

Thomas Angelo's (1993) 14 Principles for Improving Higher Learning

A review of 50 years of research on learning revealed a set of 14 factors that were consistently correlated to positive student outcomes. Noting that "Nothing is so useless as a general maxim." (Lord Macaulay), Angelo calls this his "teacher's dozen" of solid principles to teach by.

He maintains that student performance is greatest when students:

	Principle	Implication
1	are more actively than passively engaged in their academic work.	Have students explain to others, in different contexts, having rehearsed.
2	focus their attention by being aware, or made aware, of the basic structure of what is to be learned, and the priorities in the subject content elements.	Point out the landmarks in the body of content, especially for novice students.
3	set and maintain explicit, high, but realistic goals , and which are aligned with the teacher's goals.	Ask students to write down specific learning goals, compare them to goals of other students, and to yours.
4	meaningfully connect new information to prior knowledge.	Provide many examples, analogies, metaphors, etc. Ask students to provide them.
5	successfully identify and unlearn erroneous previous knowledge and bias.	Probe student knowledge and identify "icebergs" early.
6	organize subject content in meaningful ways that are personally and academically appropriate, and become aware of their own ways of learning (metacognition).	Show students various ways to organize the same knowledge. Have students construct "mental models" of the content; give them feedback on their models.
7	receive and use abundant, timely, specific feedback .	Don't assume that students understand. Find out what students do with feedback; show students how you incorporate feedback.
8	know in detail and in advance the standards to be used in assessment and evaluation, and the nature of the instruments.	Provide sample exams and study questions; provide feedback on practice efforts.

9	invest adequate time and high quality, focused effort .	Advise students of the real-world time requirements to achieve mastery of the content; give examples.
10	find real-world applications, in many contexts, to transfer what they are learning.	Direct student attention between the general and the specific. Provide many examples of the same concept; have students devise their own.
11	perceive and adopt high expectations of achievement.	Ask students about their expectations, let them know yours. Put them in contact with previous, successful students in your course.
12	experience a balance of intellectual challenge and academic support (scaffolding).	Fine tune scaffolding to the learner; novices need more, and more experienced students may feel suffocated by the support given novices.
13	clearly perceive the value in what is to be learned.	Communicate that you hold the content to be valuable; show that mastery of the content will lead to other important goals.
14	interact frequently with teachers and other learners.	Learn students' names; engage them in dialogue. Challenge students with assignments that groups perform better than individuals. De-emphasize competition for grades and approval.

Angelo, T. A. (1993). Teacher's dozen: Fourteen general, research-based principles for improving higher learning in our classrooms.