UF IFAS Extension UNIVERSITY of FLORIDA

AEC581

Principles of Teaching and Learning[1]

R. Kirby Barrick and Andrew C. Thoron[2]

Introduction

Effective teaching is based on a collection of principles that can be used to guide instructional planning. We know from the science of how people learn, based in psychology as well as neuroscience, that these principles can be applicable for all students, regardless of their preferred learning styles, and for all content. Careful consideration of these principles can help create a learning environment that promotes student achievement. These principles inform our decisions about how to teach.

Various authors have described an array of teaching and learning principles. Crunkilton and Krebs (1982) provided an exhaustive list. Originally, Newcomb and his co-authors (1986) described a much shorter list but then expanded the list in later editions of the text (2003). The following principles and discussion are taken primarily from the original Newcomb (1986) listing. For additional insight, please refer to the additional references for this document.

1. Organization and Structure of Subject Matter

When the subject matter to be learned possesses meaning, organization, and structure that is clear to students, learning proceeds more rapidly and is retained longer. The key phrase here is *clear to the students*. No one purposefully prepares a course, a syllabus, or a lesson that they think is unclear. But do students perceive the material to be clear? The subject matter needs to appear useful to students, and the content needs to be presented in a structured sequence that makes sense to the learners.

Readiness is a prerequisite for learning. Subject matter and learning experiences must be provided that begin at the level of the learner. Therefore, it is incumbent upon the teacher to have a true realization of students' prior knowledge. To determine where to start instruction, teachers should consider what students have learned in previous courses or workshops as well as the students' personal experiences with the subject matter.

2. Motivation

Students must be motivated to learn. Learning activities should take into account the wants, needs, interests, and aspirations of students. Likewise, motivation (interest) is strongest when students perceive that learning can be useful, beyond simply "because it will be on the test."

Students are motivated through their involvement in setting goals and planning learning activities. Within the parameters of the curriculum, students can be involved in deciding how they want to be engaged in their own learning through activities within and beyond the classroom. Students have their own pre-conceived ideas regarding how much they need to know. Generally, students acquire new knowledge and skills only as needed to accomplish their purpose.

1. This document is AEC581, one of a series of the Department of Agricultural Education and Communication, UF/IFAS Extension. Original publication date January 2016. Reviewed February 2019. Visit the EDIS website at https://edis.ifas.ufl.edu for the currently supported version of this publication.

2. R. Kirby Barrick, professor emeritus; and Andrew C. Thoron, associate professor, Department of Agricultural Education and Communication; UF/IFAS Extension, Gainesville, FL 32611.

Success is a strong motivating force. Students are motivated when they attempt tasks that are challenging to the extent that success is perceived to be possible but not certain. Teaching below the students' level of ability leads to disengagement and boredom. Teaching above realistic expectations leads to students giving up.

3. Reward and Reinforcement

When students have knowledge of their learning progress, performance will be superior to what it would have been without such knowledge. Behaviors that are reinforced (rewarded) are more likely to be learned. However, both positive and negative behavior can be reinforced. Simply acknowledging a student's response is a form of reward and reinforcement, but drawing attention to errant behavior also reinforces that behavior for a student seeking attention.

To be most effective, reward (reinforcement) must follow as immediately as possible the desired behavior and be clearly connected with that behavior. In the classroom, a quick verbal response can reward (and therefore encourage) positive behavior and engagement. Returning graded papers in a timely manner is important, especially when comments provide an indication of correct and incorrect responses with an explanation of why the response is in error.

Opportunity for fresh, novel, and stimulating experience is an effective kind of reward, while providing variety in instruction, activities, and assessment measures can also be perceived as a reward.

4. Techniques of Instruction

Directed learning is more effective than undirected learning. To maximize learning, students should "inquire into" rather than be "instructed in" the subject matter. Problem-oriented approaches to teaching improve learning. Simply put, learning is an active rather than a passive process.

Students learn what they practice, and supervised practice that is most effective occurs in a functional educational experience. The closer that learning experiences are to real-life situations, the greater student learning will be. Students can learn to apply knowledge to new situations when concepts are presented in a variety of ways.

Summary

There is no "magic" to teaching effectively and enhancing student learning. By applying these principles in our teaching, we can develop teaching strategies that lead to better understanding and to increased knowledge attainment.

References

Crunkilton, J. R., & Krebs, A. H. (1982).*Teaching agriculture through problem solving.* Danville, IL: Interstate Printers & Publishers.

Newcomb, L. H., McCracken, J. D., & Warmbrod, J. R. (1986). *Methods of Teaching Agriculture*. Danville. IL: Interstate Printers & Publishers.

Newcomb, L. H., McCracken, J. D., Warmbrod, J. R., & Whittington, M.S. (2003). *Methods of Teaching Agriculture* (3rd Ed.). Upper Saddle River, NJ: Prentice-Hall.