](#)
- Lilienfeld, S., Lynn, S., Ruscio, J., & Beyerstein, B. (2010). *50 great myths of popular psychology*. Wiley-Blackwell, Malden, MA.
- Aamondt, S. & Wang, S. (2008). *Welcome to your brain: Why you lose your car keys but never forget how to drive and other puzzles of everyday life*. Bloomsbury, NY, NY.
- Geake, J. (2008). *Neuromythologies in education*. Educational Research, Vol. 50, No. 2, 123-133.
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- Mayer, R. (2009). *Advances in applying the science of learning and instruction to education*. Psychological Science in the Public Interest. Volume 9, No. 3, i-ii.