Graduate Instructor / Teaching Assistant Training

2013-2014

Hosted by:

The Center for Excellence in Teaching & Learning and the Graduate School
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Monday, August 19 – Learning Objectives and Assessments

1:00-1:05 Welcome – Susan Mossing & CETL Staff
1:10-1:40 Classroom Management – Ann Monroe, Education
2:30-3:00 Blackboard Quizzes & Gradebook – Penny Rice, FTDC
3:00-3:30 Bloom’s Taxonomy & Learning Objectives – Susan Mossing, CETL
3:30-4:00 Making a Vodcast – Anne Klingen, Director of Online Design & eLearning

Tuesday, August 20 – Assessments and Teaching Methods

1:00-1:10 Opening Remarks – John Kiss, Dean of Graduate School
1:10-1:30 Constructive Alignment & Use of Assessments – Nancy Wiggers, CETL
1:30-2:00 Engaging Student Learners – Caroline Turnage-Butterbaugh, Math; 2012-13 Graduate Instructor Excellence in Teaching Award Winner
2:00-3:00 Giving Effective Presentations – John O’Haver, Engineering
3:00-4:00 Using Argument to Engage and Teach – Eric Weber, Public Policy Ldrshp

Wednesday, August 21 – Campus Resources and Referrals

1:00-1:10 Opening Remarks – John Kiss, Dean of Graduate School
1:10-1:30 Office of the Registrar – Denise Knighton, Registrar’s Office
1:30-2:00 SIT/Counseling Center – Marc Showalter, Counseling Center
2:00-2:30 SDS/EORC – Stacey Reycraft, Student Disabilities Services
2:30-2:50 FABI & Attendance Scanners – Jennifer Bennett, Center for Student Success and First-Year Experience
2:50-3:15 Embedded AST Workshops – Rebekah Reysen, CETL
3:15-3:45 Academic Discipline – Lori Wolff, Educational Leadership
3:45-4:00 Graduate Assistantships – Christy Wyandt, Graduate School
Day 1

GI/TA Training - August 19, 2013
Managing the College Classroom

Structure

**Syllabus**
- Purpose
- Objectives
- Assignments
- Grading Scale
- Course Schedule
- Attendance Policy

**Routines**
- Arrive Early
- Taking Attendance
- Starting Class
  - Quizzes, Journaling, Do Nows
  - Schedule for the Day
- Document, Document, Document

**Accessibility**

**Materials**
- Blackboard/Google
- PowerPoints
- Course Information
- Assignments
- Study Guides

**Instructor**
- Email/Text/Twitter
  - Timely Response
- Before and After Class
- Office Hours
- Assistance with Course Content

Relationships

**Who Are Your Students?**
- Names
- Needs

**Who Are You?**
- Teacher Persona
  - Approachable
  - Avoid the Power Pitfalls
  - Rely on Your Structure

If All Else Fails...

**PEP it Up!!!!**

*Proximity*
*Eye Contact*
*Privacy*

Ann Monroe, Ed.D.
Assistant Professor
Department of Teacher Education
<table>
<thead>
<tr>
<th>Level</th>
<th>Products or Skills Demonstrated</th>
<th>Verbs or Question Cues</th>
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</thead>
<tbody>
<tr>
<td>Remembering</td>
<td>Definitions, fact charts, lists, recitations, worksheets</td>
<td>Define, duplicate, list, name, recall, reproduce, tell, underline</td>
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<tr>
<td>Understanding</td>
<td>Drawing, paraphrasing, peer teaching, concept map, story problems, summary</td>
<td>Calculate, describe, discuss, expand, explain, identify, locate, outline, report, restate</td>
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<tr>
<td>Applying</td>
<td>Collection, interview, model building, presentation, role playing, scrap book, simulation</td>
<td>Classify, demonstrate, dramatize, illustrate, practice, solve, use</td>
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<tr>
<td>Analyzing</td>
<td>Chart, plan, questionnaire, spreadsheet, summary, survey</td>
<td>Appraise, compare, contrast, differentiate, distinguish, examine, infer, outline, sequence, test</td>
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<tr>
<td>Evaluating</td>
<td>Critique, judgment, opinion, recommendation, report, self-evaluation</td>
<td>Appraise, defend, dispute, editorialize, judge, justify, prioritize, rate, select, support, verify</td>
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<tr>
<td>Creating</td>
<td>Animation, dissertation, invention, marketing project, multimedia presentation, podcast, program, web page</td>
<td>Change, combine, compose, create, design, formulate, hypothesize, improve, invent, predict</td>
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Day 2

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# Building Good Assessments!

What’s your plan? Test Specifications/Blueprint

<table>
<thead>
<tr>
<th>Course: ___________________________</th>
<th>Year: ____________</th>
<th>Semester: _____________</th>
<th>Test: ________</th>
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</table>

<table>
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<tr>
<th>Objective Tested</th>
<th>Cognitive Level</th>
<th>Total Items/objective</th>
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<tbody>
<tr>
<td></td>
<td>Knowledge</td>
<td>Comprehension</td>
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<tr>
<td>3.</td>
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<td>4.</td>
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<tr>
<td>5.</td>
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</tbody>
</table>

**Total # Items/level**

**Total # Items**

**Item Types**

- **Selected Response:** T/F, Multiple Choice, Matching
- **Constructed Response:** Completion (fill-in-blank), Short answer, Essay, Performance (solve problem, etc.)
## Selected Response
*(Scoring method: objective)*

<table>
<thead>
<tr>
<th>Test Item Types</th>
<th>Pros</th>
<th>Cons</th>
<th>Tips</th>
</tr>
</thead>
</table>
| **Student-selected Response** | Practical/reliable scoring  
Sample large amounts material  
Reading intensive | Difficult to assess upper cognitive levels  
Reading intensive | Beware validity threats, e.g. test-wise assessment |
| **True/False** | Assess misconceptions and cause-effect relationships | Guess factor high; difficult to create unambiguous items | Avoid absolute/imprecise language, e.g. never, might, many, etc.; Use (+) statements; Create all true statements, then convert at least 50% to false; make item lengths consistent |
| **Matching** | Assess relationships, facts, and definitions | Time consuming for students | Create homogenous groups not to exceed 15 items; keep response items short and logically ordered; articulate clearly the basis for matching; ensure all response items are good distractors |
| **Multiple Choice** | Assess all of the above; opportunities for good feedback via test analysis  
Best selected response option to assess higher cognitive levels | Construction difficult and lengthy, especially to create plausible distractors | Create 4-5 options to reduce guessing; try to use questions, not incomplete statements, as stems; stems articulate single question/problem; avoid excess verbiage; randomize correct responses; create plausible, visually consistent distractors |
<table>
<thead>
<tr>
<th>Test Item Types</th>
<th>Pros</th>
<th>Cons</th>
<th>Tips</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student-constructed Response</td>
<td>Reduce guessing; typically less construction time</td>
<td>Difficult for Practical/reliable scoring</td>
<td>Precise directions and consistent grading criteria; add sample work and training.</td>
</tr>
<tr>
<td>Completion</td>
<td>Assess knowledge, facts, terms, formulas</td>
<td>Difficult to grade written responses; Difficult to assess upper cognitive levels; Not most practical given assessment targets</td>
<td>Define acceptable response; prepare alternatives list before grading; avoid lengthy items with multiple blanks; blanks visually consistent.</td>
</tr>
<tr>
<td>Essay</td>
<td>Easier to construct; promote good review habits; assess multiple skills; allow for partial credit and formative feedback; present authentic task; easier to assess higher cognitive levels</td>
<td>Impractical for large groups; may limit content sampling</td>
<td>Avoid topic options; articulate task beyond “discuss” or “explain”; grade each item across students; publish grading model (analytic/holistic); include constructive comments; include item value/test grade; consider time/item.</td>
</tr>
<tr>
<td>Problem Solving</td>
<td>Assess several skills and objectives; easier to construct than selected response items; allow for partial credit and formative feedback; present authentic task; easier to assess higher cognitive levels</td>
<td>Might require much time to grade; opportunity for grading bias in partial credit instances</td>
<td>Contextualize problems; articulate acceptable response; consider time/item.</td>
</tr>
<tr>
<td>Performance</td>
<td>Directly assess objective; present authentic task; assess progress easier to assess higher cognitive levels</td>
<td>Lengthy prep, evaluation time and grading; opportunity for grading bias; rater inconsistency</td>
<td>Avoid simplistic product-oriented checklists; clearly articulate task; consider time carefully.</td>
</tr>
</tbody>
</table>
Day 3

GI/TA Training - August 21, 2013
ACADEMIC DISCIPLINE PROCESS
Academic Conduct and Discipline Policy (ACA.AR.600.01)
https://secure4.olemiss.edu/umpolicyopen/ShowDetails.jsp?istatPara=1&policyObjidPara=10817696

Lori A. Wolff, Ph.D., J.D.
Professor of Leadership Education
Director of Center for Educational Research and Evaluation
Current Chair of Academic Discipline Committee
lawolff@olemiss.edu
662-915-5791

ACADEMIC DISCIPLINE PROCESS
Initiating case not related to a course (through myOleMiss)*
• Students
• Academic Discipline
• Initiate Academic Discipline Case
• Enter student’s UMID number

*Only use this method if the alleged act of academic dishonesty is not part of a course. Plagiarizing on comprehensive exams is an example.

ACADEMIC DISCIPLINE PROCESS
Initiating case related to a course (through myOleMiss)
• Class Info
• Class Rolls and Grades
• Select Term and Year
• Choose Class
• Open Area left of Go
• Select Initiate Academic Discipline Case
• Click on Go
• Click on Initiate Case next to student involved

ACADEMIC DISCIPLINE PROCESS
Choosing sanction(s)

Case summary
• Seek to meet with student
• Discuss that meeting or attempt(s) to meet with student
• Discuss specifics of case

Are there supporting materials?
Did the student accept the proposed sanction(s)?
ACADEMIC DISCIPLINE PROCESS

Supporting Materials
• Upload files (pdf only) or
• Send to Provost's Office

Documentation Examples
• Safe Assignment report (direct link and pdf copy)
• Syllabus containing academic dishonesty policy
• Communication between faculty member and student

ACADEMIC DISCIPLINE PROCESS

Viewing Case Details
• Faculty Member* (through myOleMiss)
  - Students
  - Academic Discipline
  - View Cases (all) or View Case Details (need case number)

*Graduate Instructor should seek Department Chair assistance to view case details

ACADEMIC DISCIPLINE PROCESS

Once Case Initiated
• Automatic email to student; faculty member; chair of Academic Discipline Committee (ADC); and other department, college/school, and University officials
  - Case number and warning not to drop course
• Appeal window (14 calendar days) begins when case initiated
• Reminder email about appeal window sent 2 days before window closes
• Registrar’s Office sends letter with case details to student’s home address

ACADEMIC DISCIPLINE PROCESS

Viewing Case Details
• Student (through myOleMiss)
  - Student
  - Academic Discipline
  - View Cases Involving Me

To view documents associated with case, seek assistance from faculty member, ADC chair, or Provost’s Office
ACADEMIC DISCIPLINE PROCESS

Appeal (through myOleMiss)
- Student
- Academic Discipline
- Appeal to the Academic Discipline Committee
  - 14 calendar days from case initiation
  - Need case number (from email)
  - If additional documents to add to case, contact ADC chair or Provost’s Office for approval and assistance

ACADEMIC DISCIPLINE PROCESS

Process once Case Appealed to ADC
- ADC membership (10 members): faculty, Registrar’s/Provost’s Office, students (undergraduate and graduate)
- Two determinations
  - Is hearing necessary?
  - If no hearing, whether to uphold faculty member recommended sanction(s).

ACADEMIC DISCIPLINE PROCESS

Standards used by ADC for Appeals
- Preponderance of Evidence (more likely than not that act of academic dishonesty occurred)
- Abuse of Discretion (whether faculty member recommended sanction(s) within range of sanctions appropriate for alleged act of academic dishonesty)

ACADEMIC DISCIPLINE PROCESS

If hearing before ADC
- All parties will receive information from ADC chair or Provost’s Office on process
- Recorded
- Student (and faculty member) may have advocate at hearing
  - Advocate may not speak during hearing
- Student (and faculty member) may ask witnesses to appear at hearing (with proper notice to ADC)
ACADEMIC DISCIPLINE PROCESS

**Finality of ADC Decisions**
- Decision of ADC is final in all appealed cases, except where probation, suspension, and/or expulsion are among resulting sanctions
- Dean of Graduate School reviews and approves all decisions/sanctions in cases involving graduate students (whether or not case is appealed)

**Probation**
- Provost’s Office reviews and approves decision/sanction(s) (whether or not case is appealed)
- Typically probation for tenure

**Suspension/Expulsion**
- If student does not appeal to ADC, sanction becomes final
- If appeal to ADC, hearing granted, and suspension/expulsion resulting sanction after an ADC hearing, is an appeal avenue to the Chancellor
- 5 days to appeal after release of ADC decision (will receive automatic email notifying of appeal rights)
- Student, Academic Discipline, Appeal to the Chancellor
- Appeal is “on the record” with no further hearing or documentation allowed

**Communication of Final Determination of Case**
- From Registrar’s Office (regardless of whether appealed or whether a hearing)
- If appealed to ADC, student will receive automatic email once ADC decision is uploaded/released
- For cases appealed to the Chancellor, there may be a letter from that office as well

**Final Thoughts**
- Suspension/Expulsion will appear on transcript, but generally not other sanctions
- Application of forgiveness policy (or not)
- Limited option to drop course in which academic discipline case initiated
  - Only if case initiated before University’s course withdrawal date
  - Student must appeal and ADC members and faculty member must support request to drop course based on minor infraction and sanction
In-class Student Learning Workshops

College students often express confusion about how to study effectively. In order to help students develop better learning and studying strategies, the Center for Excellence in Teaching and Learning (CETL) offers workshops in the classroom where course content can be embedded into almost any study skill. These workshops can be requested by any instructor on campus, and for a variety of different topics.

