

Marzano, Pickering, and McTighe (1993) describe five types of learning outcomes that promote lifelong learning.

- *Complex thinking standards.* Students use various reasoning strategies.
- *Information processing.* Students use various information-gathering techniques and resources, interpret and synthesize information, assess the value of information, and know when additional information is needed.
- *Effective communication.* Students communicate with diverse audiences in a variety of ways for different purposes.
- *Collaboration/cooperation outcomes.* Students demonstrate effective performance in group situations and use interpersonal skills effectively.
- *Habits of mind.* Students control their own thought processes and behavior. Three types of outcomes are included in this category: (1) Self-regulation where students are aware of their own thinking, make effective use of feedback, and evaluate their own actions productively. (2) Critical thinking that seeks accuracy and clarity, is open-minded, controls impulsivity, takes a position when necessary, is sensitive to the capacities of others. (3) Creative thinking where students engage in tasks even when solutions are not immediately apparent, push the limits of their own knowledge and ability, generates new ways of viewing a situation.

Huba and Freed (2000) observe that,

Some people react negatively to the suggestion that learning outcomes should focus on general abilities, 'habits of mind,' or attitudinal aspects of learning. They fear that a 'process' focus will minimize the amount of content that students learn. However, these individuals may be confusing the amount of content that students *are exposed* to with the amount that they *actually internalize*. In traditional teaching, students are exposed to a great deal of content by professors, but the typical lament of professors is that students don't seem to understand or retain it. In courses in which students are expected to *use* content in meaningful ways, the amount of content internalized and recalled should actually increase. . . .

Students who have mastered more content will be better able to think like members of their discipline. Thus, the focus is not on less content but rather is on what students can do with the content they have learned. . . . When formulating intended learning outcomes, we should integrate the knowledge of essential facts and concepts with the development of habits of mind that will require their use.

(Huba and Freed 2000, 114 emphasis in text)

Mary Huba and Jann Freed. 2000. *Learner Centered Assessment on College Campuses: Shifting the Focus from Teaching to Learning*. Allyn and Bacon.

R. Marzano, D. Pickering, and J. McTighe. 1993. *Assessing Student Outcomes: Performance Assessment Using the Dimensions of Learning Model*. Alexandria, VA: Association for Supervision and Curriculum Development.

See also Robert Marzano and Tammy Heflebower. 2012. *Teaching and Assessing 21st Century Skills*. Marzano Research Laboratory.