

Principles of How People Learn, Key Findings, Implications for Teaching,
and Miscellaneous Points (These are referenced in complete rubric.)

See five references below.

Principles of how people learn

1. Learn with understanding; do not memorize
2. Abilities to think and solve problems depend on a rich body of knowledge about the subject matter.
3. People construct new knowledge and understanding based on what they already knew and believed.
4. There is a good deal of evidence that learning is enhanced when teachers pay attention to the knowledge and beliefs that learners bring to a learning task; this knowledge as a starting point for new instruction. (It is important to monitor students' changing conceptions as instruction proceeds.)
5. The more the learner is in charge of his or her learning, the more learning will take place.
6. Metacognition increases learning. Metacognition is a person's ability to predict their performance on various tasks and to monitor their current levels of mastery and understanding.

Key findings

- A. Students come to the classroom with preconceptions about how the world works. If their understanding is not engaged, they may fail to grasp the new concepts and information that are taught, or they may learn them for the purposes of a test but revert to their preconceptions outside the classroom.
- B. To develop competence in an area of inquiry, students must: (a) have a deep foundation of factual knowledge, (b) understand facts and ideas in the context of a conceptual framework, and (c) organize knowledge in ways that facilitate retrieval and application. (A key finding in the learning and transfer literature is that organizing information into a conceptual framework allows for greater "transfer"; this is, it allows the student to apply what was learned to new situations and to learn related information more quickly.)
- C. A "metacognitive" approach to instruction can help students learn to take control of their own learning by the instructor defining learning goals and monitoring the students' progress in achieving them.

Implications for teaching

- I. Teachers must draw out and work with the preexisting understanding their student bring with them.
- II. Teachers must teach some subject matter in depth, providing many examples in which the same concept is at work and providing a firm foundation of factual knowledge.
- III. The teaching of metacognitive skills should be integrated into the curriculum in a variety of subject areas.

Miscellaneous points

- a. Helping students see potential transfer implications of what they are learning enhances transfer. Transfer is applying knowledge to new problems.
- b. Feeling that one is contributing something to others (their learning) appears to be especially motivating.
- c. Transfer is a dynamic process that requires learners to actively choose and evaluate strategies, consider resources, and receive feedback.
- d. All learning involves transfer from previous experience.
- e. Make thinking visible.
- f. Learning changes the physical structure of the brain; these structural changes alter the functional organization of the brain, in other words, learning organizes and reorganizes the brain. Different parts of the brain may be ready to learn at different times. This restructuring takes place throughout the lifetime.
- g. Memory is not a unitary construct. There are several types of memories.
- h. The mind imposes structure on the information available from experience.
- i. A fundamental tenet is that different kinds of learning goals require different approaches to instruction.
- j. Pay careful attention to the knowledge, skills, attitudes, and beliefs that learners bring to the educational setting.
- k. Learn the landscape of a body of knowledge, not just narrow facts.
- l. The four centers are 1) learner centered, 2) knowledge centered, 3) assessment centered, and 4) community centered.
- m. Peers can serve as excellent sources of feedback.
- n. People must achieve a threshold of initial learning that is sufficient to support transfer.
- o. Transfer is helped when knowledge is presented in a variety of contexts.
- p. The most effective learning occurs when learners transport what they have learned to various and diverse new situations.
- q. Frequent feedback is critical.
- r. Learning is languaging

1. *The Power of Mindful Learning* by Ellen J. Langer. New York: Addison-Wesley. 1997. 0-201-33991-9 (paperback)
2. *Mind Sculpture, Unlocking Your Brain's Untapped Potential* by Ian H. Robertson. Fromm International, New York
3. *Making Teaching Community Property: A Menu for Peer Collaboration and Peer Review* by Pat Hutchings, Director of American Association of Higher Education's Teaching Initiative. An AAHE publication. 1996
4. Expanded version of *How People Learn: Brain, Mind, Experience, and School* (2000) by two committees of the National Research Council's Commission on Behavioral and Social Sciences and Education, vis-à-vis, 1) Developments in the Science of Learning and 2) Learning Research and Educational Practice. National Academy Press, Washington, D.C. 0-309-07036-8 (paperback)
5. *Thinking about Teaching and Learning, Developing Habits of Learning with First Year College and University Students* by Robert Leamson. Sterling, Virginia: Stylus. 1999. 1-57922-012-6 (Hard cover)