

almost everyone agrees that students learn in college, but whether they learn to think is almost everyone agrees that students learn in college, but whether they learn to think is more controversial. Thinking is defined in so many ways that the boundary between 'learning' and 'thinking' is fuzzy and perhaps nonexistent. The two processes are inextricably entwined even a simple learning task, such as reading a textbook assignment, requires thinking. Setting goals, thinking about what strategy to use in tackling an assignment, accessing relevant previous knowledge, and monitoring one's progress these are all important components of critical thinking and problem solving. When faculty members talk about teaching critical thinking, problem solving, or reasoning, they typically mean teaching students to use what they already know. Can critical thinking be taught? Some would argue that we can only give students the knowledge necessary for thinking that the intellectual ability required for thinking is not teachable. There is increasing evidence, however, that measures of thinking, such as tests of general, verbal, and spatial technical intelligence, improve with education (Smith and Sharma, 1990). So we do teach thinking skills, how? Effective methods of learning discussions, lecturing and testing are critical elements in a program for teaching students to think more effectively. Writing, lab work, field work, peer learning, project methods, case method, instructional games, journals, role playing, and computers all contribute to teaching thinking. Knowledge is enough. Our ever present pressure to "cover the content" may in fact militate against effectiveness in teaching thinking because we fail to allow time for thinking. Thinking, like any other skill, requires practice, particularly practice that brings out thinking into the open where it can be challenged, corrected or encouraged. Thus we teachers need to give students the opportunity to talk, write, do lab work or field projects, or carry out other activities that stimulate and reveal their thinking. One does not become a skillful musician or basketball player by listening to an expert three hours a week. The bottleneck is time. We can only read one paper or listen to one student at a time. Fortunately the teacher does not have to be the only source of feedback. Other students can help too.