Why request a study skills workshop?

- If you need to attend a conference and want to avoid cancelling class
- If you are bombarded by questions from students as to why they are receiving low grades on quizzes, tests, papers, and other assignments
- If you wish there was more time in the day to address important study skills and habits in addition to course content

Steps to requesting a workshop:

1. Submit online request form via CETL website
2. CETL staff will contact you and arrange a meeting to discuss workshop
3. CETL staff conducts workshop
4. Follow-up assessment is given to students
5. CETL staff shares with you the assessment results

Sample presentations that can be delivered in class include:

- Cornell Notes (classroom note-taking system)
- Mind Maps (understanding how basic ideas are related to each other)
- SQ4R (reading strategy to improve comprehension)
- Levels of Learning Test Preparation (Bloom’s Taxonomy)
- Test Analysis (analyzing where test prep fell short)
- Flash Cards (memorization technique)
- Etc.

Examples of worksheets used in student presentations and included in this packet:

- Cornell Notes (classroom note-taking system)
- Mind Maps (understanding how basic ideas are related to each other)
- Levels of Learning Test Preparation (Bloom’s Taxonomy)
  - Explanation of Bloom’s levels of understanding is included
Note-taking from Textbooks using the Mind Map System

Step 1. Speed-read the chapter twice. This should take approximately 5-10 minutes.

Step 2. Set up a mind map:
   a. In the center of the page, write the main idea (e.g., chapter title)
   b. Encircling the main idea, write the headings (subdivisions of the chapter)
   c. Encircling each heading, write the subheadings
   d. Leave space! This will be the skeleton of your mind map

Step 3. Read the chapter carefully
   a. As you read each section, expand your mind map to include important details that support the subheading
   b. When necessary, add additional levels to subheadings
   c. Make up note cards for basic terminology or concepts

Step 4. Integrate lecture notes with chapter notes
   a. Read your lecture notes and add them to your mind map
   b. Highlight information that was repeated in lecture
   c. Prepare questions on confusing points and go to office hours

Step 5. Prepare test questions on the material
   a. Match the level of your questions to the competency level of actual test
   b. Recruit questions from study group members and share

Step 6. The night before the test – RELAX and get a good night’s sleep
<table>
<thead>
<tr>
<th>Cornell Notes' Instructions</th>
<th>Step #1 – Write notes here during lecture or re-write notes here after class</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step #2 – After writing notes on the right, make “headings” or cues in this column</td>
<td>Continue your notes until you fill up a page. This side of the paper should have the most information. Imagine it as the paragraphs in your book, with the headings and subheadings in the right-hand column.</td>
</tr>
<tr>
<td>• Key word</td>
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<tr>
<td>• Question</td>
<td></td>
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<tr>
<td>• Name of concept</td>
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</tbody>
</table>

Step #4 – This space is left for you to write a summary of the notes on this page. It is intended as a quick reference. It would make sense to start a new page when you start a new topic in the day's lecture, even if the entire page is not filled up. That way, this summary is more coherent and focused rather than a combination of (unrelated) ideas.

Once you have created Cornell Notes for the day’s lecture, your Cornell Notes can be used as a study guide!

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Test Preparation/Study Guide

1) Choose a class with a test 1-2 weeks from now; (2) Make a list of specific topics that will be covered on the test; (3) Identify the source of information on that topic (e.g., lecture, power point slides, textbook, presentation); (4) Break entire list into 4-5 “chunks” that can be reviewed in 30-60 minute pieces; and (5) Assign a day/time to each topic “chunk”.

Class: _____________________________  Test date: ______________________

<table>
<thead>
<tr>
<th>List of topics that will be covered on upcoming test:</th>
<th>Source of info:</th>
<th>Study time:</th>
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</table>
Test Analysis/Levels of Learning (LoL)

Select a recent test that you have taken for careful analysis. The best test to study would be one on which you earned a lower grade than you had anticipated. (1) Set that test on the table in front of you; (2) List the test items that you missed; (3) Identify which Level of Learning was required of the test item; and (4) Ascertain whether the information was included on the study guide you developed or test prep material you used to study.

Test # __ for Class: ___________________________  Test date: ___________________________

<table>
<thead>
<tr>
<th>List of test items that you missed:</th>
<th>LoL: Remember – Apply – Analyze</th>
<th>Was info on study guide?</th>
</tr>
</thead>
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Resources

GI/TA Training - August 19-21, 2013
Interactive Techniques

Adapted in part from:
Thomas A. Angelo/K. Patricia Cross, *Classroom Assessment Techniques.*
Alison Morrison-Shetlar/Mary Marwitz, *Teaching Creatively: Ideas in Action.*
Silberman, Mel. *Active Learning: 101 Strategies to Teach Any Subject.*
Allyn and Bacon: Boston, 1996.
VanGundy, Arthur. *101 Activities for Teaching Creativity and Problem Solving.*

These techniques have multiple benefits: the instructor can easily and quickly assess if students have really mastered the material (and plan to dedicate more time to it, if necessary), and the process of measuring student understanding in many cases is also practice for the material—often students do not actually learn the material until asked to make use of it in assessments such as these. Finally, the very nature of these assessments drives interactivity and brings several benefits. Students are revived from their passivity of merely listening to a lecture and instead become attentive and engaged, two prerequisites for effective learning. These techniques are often perceived as “fun”, yet they are frequently more effective than lectures at enabling student learning.

Not all techniques listed here will have universal appeal, with factors such as your teaching style and personality influencing which choices may be right for you.

**Instructor Action: Lecture**

1. **Picture Prompt** – Show students an image with no explanation, and ask them to identify/explain it, and justify their answers. Or ask students to write about it using terms from lecture, or to name the processes and concepts shown. Also works well as group activity. Do not give the “answer” until they have explored all options first.
2. **Think Break** – Ask a rhetorical question, and then allow 20 seconds for students to think about the problem before you go on to explain. This technique encourages students to take part in the problem-solving process even when discussion isn’t feasible. Having students write something down (while you write an answer also) helps assure that they will in fact work on the problem.
3. **Choral Response** – Ask a one-word answer to the class at large; volume of answer will suggest degree of comprehension. Very useful to “drill” new vocabulary words into students.
4. **Instructor Storytelling** – Instructor illustrates a concept, idea, or principle with a real-life application, model, or case-study.
5. **Pass the Pointer** – Place a complex, intricate, or detailed image on the screen and ask for volunteers to temporarily borrow the laser pointer to identify key features or ask questions about items they don’t understand.
6. **Empty Outlines** – Distribute a partially completed outline of today’s lecture and ask
students to fill it in. Useful at start or at end of class.

7. **Classroom Opinion Polls** – Informal hand-raising suffices to test the waters before a controversial subject.

8. **Total Physical Response (TPR)** – Students either stand or sit to indicate their binary answers, such as True/False, to the instructor’s questions.

9. **Hand Held Response Cards** – Distribute (or ask students to create) standardized cards that can be held aloft as visual responses to instructor questions. Example: green card for true, red for false. Or hand-write a giant letter on each card to use in multiple choice questions.

10. **Student Polling** – Select some students to travel the room, polling the others on a topic relevant to the course, then report back the results for everyone.

11. **Self-Assessment of Ways of Learning** – Prepare a questionnaire for students that probes what kind of learning style they use, so the course can match visual/aural/tactile learning styles.

12. **Quote Minus One** – Provide a quote relevant to your topic but leave out a crucial word and ask students to guess what it might be: “I cannot forecast to you the action of ________; it is a riddle, wrapped in a mystery, inside an enigma.” This engages them quickly in a topic and makes them feel invested.

13. **Everyday Ethical Dilemmas** – Present an abbreviated case study with an ethical dilemma related to the discipline being studied.

14. **Polar Opposites** – Ask the class to examine two written-out versions of a theory (or corollary, law of nature, etc.), where one is incorrect, such as the opposite or a negation of the other. In deciding which is correct, students will have to examine the problem from all angles.

15. **Pop Culture** – Infuse your lectures, case studies, sample word problems for use during class with current events from the pop culture world. Rather than citing statistics for housing construction, for instance, illustrate the same statistical concept you are teaching by inventing statistics about something students gossip about, like how often a certain pop star appears in public without make-up.

16. **Make Them Guess** – Introduce a new subject by asking an intriguing question, something that few will know the answer to (but should interest all of them). Accept blind guessing for a while before giving the answer to build curiosity.

17. **Make It Personal** – Design class activities (or even essays) to address the real lives of the individual students. Instead of asking for reflections on Down’s Syndrome, ask for personal stories of neurological problems by a family member or anyone they have ever met.

18. **Read Aloud** – Choose a small text (500 words or less) to read aloud, and ask students to pay particular attention during this phase of lecture. A small text read orally in a larger lecture can focus attention.

19. **Punctuated Lectures** – Ask student to perform five steps: listen, stop, reflect, write, give feedback. Students become self-monitoring listeners.

20. **Word of the Day** – Select an important term and highlight it throughout the class session, working it into as many concepts as possible. Challenge students to do the same in their interactive activities.

21. **Recall, Summarize, Question, Connect, and Comment** – This method of starting each session (or each week) has five steps to reinforce the previous session’s material: recall it, summarize it, phrase a remaining question, connect it to the class as a whole, and comment on that class session.

22. **Focused Listing** – List several ideas related to the main focus point. Helpful for starting new topics.

23. **Background Knowledge Probe** – Use questionnaire (multi-choice or short answer) when introducing a new topic.

24. **Goal Ranking and Matching** – Students rank their goals for the class, then instructor combines those with her own list.

25. **Interest/Knowledge/Skills Checklist** – Assesses interest and preparation for the course, and can help adjust teaching agenda.

26. **Documented Problem Solutions** – Keep track of the steps needed to solve specific
types of problems. Model a list for students first and then ask them to perform similar steps.

**Instructor Action: Lecture (Small Class Size)**

27. **Pass the Chalk** – Provide chalk or a soft toy; whoever has it must answer your next question, and they pass it on to the student of their choice.

28. **Quaker Meeting** – Students highlight key passages of the reading, and there is silence (like a Quaker meeting) until someone wants to read his/her out, and others follow. End with brief writing about what they learned from the sentences.

29. **Town Hall Meeting** – Abdicate the front of the room for a student willing to speak out on a controversial subject, and when she is done with her comment, she selects the next speaker from the hands raised.

30. **The Half Class Lecture** – Divide the class in half and provide reading material to one half. Lecture on that same material to the other half of the class. Then, switch the groups and repeat, ending with a recap by pairing up members of opposite groups.

31. **Tournament** – Divide the class into at least two groups and announce a competition for most points on a practice test. Let them study a topic together and then give that quiz, tallying points. After each round, let them study the next topic before quizzing again. The points should be carried over from round to round. The student impulse for competition will focus their engagement onto the material itself.

**Student Action: Individual (many of these can be used as partnerwork or groupwork instead; or may escalate to that after some individual effort)**

32. **One-Minute Papers** – Students write for one minute on a specific question (which might be generalized to “what was the most important thing you learned today”). Best used at the end of the class session.

33. **Muddiest Point** – Like the Minute Paper, but asks for the “most confusing” point instead. Best used at the end of the class session.

34. **Misconception Check** – Discover class’s preconceptions. Useful for starting new chapters.

35. **Drawing for Understanding** – Students illustrate an abstract concept or idea. Comparing drawings around the room can clear up misconceptions.

36. **Circle the Questions** – Pre-make a handout that has a few dozen likely student questions (make them specific) on your topic for that day and ask students to circle the ones they don’t know the answers to, then turn in the paper.

37. **Ask the Winner** – Ask students to silently solve a problem on the board. After revealing the answer, instruct those who got it right to raise their hands (and keep them raised); then, all other students are to talk to someone with a raised hand to better understand the question and how to solve it next time.

38. **What’s the Principle** – After recognizing the problem, students assess what principle to apply in order to solve it. Helps focus on problem TYPES rather than individual specific problems. Principle(s) should be listed out.

39. **Haiku** – Students write a haiku (a three-line poem: 5-syllables, then 7, then 5) on a given topic or concept, and then share it with others.

40. **Bookmark Notes** – Distribute full-length paper to be used as a bookmark for the current chapter. On it, record prompts and other “reading questions”, and require students to record their notes, observations, and objections while reading onto these bookmarks for collection and discussion in class.

41. **True or False?** – Distribute index cards (one to each student) on which is written a statement. Half of the cards will contain statements that are true, half false. Students decide if theirs is one of the true statements or not, using whatever means they desire. Variation: designate half the room a space for those who think their statements are true, and the other half for false.
42. **“Real-World”** – Have students discuss in class how a topic or concept relates to a real-world application or product. Then have students write about this topic for homework. Variation: ask them to record their answer on index cards.

