

What is the Difference between Teaching and Learning?

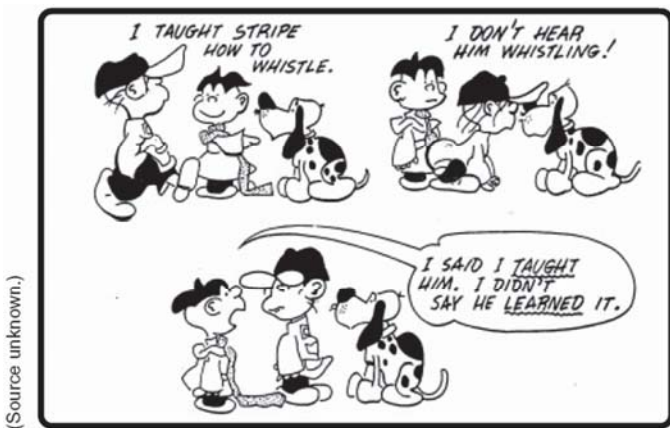


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Outcomes



1. Define learning
2. List practice and feedback activities to enhance learning
3. Identify at least one learning activity to implement in a class



LEARN

TEACH

Teaching

1. the act, practice, or profession of a **teacher**
2. something taught



Teacher: one that teaches

Merriam-Webster

Teach

1. *a* : to cause to know something
b : to cause to know how
c : to accustom to some action or attitude
d : to cause to know the disagreeable consequences of some action
2. to guide the studies of
3. to impart the knowledge of
4. *a* : to instruct by precept, example, or experience
b : to make known and accepted
5. to conduct instruction regularly in



Merriam-Webster

Learning

1. the act or experience of one that learns
2. knowledge or skill acquired by instruction or study
3. modification of a behavioral tendency by experience (such as exposure to conditioning)



Merriam-Webster

Learn

- 1 a (1): to gain knowledge or understanding of or skill in by study, instruction, or experience
(2): memorize
b: to come to be able
c: to come to realize



Merriam-Webster

Teaching

Teacher is doing something

- to cause
- to guide
- to impart
- to make known



Learning

Student is doing something

- modification of a behavioral tendency
- the act or experience
- memorize
- to be able
- to realize



Learning

“...acquiring knowledge and skills and having them readily available from memory so you can make sense of future problems and opportunities.”

Make it stick: The Science of Successful Learning.
Brown, P., Roediger II, H., and McDaniel, M. (2014)

Learning

“...a process that leads to change, which occurs as result of experience and increases the potential for improved performance and future learning (adapted from Mayer, 2002).”

How Learning Works: 7 Researched Based Principles for Smart Teaching. Ambrose, S., Bridges, M., DiPietro, M., Lovett, M., and Norman, M. 2010



References

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The New Science of Learning: How to Learn in Harmony With Your Brain. Doyle, T. and Zakrajsek, T. (2013)

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What affects learning?

1. Prior knowledge
2. Organization of knowledge
3. Motivation
4. Ability to develop mastery
5. Practice and feedback
6. Personal development and course climate
7. Self-direction



What affects learning?

1. Prior knowledge

Principle: Students' prior knowledge can help or hinder learning.



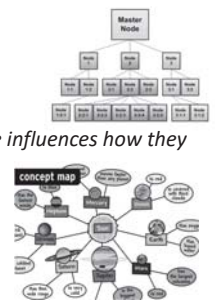
What affects learning?

2. Organization of knowledge

Principle: How students organize knowledge influences how they learn and apply what they know.



Unit	K	W	H	L
Unit 1
Unit 2
Unit 3
Unit 4

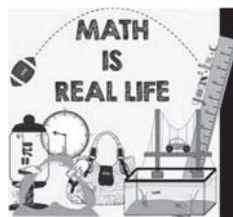


<http://www.educatorstechnology.com/2014/10/10-great-ipad-apps-for-creating-concept.html>

What affects learning?

3. Motivation

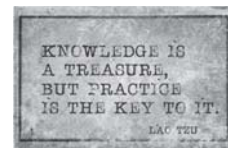
Principle: Students' motivation generate, directs, and sustains what they do to learn.



What affects learning?

4. Ability to develop mastery

Principle: To develop master, students must acquire component skills, practice integrating them, and know when to apply what they have learned.



What affects learning?



5. Practice and feedback

Principle: Goal-directed practice coupled with targeted feedback are critical to learning.



Exam Wrapper

1. Approximately how much time did you spend preparing for this exam?
2. What percentage of your time was doing the following:
 - a. Reading textbook sections for the first time
 - b. Rereading textbook sections
 - c. Practicing problems
 - d. Reviewing notes
 - e. Reviewing class materials
 - f. Other (specify)
3. After reviewing your graded exam, estimate the percentage of points lost due to the following:
 - a. Lack of understanding the concept
 - b. Not knowing how to approach the question/problem
 - c. Carelessness
 - d. Other
4. Based on your responses above, how do you plan to prepare differently for the next exam?

Modified from S. Ambrose et al., 2011, How Learning Works

What affects learning?

6. Personal development and course climate

Principle: Students' current level of development interacts with the social, emotional, and intellectual climate of the course to impact learning.

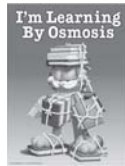


What affects learning?

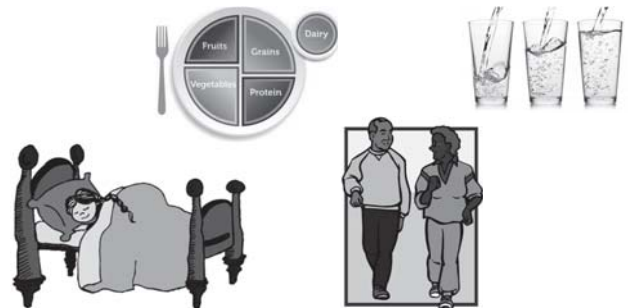


7. Self-direction

Principle: To become self-directed learners, students must learn to access the demands of the task, evaluate their own knowledge and skills, plan their approach, monitor their progress, and adjust their strategies as needed.



Key ideas from neuroscience



References

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