

Factors that Affect Learning Principles of Learning

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Outline

- Factors that affect learning
- Principles of learning

Teacher-Related Factors that Improve Learning

- Strong **teacher expertise**
- **Teaching method** that is appropriately selected to achieve the learning objectives
- Effective use of **instructional materials**
- Concept to be learned is made **meaningful** to the learner
 - Use examples, stories, and illustrations
- **Teacher personality** of good character
- **Reward** to encourage the learner, particularly verbal commendation
- Comfortable physical **learning environment**

Learner-Related Factors that Improve Learning

- Smarter **study habits**
- Focused **attention** on the lesson
- **Interest** (Motivation) in the topic
- Higher **intelligence** (cognitive abilities)
- Higher **Maturation** – overall physical and psychological development (including the brain)
- Ability to encode information in **memory**, including smart memorization strategies

Learner-Related Factors that Hurt Learning

- Use of drugs
- Poor health
- Sensory deficits such as poor vision or hearing handicap

Principles of Learning

- **Questioning:** Students learn best when they have to think deeply about open-ended questions AND when they have to explain their answers
 - “Effective questioning techniques may be among the most powerful tools that educators employ” (Woolfolk, 2007, p. 493)
 - Ask students, “Why?” or “How do you know?” after they give an answer
- **Feedback:** Learning is enhanced when students receive feedback about the accuracy of their answers, including:
 - When an answer is correct
 - When an answer is incorrect **AND WHY OR HOW TO GET THE CORRECT ANSWER**

Principles of Learning

- **Practice:** Information that is rehearsed often is better remembered
- **Readiness:** Learning is most effective when the learner is mentally, emotionally, and emotionally ready
- **Effect:** Actions with a pleasant effect or positive feeling are likely to be repeated
 - This is the similar to *Signal Learning* and *Stimulus-Response Learning* (Gagné)
- **Primacy:** Information learned first leaves a strong impression
 - Proverb: *You can never erase a first impression.*
- **Recency:** Information received last is remembered best

Principles of Learning

- **Multimedia:** Learning is enhanced when presented in multiple formats, including visual and audio media
- **Organization:** Learning is enhanced if the content is well organized and integrated

Implications of Principles of Learning: Questioning

- Effective questions require pupils to think deeply about what is being taught and results in meaningful learning
- Types of Questions
 - **Close-Ended Questions:** One right answer
 - **Open-Ended Questions:** Many possible answers

Implications of Principles of Learning: Questioning

Thoughtless Questions

- Start with “How many of you...” or “Have you ever...”
 - Who has seen a zebra?
- Require a Yes/No answer
 - Is it good to be obedient to your parents?
- The answer is to repeat something that was just said

Thought-Provoking Questions

- Oftentimes (not always) start with *How* or *What* – and oftentimes end with *Why*?
 - What does a zebra look like?
- Require an extended answer
 - Why should we be obedient to our parents?
- Require deep thought beyond what has been said

A rich old farmer, who felt that he had not many more days to live, called his sons to his bedside. “My sons,” he said, “heed what I have to say to you. Do not on any account part with the estate that has belonged to our family for so many generations. Somewhere on it is hidden a rich treasure. I do not know the exact spot, but it is there, and you will surely find it. Spare no energy and leave no spot unturned in your search.” The father died, and no sooner was he in his grave than the sons set to work digging with all their might, turning up every foot of ground with their spades, and going over the whole farm two or three times. No hidden gold did they find; but at harvest time when they had settled their accounts and had pocketed a rich profit far greater than that of any of their neighbors, they understood that the treasure their father had told them about was the wealth of a bountiful crop, and that in their industry had they found the treasure. –*Aesop’s Fables*

Implications of Principles of Learning: Feedback

- **Feedback:** Information about performance that is used as a basis for improvement
 - What is correct
 - What is incorrect
 - How to improve next time
- Feedback is not simply praise or disapproval

Implications of Principles of Learning

- **Practice**
 - Give students regular practice through application questions, discussions, projects, assignments, and tests
 - Regularly remind students of important concepts
- **Readiness**
 - Ensure learners' basic needs for rest, health, nutrition, and emotional safety are met
- **Effect**
 - Be cautious of harsh punishment to avoid negative emotions being associated with school
 - Commend students who demonstrate positive behaviors

Implications of Principles of Learning

- **Primacy**
 - Master your subject well so it is correctly presented the first time
 - Carefully prepare lesson notes to facilitate correct delivery of lesson
- **Recency**
 - Plan a lesson summary by emphasizing important points
 - At the start of each class, review key principles from the last class
- **Multimedia**
 - Use audio and/or visual presentations when available
- **Organization**
 - Present information systematically from first step to final