43. **Concept Mapping** – Students write keywords onto sticky notes and then organize them into a flowchart. Could be less structured: students simply draw the connections they make between concepts.

44. **Advice Letter** – Students write a letter of advice to future students on how to be successful students in that course.

45. **Tabloid Titles** – Ask students to write a tabloid-style headline that would illustrate the concept currently being discussed. Share and choose the best.

46. **Bumper Stickers** – Ask students to write a slogan-like bumper sticker to illustrate a particular concept from lecture. Variation: can be used to ask them to sum up the entire course in one sentence.

47. **One-Sentence Summary** – Summarize the topic into one sentence that incorporates all of who/what/when/where/why/how creatively.

48. **Directed Paraphrasing** – Students asked to paraphrase part of a lesson for a specific audience (and a specific purpose).

49. **Word Journal** – First, summarize the entire topic on paper with a single word. Then use a paragraph to explain your word choice.

50. **Truth Statements** – Either to introduce a topic or check comprehension, ask individuals to list out “It is true that...” statements on the topic being discussed. The ensuing discussion might illustrate how ambiguous knowledge is sometimes.

51. **Objective Check** – Students write a brief essay in which they evaluate to what extent their work fulfills an assignment’s objectives.

52. **Opposites** – Instructor lists out one or more concepts, for which students must come up with an antonym, and then defend their choice.

53. **Student Storytelling** – Students are given assignments that make use of a given concept in relation to something that seems personally relevant (such as requiring the topic to be someone in their family).

54. **Application to Major** – During last 15 minutes of class, ask students to write a short article about how the point applies to their major.

55. **Pro and Con Grid** – Students list out the pros and cons for a given subject.

56. **Harvesting** – After an experience/activity in class, ask students to reflect on “what” they learned, “so what” (why is it important and what are the implications), and “now what” (how to apply it or do things differently).

57. **Chain Notes** – Instructor pre-distributes index cards and passes around an envelope, on which is written a question relating to the learning environment (i.e., are the group discussions useful?) Students write a very brief answer, drop in their own card, and pass the envelope to the next student.

58. **Focused Autobiographical Sketches** – Focuses on a single successful learning experience, one relevant to the current course.

59. **Course-Related Self-Confidence Surveys** – Simple questions that measure how self-confident students are when it comes to a specific skill. Once they become aware they can do it, they focus on it more.

60. **Profiles of Admirable Individuals** – Students write a brief profile of an individual in a field related to the course. Students assess their own values and learn best practices for this field.

61. **Memory Matrix** – Identify a key taxonomy and then design a grid that represents those interrelationships. Keep it simple at first. Avoid trivial or ambiguous relationships, which tend to backfire by focusing students on superficial kinds of learning. Although probably most useful in introductory courses, this technique can also be used to help develop basic study skills for students who plan to continue in the field.

62. **Categorizing Grid** – Hand out rectangles divided into cells and a jumbled listing of terms that need to be categorized by row and column.

63. **Defining Features Matrix** – Hand out a simple table where students decide if a defining feature is PRESENT or ABSENT. For instance, they might have to read through
several descriptions of theories and decide if each refers to behaviorist or constructivist models of learning.

64. **What/How/Why Outlines** – Write brief notes answering the what / how / why questions when analyzing a message or text.

65. **Approximate Analogies** – Students provide the second half of an analogy (A is to B as X is to Y).

66. **Problem Recognition Tasks** – Offer case studies with different types of problems and ask students to identify the TYPE of problem (which is different from solving it)

67. **Switch it up!** – Ask students to work on one problem for a few minutes and intentionally move to a second problem without debriefing the first one, then solve the second one and only then return to the first one for more work. A carefully chosen second problem can shed light on the first problem, but this also works well if the problems are not directly related to each other.

68. **Reading Rating Sheets** – Students fill out a ratings sheet on the course readings, on how clear, useful, and interesting it was.

69. **Assignment Assessments** – Students give feedback on their homework assignments, and evaluate them as learning tools.

70. **Exam Evaluations** – Students explain what they are learning from exams, and evaluate the fairness, usefulness, and quality of tests.

71. **Group-Work Evaluations** – Questionnaires asking how effective groupwork has been in the class.

72. **Teacher-Designed Feedback Forms** – Rather than use standardized evaluation forms, teachers create ones tailored for their needs and their classes. Especially useful midway through the term.

73. **Writing Fables** – Students write an animal fable (or at least sketch its outline) that will lead to a one-sentence moral matching the current concept discussed in class. May be done verbally instead.

**Student Action: Pairs**

74. **Think-Pair-Share** – Students share and compare possible answers to a question with a partner before addressing the larger class.

75. **Pair-Share-Repeat** – After a pair-share experience, ask students to find a new partner and debrief the wisdom of the old partnership to this new partner.

76. **Teacher and Student** - Individually brainstorm the main points of the last homework, then assign roles of teacher and student to pairs. The teacher's job is to sketch the main points, while the student's job is to cross off points on his list as they are mentioned, but come up with 2-3 ones missed by the teacher.

77. **Wisdom of Another** – After any individual brainstorm or creative activity, partner students up to share their results. Then, call for volunteers of students who found their partner's work to be interesting or exemplary. Students are sometimes more willing to share in plenary the work of fellow students than their own work.

78. **Forced Debate** – Students debate in pairs, but must defend the opposite side of their personal opinion. Variation: half the class take one position, half the other. They line up and face each other. Each student may only speak once, so that all students on both sides can engage the issue.

79. **Optimist/Pessimist** – In pairs, students take opposite emotional sides of a conversation. This technique can be applied to case studies and problem solving as well.

80. **Peer Review Writing Task** – To assist students with a writing assignments, encourage them to exchange drafts with a partner. The partner reads the essay and writes a three-paragraph response: the first paragraph outlines the strengths of the essay, the second paragraph discusses the essay’s problems, and the third paragraph is a description of what the partner would focus on in revision, if it were her essay.

81. **Invented Dialogues** – Students weave together real quotes from primary sources, or invent ones to fit the speaker and context.
82. **My Christmas Gift** – Students mentally select one of their recent gifts as related to or emblematic of a concept given in class, and must tell their partners how this gift relates to the concept. The one with a closer connection wins.

83. **Psychoanalysis** – Students get into pairs and interview one another about a recent learning unit. The focus, however, is upon analysis of the material rather than rote memorization. Sample Interview Questions: Can you describe to me the topic that you would like to analyze today? What were your attitudes/beliefs before this topic? How did your attitudes/beliefs change after learning about this topic? How will/have your actions/decisions altered based on your learning of this topic? How have your perceptions of others/events changed?

**Student Action: Groups**

84. **Jigsaw (Group Experts)** – Give each group a different topic. Re-mix groups with one planted “expert” on each topic, who now has to teach his new group.

85. **Board Rotation** – Assign groups of students to each of the boards you have set up in the room (four or more works best), and assign one topic/question per board. After each group writes an answer, they rotate to the next board and write their answer below the first, and so on around the room.

86. **Pick the Winner** – Divide the class into groups and have all groups work on the same problem and record an answer/strategy on paper. Then, ask groups to switch with a nearby group, and evaluate their answer. After a few minutes, allow each set of groups to merge and ask them to select the better answer from the two choices, which will be presented to the class as a whole.

87. **Layered Cake Discussion** - Every table/group works on the same task for a few minutes, then there’s a plenary debrief for the whole class, and finally repeat with a new topic to be discussed in the groups.

88. **Lecture Reaction** – Divide the class into four groups after a lecture: questioners (must ask two questions related to the material), example givers (provide applications), divergent thinkers (must disagree with some points of the lecture), and agreers (explain which points they agreed with or found helpful). After discussion, brief the whole class.

89. **Movie Application** – In groups, students discuss examples of movies that made use or a concept or event discussed in class, trying to identify at least one way the movie makers got it right, and one way they got it wrong.

90. **Student Pictures** – Ask students to bring their own pictures from home to illustrate a specific concept to their working groups.

91. **Definitions and Applications** – In groups, students provide definitions, associations, and applications of concepts discussed in lecture.

92. **TV Commercial** – In groups, students create a 30-second TV commercial for the subject currently being discussed in class. Variation: ask them to act out their commercials.

93. **Blender** – Students silently write a definition or brainstorm an idea for several minutes on paper. Then they form into groups, and two of them read their ideas and integrate elements from each. A third student reads his, and again integration occurs with the previous two, until finally everyone in the group has been integrated (or has attempted integration).

94. **Human Tableau or Class Modeling** – Groups create living scenes (also of inanimate objects) which relate to the classroom concepts or discussions.

95. **Build From Restricted Components** – Provide limited resources (or a discrete list of ideas that must be used) and either literally or figuratively dump them on the table, asking students in groups to construct a solution using only these things (note: may be familiar from the *Apollo 13* movie). If possible, provide red herrings, and ask students to construct a solution using the minimum amount of items possible.

96. **Ranking Alternatives** – Teacher gives a situation, everyone thinks up as many alternative courses of action (or explanations of the situation) as possible. Compile list. In groups, now rank them by preference.
97. **Simulation** – Place the class into a long-term simulation (like as a business) to enable Problem-Based Learning (PBL).

98. **Group Instructional Feedback Technique** – Someone other than the teacher polls groups on what works, what doesn’t, and how to fix it, then reports them to the teacher.

99. **Classroom Assessment Quality Circles** – A small group of students forms a “committee” on the quality of teaching and learning, which meets regularly and includes the instructor.

100. **Audio and Videotaped Protocols** – Taping students while they are solving problems assesses the learner’s awareness of his own thinking.

101. **Imaginary Show and Tell** – Students pretend they have brought an object relevant to current discussion, and “display” it to the class while talking about its properties.

102. **Six Degrees of “RNA Transcription Errors”** – Like the parlor game “Six Degrees of Kevin Bacon” (in which actors are linked by joint projects), you provide groups with a conceptual start point and challenge them to leap to a given concept in six moves or fewer. One student judge in each group determines if each leap is fair and records the nature of the leaps for reporting back to the class.

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**Facebook**

103. **Replace Discussion Boards** - Create a Facebook “group” (private/invite only) and use the Wall as the class discussion board. Students are notified by home page notification when someone replies to their thread.

104. **Notify Students Quickly** – Posting to Facebook will reach your students much faster than an email, because most of them check Facebook regularly.

105. **Fan Page** - An alternative to a group is a “fan” page, which has the advantage that your ”status updates” will show up for students on their Live Feed. Disadvantage: some students turn off Live Feed and only see status updates of their friends.

106. **Direct Facebook Friendship** - Allowing your students to “friend” you will give you unfettered access to them (unless they’ve set up a special role for you), but more importantly, your status updates will be visible to them on the home page (unless they block you manually). Disadvantage: too much information will be revealed on both sides, unless both you and the students set up “lists” with limited access allowed.

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**Twitter**

107. **Report from the Field** – Students use smart phones to record their observations while witnessing an event/location related to the course of study, capturing more honest and spontaneous reactions.

108. **Twitter Clicker Alternative** - In large classes, a hashtag can amalgamate all posts by your students in one place, giving them a free-response place to provide feedback or guess at a right answer. Also useful for brainstorming.

109. **Backchannel Conversations in Large Classes** – unlike a whispered conversation, a Twitter conversation (searchable by agreed-upon hashtag) becomes a group discussion. Students may also help out other students who missed a brief detail during the lecture.

110. **Follow an Expert** – Luminaries in many disciplines, as well as companies and governmental agencies, often publish a Twitter feed. Reading such updates provides a way to stay current.

111. **Tweeted Announcements** - Instead of Blackboard, use Twitter to send out announcements like cancelled classes.

112. **Twitter Pictures and URLs** - Twitpic and other services allows for photo upload to twitter; bit.ly and other “link shorteners” allow for pasting long URLs as short ones.

113. **Student Summaries** - Make one student the “leader” for tweets; she posts the top five important concepts from each session to twitter (one at a time); other students follow her feed and RT for discussion/disagreements.
114. **Quick Contact** - Since sharing cell phone numbers is risky, instructors may wish to let students follow them on Twitter and send Direct Messages that way and belonging.

115. **Community-Building** - A Twitter group for your specific class creates inclusiveness and belonging.

116. **Twitter Projects** - Tweeteworks and other apps can enable student groups to communicate with each other more easily.

117. **Brainstorm** - Small Twitter assignments can yield unexpected brainstorming by students, since it is happening “away” from the LMS.

118. **Twitter Poll** - PollDaddy and other apps enable Twitter to gather interest, information, attitudes, and guesses.

119. **Post Links** - News stories and other websites can be linked via Twitter (services such as bitly will shorten URLs).

**YouTube**

120. **Video Demonstrations** - Using a webcam, record a demonstration relevant to your topic and post it to YouTube.

121. **Student Videos** - Student projects, presentations, or speeches can take the form of video instead of PowerPoint, and uploaded for the class to see.

122. **Closed Eyes Method** – To prevent students at home from “reading” presentations (such as poem recitations) that were supposed to be memorized for YouTube upload, require them to give the performance with their eyes closed.

123. **Interactive Video Quizzes** - Using annotations (text boxes) and making them hyperlinks to other uploaded videos, instructors can construct an on-screen “multiple choice” test leading to differentiated video reactions, depending on how the student answers. Requires filming multiple videos and some editing work.

