ACTIVE LEARNING LIST

Technique	Purpose	Practical implementation	Source(s)
Mud cards	Mud Cards are one way to gather End-of-Class Feedback and are a variation of the One-Minute Paper technique (Angelo & Cross) specifically designed to determine gaps in student comprehension. Their use: -Allows student reflection which increases retention -Assists students in using time to study effectively -Provides information to instructor in time to correct misconceptions by the next class meeting -More effective than asking for questions -Assists instructor in planning course for next offering	**General Procedure** - Hand out 3x5 cards near end of lecture - Specifically ask for feedback – "In the next 3 minutes, please reflect on the lecture & write down the point you found the muddiest & need clarification about." - Collect the cards - Review cards & decide on format for addressing the muddy points: post questions & answers on course web page, answer questions at start of next class meeting, prepare a handout, send an email to the class, etc.	In 1989 Frederick Mosteller's article, "The 'Muddiest Point in the Lecture' as a Feedback Device," appeared in the journal *On Teaching and Learning* Angelo & Cross, 1993, Classroom Assessment Techniques, 2nd ed., San Francisco, Jossey-Bass
Immediate In Class Feedback (Concept tests)	- Occurs in class as teaching/learning happens - Provides instructor an indication of student understanding - Provides instructor the opportunity to adjust the lecture on-the-spot if necessary - Provides student with an indication of his/her understanding to help with study later - Can be used in conjunction with peer instruction, a collaborative learning technique made popular by Eric Mazur of Harvard http://mazurwww.harvard.edu/education/pi.html - Key to this technique is the question used (Mazur terms them ConcepTests)	- Ahead of lecture, develop a question that is - -Conceptual, not a calculation - - Multiple Choice - - Brief (1 minute thinking time) - - Designed to surface student misconceptions - Display the question to the class & ask them to think for 1-2 minutes - Students indicate their answer - - raised hands - - finger signals - - flashcards - - electronic system (PRS) - If desired ask students to discuss answer among themselves (Think-Pair-Share)& indicate answer again - Based on student understanding, explain correct answer & move on, give a mini-lecture & ask question again, etc.	Eric Mazur, Harvard http://mazur-www.harvard.edu/education/educationmenu.php
PRS system (Method for Obtaining In Class Feedback)	PRS (Personal Response System) is one way of collecting immediate in class feedback. This method is • Anonymous • Simultaneous • Provides continual feedback to both students & teacher - Assists with student motivation & alertness - Answers can be archived - Answers can be tracked to individual student	A multiple choice question is posed Using an infrared wireless transmitters that looks like a television remote control, all students can answer the question and record their responses with a simple click of a button. Results are instantly charted and can be displayed only for the instructor to view, or displayed for the whole class	http://www.educue.com

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Think-Pair-Share (Turn to your partner)	Increases students' motivation to pay attention in class, obtains reflective and concise thoughts from students, provides students practice explaining difficult concepts to each other -Takes little class time -Small amount of faculty preparation to develop the question and possible answer(s) beforehand	- Pose an open-ended question or problem - Students think for 1 minute - Students pair up and share their answers for 2-3 minutes; perhaps coming up with a joint answer - Ask for a few students to briefly summarize answers, or have the class vote on an answer - Indicate the correct or possible answers	http://www.wcer.wisc.edu/nise/CL1/CL/doingcl/thinkps.htm
Pausing for Enhanced Retention	- Focuses on assimilating and clarifying the information - Minimal to no effort on the instructor's part - Loss of only 6 minutes of lecture time In an experiment in which control group received same lectures with no pauses, experimental group performed significantly better on a 65-item multiple choice test given 12 days after last lecture. Up to two letter grades difference in mean scores between two groups	- During a lecture, the instructor pauses for two minutes every 12 to 18 minutes - The students work in pairs to discuss and rework or fill in their notes - No interaction occurrs between students and instructor during these pauses	(Ruhl, Hughes and Schloss, 1987 in *Active Learning: Creating Excitement in the Classroom*, Bonwell & Eison, 1991 ASHE-ERIC Higher Education Reports)
Question-Answer Pairs	- Increases students' motivation to read before class, deepens students' level of analysis of the reading, provides students practice explaining difficult concepts - Takes little class time - Little faculty preparation or effort required	- Assign a pre-class reading - Students read the assignment and come to class with 1 or 2 written questions with answers - Students pair up; Student A asks Student B a question, Student B responds, Student B asks Student A a question, Student B responds - Faculty may be asked by students to verify accuracy of answers - Students can be asked to turn in questions/answers	http://www1.umn.edu/ohr/teachlearn/MinnCon/active.html

Simulation,
Debate,
Case Study,
Expert Panel,
Film Clip,
Demonstration,
Active Learning Lecture (See Attached For Active Learning Techniques)
Projects & Presentations,
Oral Report,
Written Product Review,
Prototype Design & Presentation,
Video Report
Self-Study

Research Report
Experiments
Interviews & Reports (Oral, Written, Video)
Skits