124. **Movie Clips** - Show brief segments of popular movies to illustrate a point, start a conversation, have students hunt for what the movie gets wrong, etc.

125. **Embed Into PowerPoint** - YouTube videos can be embedded into PPT as long as there is an active Internet connection; create a Shockwave Flash object in the Developer tab, and add the URL for “Movie” in the properties (the URL will need to replace “watch?v=” with just “/v/”). Alternative: use one-button plugin from [iSpring Free](#).

126. **Shared Account** – Instructor creates a generic YouTube username/account and gives the password to everyone in the class, so student uploads all go to the same place.

**Wikis**

127. **Group Wiki Projects** - Instead of emailing a document (or PPT) back and forth, student groups can collaborate in real time with a free wiki such as wikispaces.com

128. **Wiki Class Notes** - Offering a class wiki for the optional sharing of lecture notes aids students who miss class, provides a tool for studying, and helps students see the material from more than one perspective.

**Blogs**

129. **Questions to Students** - Use the blog to “push” questions and discussion prompts to students like you would email, but in a different forum.

130. **Provide Links** - The native HTML nature of the blog makes it easy to give links to news stories and relevant websites.

131. **Substitute for Blackboard Discussion Board** - Students can comment on each post (or previous comment) and engage in a dialogue that is similar to Blackboard, but while out in the Internet in general.

132. **Electronic Role Play** - Students create their own blogs, and write diary-type entries while role-playing as someone central to your content.
Creating Groups

133. **Quick Division** – Divide your class into two roughly equal segments for simultaneous, parallel tasks by invoking their date of birth: “if your birthday falls on an odd-numbered day, do task X...if your birthday is even, do task Y.” Other variations include males and females, months of birth, odd or even inches in their height (5’10” vs 5’11”).

134. **Question and Answer Cards** – Make index cards for every student in the class; half with questions about class content; half with the right answers. Shuffle the cards and have students find their appropriate partner by comparing questions and answers on their own cards.

135. **Telescoping Images** – When you need the class to form new groups, craft sets of index cards that will be grouped together by theme, and randomly pass them out for students to seek the other members of their new groups. Example: one set of four index cards has pictures of Europe on a map, then France, then the Eiffel Tower, then a person wearing a beret (thematically, the images “telescope” from far away to close up, and the students must find others in their particular set of telescoping images).

136. **Speed Sharing** – Students write definitions, concepts, quiz questions, etc. on index cards and form two concentric circles, facing each other. For thirty seconds (or 60), they share their knowledge with the person opposite them. Then, the outer circle “rotates” so that everyone has a new partner, and the sharing is repeated. This can be done until each student has completed the circuit.

137. **Trio Rotation** – Group students into threes, and arrange the groups into a large circle. Each team of three works on a problem. Then, each team assigns a 1, 2, and 3 number to each person. The 1’s stay put, but the 2’s rotate clockwise and the 3’s rotate counterclockwise. Newly formed teams then work on a new problem.

138. **Go to Your Post** – Tape a sign onto opposite sides of the walls with different preferences (different authors, skills, a specific kind of problem to solve, different values) and let students self-select their working group.

139. **Four Corners** – Put up a different topic in each corner of the room and ask students to pick one, write their ideas about it down, then head to “their” corner and discuss opinions with others who also chose this topic.

Icebreakers

140. **Introduce Your Partner’s Non-Obvious Trait** – Students partner up and are tasked with learning one thing about the other person that is not obvious by looking at them. Then, they introduce their partner to the larger class. Instructors can use this time to record a crude seating chart of the students and begin to learn their names.

141. **Scrapbook Selection** – Put students in groups and give each group a big pile of printed photos (best if laminated – maybe different shapes/sizes?) Ask them to choose one as a group that epitomizes their reaction/definition of the topic being discussed, and explain why.

142. **Brush with Fame** – Students relate their closest encounter with someone famous, even if it has to be a story about something that happened to a friend or relative.

143. **Name Game** – Students form circles in groups of 8-10 and one at a time state their name with an alliterative action: “I’m Jumping James!” Optimally, they should perform the action as well. They proceed around the circle, stating names and performing the actions, adding names one at a time, until the last person in the circle will have to say everyone’s name and perform all the actions.

144. **Human Bingo** – Students become acquainted at the start of a semester by performing a scavenger hunt you design as a handout: “find someone who dislikes carrots, someone who owns a German car, someone who has read a book about submarines, etc.”

145. **Line Dance** – Students line up according to their level of agreement on a controversial subject: strong agreement on one side, strong disagreement on the other.
146. **Two Truths and a Lie** – Go around the room and ask each student to relate two true statements and one falsehood about themselves, without giving away which is false.

**Games (Useful for Review)**

147. **Crossword Puzzle** – Create a crossword puzzle as a handout for students to review terms, definitions, or concepts before a test. Some online websites will automate the puzzle creation.

148. **Jeopardy** – Play jeopardy like the TV show with your students. Requires a fair amount of preparation.

149. **Pictionary** – For important concepts and especially terms, have students play Pictionary: one draws images only, the rest must guess the term.

150. **Super-Password** – Also for concepts and terms; one student tries to get his partner to say the key term by circumlocution, and cannot say any of the “forbidden words” on a card prepared ahead of time.

151. **Guess the Password** – The instructor reveals a list of words (esp. nouns) one at a time and at each point, ask students to guess what key term they are related to. The hints become increasingly specific to make the answer more clear.

152. **Twenty Questions** – Assign a person, theory, concept, event, etc to individual students and have the partner ask yes/no questions to guess what the concept is. Also works on a plenary level, with one student fielding the questions from the whole class.

153. **Hollywood Squares** – Choose students to sit as “celebrities” at the front of the class. Variation: allow the celebrities to use books and notes in deciding how to help the contestants.

154. **Scrabble** – Use the chapter (or course) title as the pool of letters from which to make words (e.g., mitochondrial) and allow teams to brainstorm as many words as possible from that list, but all words must be relevant to this test. Variation: actually play scrabble on boards afterward.

155. **Who am I?** – Tape a term or name on the back of each student, out of view. Each student then wanders about the room, posing yes/no questions to the other students in an effort to guess the term on his own back.

**Interaction Through Homework**

156. **Find the Company** – Students search the Internet for a corporation that makes use of concepts/ideas from class, and must defend their choice in the next class session.

157. **Diagnostic Learning Logs** – Students track main points in lecture and a second list of unclear points. They then reflect on and analyze the information and diagnose their weaknesses.

158. **Process Analysis** – Students track the steps they take to finish an assignment and comment on their approaches to it.

159. **Productive Study-Time Logs** – Short records students keep on how long they study for a class; comparison allows those with lesser commitment to see the disparity.

160. **Double-Entry Journals** – Students note first the important ideas from reading, and then respond personally.

161. **Paper or Project Prospectus** – Write a structured plan for a term paper or large project.

162. **Annotated Portfolios** – Student turns in creative work, with student’s explanation of the work in relation to the course content and goals.

**Student Questions**

163. **Student Questions (Index Cards)** – At the start of the semester, pass out index cards and ask each student to write a question about the class and your expectations. The cards rotate through the room, with each student adding a check-mark if they agree this question is important for them. The teacher learns what the class is most anxious
about.

164. **Student Questions (Group-Decided)** – Stop class, group students into fours, ask them to take five minutes to decide on the one question they think is crucial for you to answer right now.

165. **Questions as Homework** – Students write questions before class on 3x5 cards: “What I really wanted to know about mitochondrial DNA but was afraid to ask...

166. **Student-Generated Test Questions** – Students create likely exam questions and model the answers. Variation: same activity, but with students in teams, taking each other's quizzes.

167. **Minute Paper Shuffle** – Ask students to write a relevant question about the material, using no more than a minute, and collect them all. Shuffle and re-distribute, asking each student to answer his new question. Can be continued a second or third round with the same questions.

**Role-Play**

168. **Role-Playing** – Assign roles for a concept, students research their parts at home, and they act it out in class. Observers critique and ask questions.

169. **Role Reversal** – Teacher role-plays as the student, asking questions about the content. The students are collectively the teacher, and must answer the questions. Works well as test review/prep.

170. **Jury Trial**. Divide the class into various roles (including witnesses, jury, judge, lawyers, defendant, prosecution, audience) to deliberate on a controversial subject.

171. **Press Conference** – Ask students to role-play as investigative reporters asking questions of you, the expert on the topic. They should seek a point of contradiction or inadequate evidence, hounding you in the process with follow-up questions to all your replies.

172. **Press Conference (Guest Speaker)** – Invite a guest speaker and run the class like a press conference, with a few prepared remarks and then fielding questions from the audience.

173. **Analytic Memo** – Write a one-page analysis of an issue, roleplaying as an employer or client.

**Student Presentations**

174. **Fishbowl** – A student unpacks her ideas and thoughts on a topic in front of others, who take notes and then write a response. Avoid asking questions.

175. **Impromptu Speeches** – Students generate keywords, drop them into a hat, and self-choose presenters to speak for 30 seconds on each topic.

176. **Anonymous Peer Feedback** – For student presentations or group projects, encourage frank feedback from the observing students by asking them to rip up a page into quarters and dedicating comments to each presenter. Multiple variations are possible in “forcing” particular types of comments (i.e., require two compliments and two instances of constructive feedback). Then, ask students to create a pile of comments for Student X, another pile for Student Y, and so on.

177. **PowerPoint Presentations** – For those teaching in computer-mediated environments, put students into groups of three or four students. Students focus their attention on a chapter or article and present this material to the class using PowerPoint. Have groups conference with you beforehand to outline their presentation strategy and ensure coverage of the material.

**Brainstorming**

178. **Brainstorming on the Board** – Students call out concepts and terms related to a topic about to be introduced; the instructor writes them on the board. If possible, group them into categories as you record the responses. Works to gauge pre-existing
knowledge and focus attention on the subject.

179. **Brainstorming Tree** – While brainstorming on the board, circle the major concepts and perform sub-brainstorms on those specific words; the result will look like a tree blooming outward.

180. **Brainstorming in a Circle** – Group students to discuss an issue together, and then spend a few minutes jotting down individual notes. One person starts a brainstorming list and passes it to the student to the right, who then adds to the list and passes it along again.

181. **Chalk Talk** – Ask students to go to multiple boards around the room to brainstorm answers to a prompt/assignment, but disallow all talking. Can also be done in groups.

**Online Interaction**

182. **Online Chat (All-Day)** – For classes meeting at least partially in an online environment, instructors can simulate the benefits gained by a chat-room discussion (more participation from reserved instructors) without requiring everyone to meet in a chat room for a specific length of time. The day begins with a post from the instructor in a discussion board forum. Students respond to the prompt, and continue to check back all day, reading their peers’ posts and responding multiple times throughout the day to extend discussion.

183. **Online Chat (Quick)** – To gauge a quick response to a topic or reading assignment, post a question, and then allow students to chat in a synchronous environment for the next 10 minutes on the topic. A quick examination of the chat transcript will reveal a multitude of opinions and directions for further discussion. In online environments, many students can “talk” at once, with less chaotic and more productive results than in a face-to-face environment.

184. **Online Evaluation** – For those teaching in online environments, schedule a time which students can log on anonymously and provide feedback about the course and your teaching. Understand, however, that anonymity online sometimes breeds a more aggressive response than anonymity in print.

185. **Pre-Class Writing** – A few days before your computer-mediated class begins, have students respond in an asynchronous environment to a prompt about this week’s topic. Each student should post their response and at least one question for further discussion. During the face-to-face meeting, the instructor can address some of these questions or areas not addressed in the asynchronous forum.

186. **E-Mail Feedback** – Instructor poses questions about his teaching via e-mail; students reply anonymously.
<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
<th>Purpose</th>
<th>Advantages</th>
<th>Disadvantages</th>
<th>Suggestions for use</th>
</tr>
</thead>
</table>
| Minute Paper       | At the end of class students are asked to use index cards or half-sheets of paper to provide written feedback to the following questions:  
• “What was the most important thing you learned during this class?”  
• “What important question remains unanswered?” | • Assess student understanding of material.  
• Identify the need for mid-course adjustments.  
• Helps students identify important points. | • Provides immediate feedback to instructors.  
• Allow instructors to quickly respond to student questions.  
• Quick and easy.  
• Very flexible. | • Overuse may lead students to think of it as perfunctory.  
• Difficult to develop clear questions that are easy to answer in a short amount of time.  
• Instructor response may take longer than expected.  
• Instructor usually cannot respond to all questions asked. | • Lecture/discussion courses.  
• Large classes.  
• Courses that regularly present students with large amounts of information.  
• Manage student expectations by making it clear that you may not be able to respond to all questions. |
| Muddiest Point     | At the end of class students provide written feedback to the question “What was the muddiest [least clear] point in _____?” The question may be applied to lectures, reading assignments, discussion, or a video/film. Instructors then use the student responses to focus the next class meeting.  
• “What was the muddiest point in today’s lecture?” | • Identifies what students find least clear about a particular lesson or topic.  
• Helps instructor identify which points to emphasize in class. | • Quick and easy to administer.  
• Requires little instructor preparation.  
• Identifies student comprehension difficulties  
• Provides shy students an opportunity to ask questions.  
• Promotes more careful listening from students. | • Students may focus only on what they do not understand.  
• Students may raise questions that are difficult to answer. | • Large, lower-division courses.  
• Manage student expectations by making it clear that you may not be able to respond to all questions. |
| One-Sentence Summary | Students are asked to summarize a large amount of information into a one-sentence summary that answers the questions:  
• “Who does what to whom, when, where, how and why?” | • Helps students learn to synthesize and summarize information into “chunks” that can be recalled more easily.  
• Students learn to express ideas in their own language. | • Quick and easy way to assess students’ ability to organize information and summarize their understanding.  
• Facilitates meaningful leaning through the “chunking” of information and use of non-technical language. | • May oversimplify material.  
• Cannot be used with material that has multiple answers to the core questions. | • Best for content that has clear parameters or is factual in nature.  
• The instructor should be able to successfully complete the exercise prior to administering it. |
### Easy to Use Classroom Assessment Techniques (CATs)

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<tr>
<th>Type</th>
<th>Description</th>
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<th>Advantage</th>
<th>Disadvantage</th>
<th>Suggestions for use</th>
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</table>
| Application Cards | After presenting a principle, theory or procedure, the instructor gives students index cards and they are asked to develop at least one real-world application of what they learned:  
• “According to Newton, ‘To every action there is always opposed an equal reaction.’ Give an application of Newton’s Third Law from everyday life.” | Students demonstrate learning by applying the concept.  
• Forces students to connect past and present knowledge.  
• Helps demonstrate relevance of the material. | Quick and easy  
• Demonstration of real-world relevance may increase student interest in the topic/subject.  
• Promotes higher-order thinking.  
• Provides instructors with examples to use in the future. | Not all concepts have real-world applications.  
• Shifts focus from the abstract to the concrete.  
• Students may miss the general concept and remember only the application examples. | Relevant to all subjects, but is particularly useful in the social sciences, applied disciplines and technical education.  
• Adaptable to a wide variety of class types and sizes |
| Pro and Con Lists  | Students create a list of pro and con outcomes to a question or situation presented by the instructor.  
• “After reading Shakespeare’s *Hamlet*, imagine you are Hamlet and list three pros and three cons of murdering your stepfather, Claudius.” | Students demonstrate depth of knowledge by identifying two sides of an issue. | Helps to illustrate the complexity of concepts/issues.  
• Helps students develop analytical skills.  
• Promotes higher-order thinking. | Some issues may have more than two sides so it risks oversimplifying more complex issues.  
• Some students may reject the idea that there are two sides to some moral or ethical issues.  
• Possibility for controversy. | Any course where questions of value are an explicit learning objective.  
• Particularly useful in humanities, social science, and public policy courses or in applied fields where multiple solutions to problems are possible. |
| Electronic Discussion Boards | Students respond to instructor questions via electronic discussion board.  
• “How could my PowerPoint presentations be improved?” | To receive simple and immediate feedback from students about instruction or other class issues. | Allows for quick feedback.  
• Doesn’t use class time.  
• Students have the convenience of responding asynchronously as their time allows.  
• Allows for discussion of issues by multiple individuals and more detailed responses from instructor. | Response rates may be low unless students are given an incentive to participate.  
• Responses are not anonymous.  
• Requires access to an electronic discussion forum (e.g., Blackboard).  
• All students enrolled will have access to responses. | Courses where Blackboard or some other electronic discussion forum is already in use.  
• Possible to adapt other feedback devices for use in this format. |
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<tr>
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<th>Disadvantage</th>
<th>Suggestions for use</th>
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<tbody>
<tr>
<td>Directed Paraphrasing</td>
<td>Students are asked to paraphrase part of a lesson for a specific audience and purpose using their own words.</td>
<td>• Assesses students’ ability to restate important concepts in their own words.</td>
<td>• Demonstration of real-world relevance may increase student interest in the topic/subject.</td>
<td>• Can take considerable time and effort to assess adequately.</td>
<td>• Relevant to most subjects, but is particularly useful in the applied disciplines and technical education. Must be used multiple times during the course to be useful. Instructors should set strict time limits for completion.</td>
</tr>
<tr>
<td>Memory Matrix</td>
<td>A simple table with rows and columns representing key concepts and their relationships. When students fill in the blank cells in the table they provide an easily assessable demonstration of their understanding.</td>
<td>• To assess students’ ability to recall factual information and their skill at organizing it into meaningful relational categories</td>
<td>• Quick and easy.</td>
<td>• Doesn’t allow students to use their own categorizing schemes.</td>
<td>Introductory courses that require the recall of a large amount of categorical information. Particularly well suited for courses in the natural sciences, foreign languages, music, history and law. Instructors should start with a simple matrix until students are familiar with the technique.</td>
</tr>
<tr>
<td>Exam Evaluations</td>
<td>Students self-evaluate what they learned from the test and assess the quality of the test or exam in terms of difficulty, clarity, appropriateness, or fairness.</td>
<td>• Provide instructors with student reactions to exams to make them more effective learning and assessment tools.</td>
<td>• Focuses on exams as learning exercises.</td>
<td>• May raise questions about exams that instructors are uncomfortable addressing.</td>
<td>Useful in any type of course that requires exams. Only ask questions about aspects of the exam you are willing to change. May be incorporated as the last section of an exam.</td>
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Adapted from *Classroom Assessment Techniques* (1993) by Angelo, T.A., & Cross, K.P.
<table>
<thead>
<tr>
<th>Type</th>
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<th>Analyzing the Data and Making Conclusions</th>
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</table>
| Minute Paper      | At the end of class, students use index cards or half-sheets of paper to provide written feedback to the questions:  
  • “What was the most important thing you learned during this class?”  
  • “What important question remains unanswered?”                                                                                                                                                      | Categorize and count responses and note useful comments. Compare minute papers over the semester to see changes in the clarity and thoughtfulness of student writing.                                                                                      |
| Muddiest Point    | • At the end of class students provide written feedback to the question, “What was the muddiest [least clear] point in _____?”                                                                                   | Skim approximately half of the answers, noting common types of muddy points. Then read all responses and sort them into piles of related muddy points with a separate pile for unique responses that don’t fit into a category. Count the number of responses in each pile, noting the most frequently mentioned points. Alternatively, group together muddy points about facts and principles, points about concepts, and points about skills. |
| One-Sentence Summary | Students summarize a large amount of information in one sentence that answers the questions, “Who does what to whom, when, where, how, and why?”                                                                 | Draw slash marks with a pencil between key elements of the sentence, separating answers to the various questions (Who? Does What? etc.). You can also have students draw slash marks themselves after completing sentences. Evaluate each sentence component by writing a zero (incorrect or inadequate), a check mark (adequate), or a plus (more than adequate) above that element. Make a response table for the entire class with the questions as column headings and the marks—zero, check, and plus—as row headings. Write totals in the cells and note overall strengths and weaknesses. For example, are students better at answering who and what than how and why questions? |
| Application Cards | After hearing a principle, theory, or procedure, students write at least one real-world application of what they learned on an index card:  
  • “According to Newton, ‘To every action there is always opposed an equal reaction.’ Give an application of Newton’s Third Law to everyday life.”                                                                 | Quickly read through the index cards, marking each example of a real-world application with an abbreviation such as G, A, M, or U, for “great,” “acceptable,” “marginal,” or “unacceptable.” Choose three to five of the best examples and one or two marginal or unacceptable examples to share with the class, altering poor ones enough to hide the identity of the people who wrote them. |
| Pro and Con Lists  | Students list advantages and disadvantages of a decision or situation the instructor proposes:  
  • “After reading Shakespeare’s Hamlet, imagine you are Hamlet and list three pros and three cons of murdering your stepfather, Claudius.”                                                                     | Count how frequently a specific advantage or disadvantage was listed by students, noting the ones most often mentioned. Compare student answers with your own to see if they have left out points you expected them to mention or included points you considered unessential. Notice the balance of pros to cons to determine if you need to focus more on one or the other. |
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<tr>
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</tr>
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</table>
| **Electronic Discussion Boards** | Using their own words, students respond to instructor questions via electronic discussion board.  
• “How could my PowerPoint presentations be improved?” | Summarize answers and group them by theme. Notice concerns that are not directly relevant to your questions, because they may represent important or strong reactions to your teaching. |
| **Directed Paraphrasing** | Students paraphrase part of a lesson for a specific audience and purpose.  
• “In one or two sentences, paraphrase what you have learned about hospice care to inform a dying, but still lucid patient of its possible advantages over hospital care.” | One approach is to separate responses into four piles: “confused,” “minimal,” “adequate,” and “excellent,” based on 1) how accurate the paraphrase is, 2) how well it has been geared for the intended audience, and 3) how well it has accomplished the assigned purpose. A different approach is to circle the clearest and most confusing points in each paraphrase, using different-colored pens, and then identify patterns of clarity and confusion for the class. |
| **Memory Matrix** | Students fill in the blank cells of a table to demonstrate their understanding of key concepts.  
• Example: | To discover what students know well, tabulate correct responses for each cell for the class and compare that with totals for other cells, noting large differences. Focus on incorrect or marginal items and look for patterns in the kinds of errors. Results may indicate that you need to better organize some information you present or spend more time teaching some categories of information. |
|                      | ![Memory Matrix Table](memory_matrix.png)                                      |                                                                                                          |
| **Exam Evaluations** | Students self-evaluate what they learned from the test and assess the test’s difficulty, clarity, appropriateness, or fairness.  
• “The last exam used both multiple choice and essay questions. Which type of question allows you to best demonstrate what you have learned? Please explain.” | Pay close attention to the content of student comments describing what they are learning from the test. Try to separate comments that address the fairness of your grading from those that concern the effectiveness of the test as a learning instrument. If you ask students what type of test they prefer, tally their preferences, but consider the reasons students provide for their preferences when determining the merit of making a change. |

Adapted from *Classroom Assessment Techniques* (1993) by Angelo, T.A., & Cross, K.P.
Classroom Response Systems

The University-Supported Clicker

Last year, the Instructional Technology Standing Committee re-evaluated clicker usage on campus and after hearing feedback from faculty that had demoed different clicker brands, the committee voted to support the Turning Technologies ResponseCard NXT Clicker (ISBN: 9781934931455) as the new campus standard.

What is a Clicker?

Clickers are wireless keypads or personal response systems that faculty can use to increase interactivity in their classroom, especially for a large lecture class. This technology provides instant feedback to both instructors and students.

What should I do if I want to use clickers in my class?

The first thing faculty will need to do is to contact the FTDC at 915-7918 to request a free RF receiver kit. Faculty will then need to add the ResponseCard NXT clicker to the Course Materials Management interface as a required material for their classes. Clicker training will be available through the FTDC once each fall and spring semester. Additional clicker training and resources are also available.

The FTDC is located in 101 Wier Hall. This information can be accessed online at http://www.olemiss.edu/clickers/
Google Forms

The University of Mississippi is now using Google Apps for Education. Every student has a Google account, through which they get their email. Another means by which you can collect student responses is by using a Google form. Google forms can be embedded into a webpage or sent in an email to any number of recipients.

Here is a detailed You-tube tutorial on how to make Google forms: http://youtu.be/5-SDku0BV2o

This You-tube tutorial is focused on student responses: http://youtu.be/sZLFxyoNvUw

Here is a great Prezi that introduces “Google Forms as a Student Response System” and provides a little background on Student Response Systems: http://youtu.be/76XSepvoG4E

Poll Everywhere

Another option that is free for small classrooms (40 responses per poll) is Poll Everywhere: http://www.polleverywhere.com/. Prices get higher as you add more responses per poll. See the website for additional information. Students can use any kind of cell phone to send their responses via text. Students can also use their smart phone, Twitter, or an embeddable voting widget.

Poll Daddy

Poll Daddy is a similar service, with a free version that limits you to 200 survey responses/month and 10 questions/survey. See http://polldaddy.com/ for more information. Students will need a smart phone or laptop to respond.
Demonstrations

Do students learn by watching demonstrations?

“Lecture demonstrations have two important purposes: to increase student understanding of the concepts demonstrated, and to increase student enjoyment of class. Previous studies have cast doubt on whether traditional demonstrations accomplish the first, finding that passive observation of demonstrations does not significantly improve student understanding of the associated concepts. Indeed, many students alter their memory of demonstrations to match their ideas about the underlying physics!

Does the presentation of a demonstration affect its effectiveness? If students are required to predict the outcome of a demonstration and discuss their predictions with one another before the demonstration, they think more actively about the demonstration and its explanation, and have opportunities to discover inconsistencies or weaknesses in their own thinking. We are studying whether this strategy improves student understanding of the demonstration.

We identified four possible modes of demonstration presentation:
- no demonstration
- show and tell (traditional approach)
- predict (students predict the outcome individually before seeing the demonstration)
- predict and discuss (students predict the outcome individually, then discuss their predictions with others, before seeing the demonstration)

Each demonstration was presented to part of the class in each of these modes during discussion sections.

At the end of the semester, we gave a free-response test in which students were asked to predict and explain the outcome of physical situations similar or identical to the demonstrations. Initial analysis suggests a small improvement in performance when students have to predict the outcome of a demonstration before seeing it; follow-up studies are in progress.”


Online resources for demonstrations:

Wolfram Demonstrations Project – demonstrations.wolfram.com
You Tube Videos
Khan Academy
http://www.ph.utexas.edu/~phy-demo/resources/resources.html
- http://www.brown.edu/academics/physics/courses/lecture-demos/lecture-demos
- http://physicslearning.colorado.edu/ldl/
- http://www.phys.ufl.edu/demo/
Exploring the Flipped Classroom

Trying the flipped model of instruction isn’t an all-or-nothing decision. In fact, there’s a lot to be said for starting small. Why not try it with one unit? You know, the one your students struggle with year after year? Or, perhaps pilot it for one week, or with one class.

This document lays out some options for getting started. It assumes you’re curious about the flipped model and would like to ease in and test the waters. It emphasizes free solutions that don’t require sophisticated hardware or a lot of training.

What Will You Record?

What is your lecture content? People tend to record slides, lessons, Blackboard or Moodle, blogs, digital content from the textbook provider, or a webcam feed. You will need a microphone so you can narrate your video.

If your content isn’t in a readily digital format, some options include taking a photo and then recording over it, or using a document camera or webcam.

How Will You Record it?

Try Jing. It’s free and works on Mac and Windows. Videos are limited to five minutes in length (and your students will really appreciate that). The workflow is really simple—you record something on your screen and then share it.

Download Jing here, then invest a few minutes to learn about Jing.

TechSmith has a number of other products that allow all sorts of recording, editing, and production options, but Jing is a great way to get started.

The Typical Workflow

1. Prepare your recording area. If you are recording the full screen, make sure there is nothing on there you don’t want the students to see (like your email).
2. Prepare whatever it is you’re going to record. It could be a Word document with instructions, webpage, wiki, a sample math problem, a PowerPoint slide, etc.

Tip: If you have something that is not in a digital format (like a science lab setup), consider taking a photo of it, and then recording over the photo. Smartphones can be quite handy for this too.

3. Pretend the students were sitting next to you and record your instruction as normal.
4. Repeat as necessary for each lesson or class.
5. When the video is done, put it somewhere it can be accessed.
   a. Recommend: Upload from Jing to Screencast.com (see below) and put the link to your video wherever you want (like in a blog, Word document, Google Doc or PowerPoint slide.)
   b. Save the video to the desktop and play it when needed.
   c. Email the video (or better yet, send the link to the video)
**How Will Students View the Videos?**

There are three typical ways students view the videos.

1. View them on their own, outside of the classroom, on a Windows or Mac desktop or laptop computer. They watch at home, or designated times and places at school.
2. They watch the video on a mobile device. Unfortunately, Jing creates videos in a format unsuitable to mobile devices.
3. Project the video at the start of class, and watch as a group. This is especially common for teachers that teach the same class multiple times per day. A concise video delivers the same message to the students and frees up some extra time for you.

**What If...?**

Here are some common concerns we've heard. You can also read responses to the most popular questions in this [CNN article](https://www.cnn.com/2013/04/02/tech/flipped-classroom/).

**Q: What if I don’t like the sound of my voice and I mess up in my video sometimes.**

**A:** It's okay! Most people don't like hearing their own voice in a recording. The good news is your students are used to hearing your voice, even if you're not. Many teachers later find that students like the personality and personal nature of hearing you. You can rehearse and be prepared as much as you want. Think about your classroom presentation though. Just like there, it’s okay if you make a mistake or have to correct yourself. It’s more important to be authentic and approachable then to be perfect.

**Q: What do people do with the time in the class they used to spend lecturing?**

**A:** This article by Jackie Gerstein, Ed. D., has a lot of ideas and details. Here are some more short ideas:

- Break students into groups for discussion based on the lesson given as homework.
- More labs, projects and experiments
- Hold debates or games for the class to do to see how much they understood the lesson.
- Incorporate cross curricular activities: how does a particular lesson tie in to other areas of the core curriculum?
- Ask students to write down questions they have while watching the lesson, then discuss those questions in class.
- Collaborate with another class from another school or state and share content, questions, etc.

**Collect Data and Survey**

It's important to try to measure success and failure, so you can adapt going forward.

If possible, log a starting benchmark for grades and attendance. Perhaps you can make a rough comparison between a flipped unit versus a prior unit.

You can also easily capture student feedback. Here's an image of a [simple form](https://docs.google.com/forms/d/1-234567890abcdef/edit) one teacher created with Google Docs.

**Q: What if the students come to class without watching the video?**

**A:** This might be handled similarly to when students are not prepared for class for other reasons.

- Allow them to watch it in the corner
- Pair the student up with another
- Stand your ground; deliver consequence

**Q: What if the students come to class without watching the video?**

**A:** This might be handled similarly to when students are not prepared for class for other reasons.

- Allow them to watch it in the corner
- Pair the student up with another
- Stand your ground; deliver consequence

**Q: What are some next steps beyond Jing?**

**A:** Other products, like Camtasia and Camtasia Relay, include benefits such as:

- Unlimited recording length
- Editing capability
- Automated encoding and publishing to desired destinations
- Ability to make the videos a little more engaging or “cool”.
- Mobile-friendly videos
The following IDEA Papers may provide some useful ideas related to teaching and faculty evaluation. The PDFs can be viewed below or, if unavailable online, they can be ordered from The IDEA Center.

53 - Active Learning Strategies in Face-to-Face Courses
Barbara J. Millis, University of Texas at San Antonio
As numerous research studies suggest, teachers who desire increased student learning should adopt active learning. This article explores the research, defines active learning, discusses its value,...

52 - Considerations in Online Course Design
Paul A. Creasman, Ph.D., Arizona Christian University
With distance and online learning becoming ubiquitous in higher education, the need for faculty to be able to create quality online courses is greater than ever. This article offers practical advice...

51 - Using Graphic Organizers to Improve Teaching and Learning
Kenneth A. Kiewra, University of Nebraska-Lincoln
Students often have difficulty learning from texts and lectures because information is commonly organized in blocks or lines that obscure important relationships among ideas. This article introduces...

50 - Student Ratings of Teaching: A Summary of Research and Literature
Stephen L. Benton, The IDEA Center; William E. Cashin, Emeritus professor, Kansas State University
This IDEA Paper is an update of IDEA Paper No. 32 Student Ratings of Teaching: The Research Revisited (Cashin, 1995). Much of the content of IDEA Paper No. 32 is retained where no subsequently...

49 - Effective Classroom Discussions
William E. Cashin, Professor Emeritus, Kansas State University
What is a discussion? No one seems to define it. Lowman (1995, p. 159) suggested: "(A) useful classroom discussion...consists of student comments separated by frequent probes and clarifications by..."

IDEA Paper No. 48 Strategies to Improve Student Writing, Smit
IDEA Paper No. 47 Promoting Deep Learning, Millis
IDEA Paper No. 46 Effective Lecturing, Cashin
IDEA Paper No. 45 Assessing Your Program-Level Assessment Plan, Hatfield
IDEA Paper No. 44 The Learning Portfolio: A Powerful Idea for Significant Learning, Zubizarreta
IDEA Paper No. 43 The Technology Literate Professoriate: Are We There Yet?, Madigan: Online Resources
IDEA Paper No. 42  Integrated Course Design, Fink- For additional information on this topic see Dee Fink's book "Creating Significant Learning Experiences: An Integrated Approach to Designing College Courses"

IDEA Paper No. 41  Student Goal Orientation, Motivation, and Learning, Svinicki

IDEA Paper No. 40  Getting Students to Read: Fourteen Tips, Hobson

IDEA Paper No. 39  Establishing Rapport Personal Interaction and Learning, Fleming

IDEA Paper No. 38  Enhancing Learning-and More! - Through Cooperative Learning, Millis

IDEA Paper No. 37  Helping Your Students Develop Critical Thinking Skills, Lynch and Wolcott

IDEA Paper No. 36  Appraising Teaching Effectiveness: Beyond Student Ratings, Hoyt and Pallett

IDEA Paper No. 34  Focusing On Active, Meaningful Learning, Stalheim-Smith

IDEA Paper No. 33  Developing an Effective Faculty Evaluation System, Cashin

IDEA Paper No. 32  IDEA Paper 32 has been updated. Please see IDEA Paper 50, Student Ratings of Teaching: A Summary of Research and Literature.

IDEA Paper No. 31  Answering and Asking Questions, Cashin

IDEA Paper No. 30  Readings to Improve Selected Teaching Methods, Cashin

IDEA Paper No. 29  Teaching Adult Students, Polson

IDEA Paper No. 28  Periodicals Related to College Teaching, Cashin and Clegg

IDEA Paper No. 27  Writing a Syllabus, Altman and Cashin

IDEA Paper No. 26  Improving Student Reading, Maleki and Heerman   This paper is not available for download. Please contact The IDEA Center to request a hard copy.

IDEA Paper No. 25  IDEA Paper 25, Improving Student Writing by David Smit has been updated. Please see IDEA Paper 48, Strategies to Improve Student Writing.

IDEA Paper No. 24  Improving Instructors’ Speaking Skills, Goulden

IDEA Paper No. 22  Student Ratings of Teaching: Recommendations for Use, Cashin

IDEA Paper No. 21  Defining and Evaluating College Teaching, Cashin

IDEA Paper No. 20  Student Ratings of Teaching: A Summary of the Research, Cashin

IDEA Paper No. 19  Improving College Grading, Hanna and Cashin
**IDEA Paper No. 18**  Matching Instructional Objectives, Subject Matter, Tests, and Score Interpretations, Hanna and Cashin

**IDEA Paper No. 17**  Improving Essay Tests, Cashin

**IDEA Paper No. 16**  Improving Multiple-Choice Tests, Clegg and Cashin

**IDEA Paper No. 15**  IDEA Paper 15, Improving Discussions by Bill Cashin and Philip McKnight has been updated. Please see IDEA Paper 49, Effective Classroom Discussions.

**IDEA Paper No. 14**  IDEA Paper 14, Improving Lectures by Bill Cashin has been updated. Please see IDEA Paper 46, Effective Lecturing.

**IDEA Paper No. 12**  Court Challenges to Tenure, Promotion, and Retention Decisions, Seldin

**IDEA Paper No. 8**  Questioning in the College Classroom, Hyman  This paper is not available for download. Please contact The IDEA Center to request a hard copy.

**IDEA Paper No. 7**  A Guide to Clinical Performance Testing, Whitman

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Effective Classroom Discussions
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“The prototypic teaching method for active learning is discussion.”
Svinicki and McKeachie (2011, p. 36)

What is a discussion? No one seems to define it. Lowman (1995, p. 159) suggested: “(A) useful classroom discussion...consists of student comments separated by frequent probes and clarifications by the teacher that facilitate involvement and development of thinking by the whole group.” In this paper, discussion is defined as two-way, spoken communication between the teacher and the students, and more importantly, among the students themselves.

This paper primarily addresses discussion in small classes that meet one or more times a week, or in smaller classes that meet one or more times during the week as part of a course consisting of one or more large lectures each week. Discussions can take the form of recitation, dialogue, and guided or open exchanges. However, many of the suggestions in this paper should also be useful for shorter discussion sessions as part of a lecture class, since discussions are an effective way to get students to actively process what they learn in lectures (Lowman, 1995, p. 161).

Further Readings. This IDEA Paper relies heavily on three books: Davis (2009), Tools for teaching (pp. 95-111); Forsyth (2003), The professor’s guide to teaching (pp. 89-103); Svinicki and McKeachie (2011), McKeachie’s teaching tips (pp. 36-54).

Other helpful books devoted entirely to discussions include Bligh (2000), What’s the point in discussion?; Brookfield and Preskill (2005), Discussion as a way of teaching; Christensen, Garvin, and Sweet, (Eds.) (1991), Education for judgment: The artistry of discussion leadership; Kustra and Potter (2008), Leading effective discussions.

Strengths and Limitations of Classroom Discussion Approaches
Discussions are well suited to facilitate a number of course goals. As stated by Lowman, “(i)n addition to clarifying content, teaching rational thinking, and highlighting affective judgments, discussion is particularly effective at increasing student involvement and active learning in classes” (1995, p. 164). Discussion engages students in what they are presented with in lectures or other class assignments. Discussion approaches are effective in developing students’ thinking skills and higher-level learning such as application, analysis, synthesis, and evaluation (Bloom et al., 1956), and also creativity (Anderson and Krathwohl, 2001; Bligh, 2000).

Discussion can help students acquire better communication skills as they learn to present their ideas clearly and briefly; it also provides opportunities to practice listening to, and following what, others are saying. In addition, discussions can contribute to students’ affective development by increasing their interest in a variety of subjects, helping to clarify their values, and aiding in recognizing — and perhaps changing — some attitudes.

As a teaching method, discussion permits students to be active in their own learning, which increases their motivation to learn and makes the process more interesting. And finally, discussion provides feedback to you about your students’ acquisition of learning through questions, comments, elaborations, and justifications. These interactions allow you to plumb the depths of students’ understanding.
Like all teaching methods, discussion approaches have their limitations as well as their strengths. Discussions are not an effective way to cover a significant amount of content, and they are time consuming, requiring more preparation and class time. However, even when you are very well prepared, the discussion may not follow the direction you anticipated, resulting in less control. To some extent, you must go where the students’ questions and interests take the group, which may not be consistent with your initial plan.

It can also be difficult to get students to participate in a discussion, particularly when some of them may not even know how to effectively participate. Finally, a topic may be very controversial or elicit excessive emotional reactions. Discussion is a complex teaching method that requires careful planning and preparation for both you and your students (Brookfield and Preskill, 2005). A number of authors provide additional details about the strengths and limitations of discussions (see Bligh, 2000, chap. 1-4; Brookfield and Preskill, 2005, chap. 2; Forsyth, 2003, p. 93).

Even with the challenges of discussion approaches, a number of strategies can make them more effective and maximize their benefits.

Creating the Expectation for Student Participation in Discussion

If at all possible, create a physical environment that supports discussion. Arrange the seating so it is easy for everyone to see one another, ideally in some kind of circle or curve, making yourself part of the group (e.g., not behind a desk, but seated with your students). Padded chairs can help, if they are available. Help students get to know each other and get them to talk during the first class session. Bligh (2000, pp. 173-177) provides further guidance about the physical environment.

Early in your course, perhaps during the second class, share your expectations for participation, both verbally and in the syllabus, including the ground rules for discussion. For example, students are to come to class prepared, and to have read the assignment or completed the appropriate research; they are to participate in the discussion and test their ideas and conclusions; they should raise their hands (or, alternatively, you will call on them randomly).

Below are the stages of a typical classroom discussion, which are based on the steps in problem solving found in almost any general psychology textbook.

- Define the question, topic, or problem to give the discussion focus.
- Have students suggest possible answers or solutions.
- Collect relevant information or data that might help answer the question(s) at issue.
- Evaluate positions argued by, or solutions proposed by, the students during the discussion.
- Try to have the group reach a decision about the best position to start with or the best solution to try, based on the discussion. (See Svinicki and McKeachie, 2011, p. 42, for a related approach; and Bligh, 2000.)

To ensure that students take discussions seriously, you may need to adjust your existing reward system (Brookfield and Preskill, 2005). If you will grade students for participation, explain how. Consider self-evaluations, peer-to-peer evaluations, and rubrics that behaviorally describe expected and unacceptable levels of participation (see Davis, 2009, pp. 110-111, for suggestions).

Teacher’s Roles

Get to know your students. Obviously this applies to all forms of teaching, but it can be particularly important for successful discussions. Along with the class roster, you probably have information about your students provided by the registrar’s office — study it. Ask students about their background and their goals (Cashin, 2010, p. 3). In IDEA Paper No. 39, Fleming (2003) describes a number of strategies to help you develop rapport with your students.

Be prepared. An effective discussion requires much more preparation than an effective lecture. In a lecture, you can decide what you will cover. In a discussion, you should be prepared to explore any issue reasonably related to the discussion topic. This means you must know the topic very well. Be ready to address potential issues or questions that the students might bring up. Outline your possible answers or responses.

Begin the discussion. Many times, and certainly the first time, you as the instructor will begin the discussion. Svinicki and McKeachie (2011) discuss a number of ways to start the discussion — with a question, a controversy, or a common experience. Choosing something from the students’ “real life” is one tactic. Providing a common experience by means of a reading, film, or similar example of mass media is another. Ensure that your students have sufficient information to make the discussion productive.

Facilitate the discussion.

- Be patient, since discussions take time to get started. Allow for pauses and silence. Although silence may feel socially awkward, it gives both you and the students time to think. You may need to train your students (and yourself) to feel comfortable with silence.
- Listen to what each student says.
- Observe who is — and is not — participating.

Ask Questions. Ask a student for clarification, or to support his or her comment or opinion; use open-ended questions (that cannot simply be answered by a “yes” or a “no” or one word); ask divergent questions (where there can be more than one acceptable answer). However, do not question a single student too long.
Deal with conflicts. It is important not to ignore conflicts. First, try to clarify what seems to be the disagreement; it might simply be a cognitive misunderstanding. Listing the pros and cons visually (e.g., whiteboard, handout, discussion board) can be helpful. If the conflict involves many students, let the group talk about their disagreement in some manner. (See also Kustra and Potter, 2008, pp. 59-65.)

Provide summaries. Periodically during the discussion, and certainly at the end, provide a summary and perhaps some conclusions of the discussion. Verify group consensus and check to see whether all the students do actually agree: “Does that statement reflect what all of you think?”

Reflect on what took place during the discussion. After the discussion, think about what worked well and what you might do differently. Think about which student(s) did or did not participate in the discussion. Which of them contributed most? Did any student(s) dominate? What was the quality of the students’ comments? And especially, what did the students learn?


Students’ Roles
Students should be prepared. In keeping with your expectations, students are to come to the discussion prepared. Typically, this means that not only are they to have read the assignment, but thought about it in the context of the topic being studied.

Students should participate. Assuming that discussions are a required part of the course, students must participate. Totally silent observers do not earn full credit in such a course. This does not mean that silent observers do not learn anything, but the students who participate learn more, which is the purpose of a discussion class.

Students should explain with clarity. One purpose of discussions is to allow students to test their ideas and conclusions. This requires not only that students develop ideas, but that they explain their ideas or conclusions with clarity, and where possible, with reasonable brevity. Forsyth (2003, p. 101) suggests that students should make statements brief and clear, and ask for clarification if they don’t understand what someone else has said.

Students should listen. Student participation involves not only speaking, but listening to what other students are saying, and either indicating some level of understanding or asking for clarification. If you see that some students are so eager to make their own points that they do not listen to what the previous speaker has said, you might introduce a rule that no one may make his or her point without first paraphrasing what the previous speaker said — to that speaker’s satisfaction. (See also Bligh, 2000, pp. 32-33.)

Fostering Participation
First, what are some obstacles to student participation? Svinicki and McKeachie (2011, pp. 44-45) discuss five barriers to good discussion: habits of passive learning; fear of appearing stupid; trying too hard to find the answer the teacher is looking for; failing to see value in the discussion topic or process; and wanting to settle on a solution before alternatives have been considered.

Davis (2009, p. 107) outlines six faulty assumptions students often hold about discussions: one must argue for only one position; knowledge is really just opinion; personal experience is the real source of knowledge; issues should not be discussed unless there is agreement; individual rights are violated when ideas are challenged; and individuals in a discussion should never feel uncomfortable.

Davis (2009, p. 99) also lists nine pointers you can give your students about participating in discussions. For example, students should seek the best answers instead of trying to convince others of the correctness of their answers; they should try to keep an open mind rather than stick to a previous opinion; and students should stay with the present issue before introducing a new one.

Several other specific strategies can promote participation in discussions.

Ask general (divergent) questions. Questions that can have more than one acceptable answer (e.g., ‘What is your opinion about...?’) can lead to more discussion. In addition, give students your questions about the reading before you will be discussing them. (See Svinicki and McKeachie, 2011, pp. 47-48.)

Avoid looking only at the student talking. Although it may seem counterintuitive to look away, and eye contact does tell a student that you are paying attention, looking too long at one student can seem threatening. Also, you need to monitor how the other students in the group are reacting.

Control excessive talkers. Even though the students who talk the most are sometimes the “better” students, avoid automatically calling on them first, even after a seemingly long silence. Ask to hear from someone who hasn’t said anything yet. If one student’s excessive talking becomes a problem, you may want to talk with that student about it outside of class. (See also Brookfield and Preskill, 2005, pp. 169-177.) Sometimes the excessive talker is you (or me) — the teacher! Videotaping a class and watching it later may provide useful information about this (as well as many other aspects of your class). (See also Brookfield and Preskill, 2005, pp. 193-200.)
Ask for examples and illustrations. This is particularly important when discussing complex ideas, or concepts students often have difficulty understanding.

Allow for pauses and silences. Sometimes in American culture, we act as though there should never be a quiet time in our conversations. Silence, even for a minute or more, allows the students, and you, time to think. This “wait time” is especially helpful to students who are more introverted and may not be getting an opportunity to participate (Davis, 2009).

Be sensitive to feelings and emotional reactions. Some topics may generate strong negative — or positive — feelings, or you may notice that a student is becoming upset or angry as the discussion progresses, any of which may become obstacles to learning. Ideally, the student will bring up the problem so it can be discussed. To prompt this, you may simply wish to say, “You seem to have strong feelings about this.” Or you may need to explore: “Would you say some more about that?” You may want to talk to the student after class.

Encourage and recognize students’ contributions. Listen carefully to each student’s comments, sometimes paraphrasing to show that you understand. Give students a chance to clarify what they meant, or link Student B’s comment to something Student A said.

Further Readings — Effective Groups and Specialized Activities (can be used with discussion classes as well as groups that are part of large classes). Bligh (2000), pp. 105-188; Brookfield and Preskill (2005), chap. 6; Davis (2009), chap. 21; Forsyth (2003), pp. 103-110; Svinicki and McKeachie (2011), chap. 14 and 15.

Conclusion
You should not consider the suggestions in this IDEA Paper to be prescriptions — things that you must do. Rather, think of them not as answers, but as questions. Ask yourself, “To what extent might these suggestions help the students in my class?” You are the teacher — you are the one to decide.

Further Readings — Facilitating Online Discussions. While the focus of this paper is on classroom discussions, a number of authors have suggestions for effective use of discussion via technology. See Brookfield and Preskill (2005), chap. 11 and 12; Davis (2009), pp. 497-503; Forsyth (2003), pp. 233-260; Svinicki and McKeachie (2011), chap. 17.
References


“Whenever faculty get together to talk about student writing or critical thinking, they inevitably turn also to problems of student reading.” (Bean, 1996, p. 133)

During the late 1970s a ubiquitous national ad campaign championed literacy with the slogan, “Reading is Fundamental (RIF).” Current elementary, middle, and secondary school curricula attest that reading is fundamental to primary and secondary education, a daily presence in and out of class, and the focus of major assessment efforts. It is commonly taken for granted that reading is also fundamental in college courses. But the literature raises doubts about the validity of that assumption. Specific challenges come from research related to both student preparation and compliance with assignments.

**The Preparation Problem**

John Bean (1996), a generally optimistic voice, writes that, “Many of today’s students are poor readers, overwhelmed by the density of their college textbooks and baffled by the strangeness and complexity of primary sources and by their unfamiliarity with academic discourse” (p.133). Bean’s assessment echoes the pervasive downbeat faculty perception that students are not prepared to read at the levels required for collegiate success (Leamnson, 1999; Lowman, 1995; Maleki & Heerman, 1992; Nist & Kirby, 1989).

Bean believes that college teachers need to assume responsibility for getting students to “read for the course.” This includes making certain that assigned reading is course-related as well as teaching students the discipline-specific values and strategies that facilitate disciplinary learning. “We have to do more than take our students out to sea. We have to teach them to fish in the deep” (p. 133).

In this proactive position, Bean reflects a large segment of the literature that offers advice on how to develop students’ reading abilities. Typical of this literature is Leamnson’s (1999) accepting-yet-optimistic assessment of the situation among first-year college students: “Most first-year students do not know how to listen well, to make notes on what they hear, to read with comprehension, or to write referentially about the real world. Nonetheless, an equally important premise is that they are completely capable of learning to do all of these things” (p. ix).

Reasons for college student struggles with course reading are many. Bean, like others writing about this issue (Davis, 1993; Grunert, 1997; Leamnson, 1999; Lowman, 1995; Maleki & Heerman, 1992), identifies 10 leading sources of students’ reading difficulties and offers eleven strategies to overcome these difficulties (see appendix, Table 1).

Such student-focused intervention approaches are beneficial, warranted, and produce desired results. At the same time, this approach is fundamentally incomplete because it largely ignores compliance problems and ways instructors can intervene to enhance the support reading provides for learning.

**The Compliance Problem**

Regardless of the value of the advice for helping students develop advanced reading skills and attitudes, the issue of reading preparation may be the cart placed before the horse of a second fundamental reading problem, that of noncompliance with course reading assignments. Developing students’ ability to read higher-order, disciplinary-linked texts is a moot endeavor if students do not read course assignments.

A consistent pattern of research findings has established compliance with course reading at 20-30% for any given day and assignment (Burchfield & Sappington, 2000; Hobson, 2003; Marshall, 1974; Seif, 1987). Faculty face the stark and depressing challenge of facilitating learning when over 70% of the students will not have read assigned course readings.

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1 For a thorough review of the need for attending to students’ reading development, see Maleki & Heerman’s 1992 IDEA Paper, “Improving Student Reading.”
Surveys show that students see a weak relationship between course reading and academic success. Student perception and linked behavior collected in the National Survey of Student Engagement (2001) for example, underscores the extent to which students relegate course reading to the margins of necessary activity; most college students reported that they do not read course assignments. These results are substantiated by studies that do not rely on self-report. Burchfield and Sappington (2000) found, “On average, about a third of the students will have completed their text assignment on any given day” (p. 59), a compliance rate that has been stable for 30 years (Marshall, 1974; Self, 1987; McDougall & Cordiero, 1993; Hobson, 2003). Course structure and faculty preconceptions about students affect reading compliance. Course-based characteristics that reduce the likelihood that students will comply with reading include: no justification in the course syllabus for reading selections (Grunert, 1997), little to no differentiation between reading that is actually required to succeed in the course and reading material labeled “required” (Hobson, 2003), and a mismatch between course text literacy levels and students’ reading abilities (Bean, 1996; Leamnson, 1999). Most solutions for improving reading compliance offered in the literature, while helpful in specific instances, fall short because they focus only on student-based issues. Many non-student issues are important contributors to the problem of low reading compliance among college students. Multi-dimensional solutions are needed.

The most promising approaches are those that examine and modify attitudes and activities on both sides of the teaching-learning coin. It is equally essential to:

a) identify weaknesses at the institutional and course level and develop useful strategies to mitigate them.
b) identify student traits that contribute to the less-than-fundamental role that reading appears to hold in college success.

This paper is focused on the first of these. Before offering specific ideas for improving the value of reading assignments, it suggests that a thorough review be made of the teaching-learning situation.

**Reviewing Courses to Guide Strategies for Increasing the Value of Reading**

**Assess Assumptions**

Teachers construct courses and activities using tacit beliefs that may or may not correspond to classroom reality or contribute to intended educational goals. Two reading-related issues — the assumed inevitability of course texts, and the weak correlation between student reading activity and course success — illustrate the influence that unexamined assumptions exert on college teachers’ instruction.

The assumption that all college courses have course texts is so ingrained that college faculty members rarely question it. One of postsecondary education’s rarest sightings is a course with neither a textbook nor a reading packet. Gatekeepers in the academic community, such as curriculum committee members, look askance at course proposals that deviate from the norm and pressure faculty to add textbooks before proposals proceed through the approval process. Other academic agents, such as faculty developers and master teachers, reinforce acceptance of this assumption when they present textbooks and reading packets as part of a complete college-level class, *de facto* (Altman & Cashin, 1992; Grunert, 1997; Nilson, 1998).

At the same time, most college teachers can name courses they have taken or taught where the course text(s) added little, if anything, to the learning process. Although these texts were identified as “required reading,” reading them was not necessary to succeed in the course. Ingrained truth is rarely challenged even in the face of discordant evidence. And so, across colleges and universities, course texts are linked to college classes not primarily because of their “added value,” but because their absence seems to violate a condition accepted as fundamental for college-level learning (Lowman, 1995).

Nist and Kirby (1989) identified a pressing need is “to more closely examine...professorial demands to determine how much text interaction is necessary to be academically successful” (p. 336). This inquiry must consider such issues as: faculty and student definitions of “academic success”; “more is better” as a guiding maxim for reading’s place in college courses; and investment/return rates for course-related reading. Each of these issues is more fully discussed under the rubrics “assess the course” and “assess the audience.”

**Assess the Course**

Reassessing course assumptions should lead to a more focused assessment of students’ need to read for the course. The best courses are crafted to fit within a real context, peopled by real and diverse teachers and students working together to achieve specific educational goals (Fink, 2003). In these courses, careful attention has been paid to goals and how these are expressed directly and indirectly (Fink, 2003; Lowman, 1995).

A useful way to begin the process of assessing reading’s role in college courses is to consider afresh course outcomes (Fink, 2003; Lowman, 1995). Courses serve diverse purposes. Some are introductory, serve one or several majors, meet distribution requirements or specialized interests, develop specific abilities, or have endpoints that vary from the most basic to the highly particular. Expected educational outcomes provide one criterion for determining course-related texts, reading load, and pragmatic reading compliance expectations (Lowman, 1995).
Reading material must also align with the course's main topics and its student demographics. Too many textbooks used in college courses are not appropriate to the context in which they are used. Two types of mismatch are typical; Maleki and Heerman (1992) comment on the first of these:

On the surface, the ‘reading problem’ is a mismatch between college students’ reading ability and the difficulty level of their textbooks and other readings. Reading achievement of college freshmen has been declining since 1965, while college textbooks have become more difficult to read. (p. 1)

Second, books are often used for purposes for which they were never intended. Reference books are often put into the hands of disciplinary novices as primary course teaching and learning tools. Doing so ignores the fact that these books are designed for highly specialized and skilled audiences (Bean, 1996; Leamnson, 1999; Maleki & Heerman, 1992).

In assessing the course, it is desirable to focus attention on the meaning of “required reading.” Presumably, the term indicates that the reading contains information essential to achieving the course’s educational outcomes. The inference is that students must read every “required” item in order to achieve an acceptable level of success.

Research on student reading compliance demonstrates that “required reading” is not an accurate predictor of course grades. Nist and Kirby (1989) wrote that documented reading assignment compliance rates among college students (20 to 30%) “could be partly due to the fact that students quickly discovered that they did not need to read and study their texts in order to do well in the class. Perhaps attending class and studying lecture notes were sufficient for acceptable performance” (p. 327).

A common problem is that instructors tend to lump all course-linked reading assignments under the “required” heading, regardless of how central the reading assignment is to course success. This presents students with several choices about time management and calculated investment of their effort.

Undergraduate and graduate students can expect a cumulative course reading load that is equal to or greater than the hours unencumbered by class meetings, recommended sleep patterns, and meals (Lang & Gore, 1988). Faced with unrealistic work loads, students turn into consummate pragmatists, determining the minimum reading investment that will produce desired course accomplishment (Lowman, 1995). When average students conduct basic cost-benefits analyses (i.e., “How much does my reading affect my course grade?”), first-, second-, and third-hand reports typically suggest a low benefit yield. Their conclusion that grades are not necessarily enhanced by faithful compliance with reading assignments has been supported by methodologically sound research (Hobson, 2003; Self, 1987).

When pressed, faculty will admit that a range of “requiredness” exists among course-linked texts. The usual culprit behind the blanket use of the label “required reading” is either eleventh-hour course/syllabus preparation or the tacit assumption that college courses must have required reading.

Several solutions are available, starting with a triage process designed to allocate course-linked reading material according to its potential to benefit students. This process assesses all course-linked reading materials and assigns a rating to each item according to its relevance to success in the course (e.g., “absolutely essential,” “good supporting material,” “exotic,” “appealing to experts,” “idiosyncratic choice”). Categorizing is done with the understanding that only those materials rated “absolutely essential” become “required reading” in the course. This is reading material for which students will be held accountable.

When carried out objectively, this triage process renders course “required reading” loads more manageable. From the student perspective, a more manageable reading load, combined with accountability for completing reading assignments, makes reading compliance a course-related investment with high returns. When carried out periodically, the process also keeps “reading load creep” in check.

Assess the Audience

Unlike faculty, students are not topic experts, nor have they dedicated large portions of their adult life to the study of specific issues within discrete disciplines. Their academic purposes are more limited and their needs more confined than are those of the faculty. As experts, college teachers all too often fall into the trap of expertise: experts forget that they are aberrant in relation to the norm (Tiberius, Smith, & Waisman, 1998). Therefore, most college faculty members find it hard to imagine that students won’t read every course assignment. This misreading of normative levels of student ability, motivation, and commitment leads faculty into several erroneous assumptions.

(1) Robert Leamnson (1999) argues persuasively in Thinking About Teaching: Developing Habits of Learning with First-Year College and University Students that faculty beliefs about the role of reading and writing abilities are out of synch with their students’ beliefs and experiences (see also Bean, 1996; Lowman, 1995). “A teacher can enter the classroom,” Leamnson writes, “with severely misplaced expectations. Having spent many years in a highly literate environment, we tend to take a similar level of literacy in our students as a given. Many of them, on the other hand, have gotten along reasonably well without getting too entangled with the subtleties of the written word” (p. 31).

(2) College teachers do not understand the many issues that contribute to the problem of reading non-compliance. As Maleki and Heerman (1992) explain, “Most college
teachers — content specialists — are not aware that their students have trouble reading and comprehending their assigned textbooks. This is partly due to students’ weak reading abilities and partly due to difficult textbook structure” (p. 5). Faculty members need to acknowledge and understand that almost any college student cohort includes readers who are skilled, marginally-skilled, and unskilled.

Skilled readers actively engage the text while those who are less skilled are passive readers. Although both skilled and marginally-skilled readers are proficient in reading the text aloud — this is a simple task — they differ in their comprehension of text because of the way they approach reading...Meaning can only be found in the head of the reader. Thus, readers bring meaning to the spoken or written word by applying their prior knowledge to it. Unskilled readers get stuck at the surface level, struggling with individual words, trying to decode letters and sounds, while skilled readers go to the deep structure and find meaning between and beyond the lines of text. (Maleki & Heerman, 1996, p. 2)

(3) Facing the full range of student reading abilities is a daunting challenge for teachers who do not see themselves as equipped or charged with developing the reading abilities and endpoint-focus necessary for academic success. But when reading becomes a focus emphasized in the course structure and across course activities, helping students improve their reading skills should be the responsibility of every college-level teacher. Leamnson assures college teachers that the task is worth undertaking, but requires a long-term commitment: “The language use teachers expect, and far too often take for granted, must in fact be developed through concentration and practice” (Leamnson, 1999, p. 28).

Improvement and Implementation Strategies
College teachers can reduce their own and students’ frustration about course-based reading if they will consider students’ full range of educational needs and expectations as they make decisions about course structure (Lowman, 1995). Several recommendations about how best to incorporate reading into college courses have been made implicitly throughout this paper; more explicit articulation is provided in this section.

Tip 1: Not every course is served by requiring a textbook
Consider not having a required textbook if:
- course structure duplicates text material (i.e., in-class lecture and/or discussion primarily “covers” basic material found in the textbook).
- no available text offers a good fit with the course. Instead, use custom publishing options to create a course reading packet tailored to the course.
- no textbook earns a triage score of “absolutely essential.” Use “Recommended Reading” lists with multiple copies of materials placed on library reserve.

Tip 2: “Less is more” applies to course reading
A triaged reading list should contain fewer, carefully chosen selections, thereby reducing student perception of a Herculean workload (Lowman, 1995). Each of the remaining texts/reading assignments should connect obviously to the course: they should show up as part of in-class presentations, factor into course projects, or appear on examinations. Connections as obvious as these offer students an indisputable higher yield on their reading investment, thus increasing the likelihood that students will attempt the course reading assignments (Grunert, 1997; Maleki & Heerman, 1992), a necessary first step for deriving intended benefits from the assignment (McDougall & Cordiero, 1993).

Tip 3: Aim reading material at “marginally-skilled” students
Assess reading material to determine the level of reading skill students need in order to read the text in a manner and for the ends that the instructor has intended. A text included in the course readings primarily for entertainment purposes, for example, will require a less-strong set of student reading skills than will a text included for content purposes. Choosing reading material beyond the cognitive reach of the majority of enrolled students is unfair since it sets up an unequal learning environment tilted in favor of highly-skilled readers. It also invites dwindling levels of course-related reading compliance. Students will determine early on that further struggle to read “unreadable” assignments is not a warranted use of their study time (Lowman, 1995).

Use Course Structure to Encourage Reading
The anecdotal literature on college student reading skills development offers other recommendations that can be adapted to foster the course structural and student motivational context needed to increase student reading compliance. Among the most useful are strategies that:

1) help students understand course design choices, and related performance expectations
2) shape the in-class experience to encourage reading as a learning tool
3) develop needed course-relevant reading skills and attitudes

Tip 4: Use syllabus as a teaching tool
At their best, strong course syllabi can affect student compliance with course reading assignments. Effective syllabi do more than identify required reading materials; they provide background about the materials so that students understand why the reading assignments contribute to learning and how they relate to other course content and course activities (Grunert, 1997; Maleki & Heerman, 1992).

2 See Maleki and Heerman (1992) for a useful, basic review of tools for determining a text’s reading level.

3 This tip does not advocate for “dumbing down” college courses. Rather, it argues the fairness of choosing materials that are most appropriate for the primary user — college students.
The syllabus is viewed increasingly as an important teaching tool (Grunert 1997; Nilson, 1998), one that can help to shift the classroom’s focus from teaching-centered to learning-centered. Students can find this shift difficult because, as Diamond (1997) points out, “Accepting responsibility for their own learning can be difficult for students who have been educated, as most have, as passive listeners” (p. ix). The passivity that marks students’ pre-collegiate academic experience is at odds with the faculty expectation that college students will engage actively in their learning. This expectation supports the inclusion of out-of-class reading as a central course component. The course syllabus can help students match their course-related activity to faculty expectations from the start. Grunert writes:

> Your syllabus represents a significant point of interaction, often the first, between you and your students. If thoughtfully prepared, your syllabus will demonstrate the interplay of your understanding of students’ needs and interests; your beliefs and assumptions about the nature of learning and education; and your values and interests concerning course content and structure. (p. xi)

**Tip 5: Explain reading assignments’ relevance**

Explaining the reading assignment’s relevance to the course topic and to the way that the course is structured is an investment worth making in the course syllabus and at strategic points within the term (Grunert, 1997; Lowman, 1995). This explanation is important to novices because they are not adept at making inferential connections between items that are seemingly dissimilar or only loosely related (Tiberius, Smith, & Waisman, 1998). Making the implicit explicit helps those students who need the most assistance in reading and comprehending course materials, particularly marginally skilled and unskilled readers (Maleki & Heerman, 1992). The more connective the web between course reading and course learning goals, the more likely students are to see the course’s reading assignments as relevant and worthwhile (Lowman, 1995; Cannon & Newble, 2000). Novices to higher education in general and to an academic discipline, specifically, need the scaffolding provided by explanations that relate reading to the course and the achievement of success in it (Tiberius, Smith, & Waisman, 1998; Leamnson, 1999; Bean, 1996).

This reading agenda must be formally established by the course instructor through the mix of assignments placed at appropriate points within the term. Equally important, this agenda must be accepted by the student if the intended learning is to occur. Therefore, the more frequently students encounter explanations of reading-to-learning connections, the better. The course syllabus is the obvious point of first contact for persuading students that reading course assignments will be beneficial. The same opportunity should be available throughout the academic term whenever students prepare to interact with new course-linked texts (Cannon & Newble, 2000).

**Tip 6: Assign reading close to use date**

Providing students a rationale for assigning texts as they encounter new topics affects student reading compliance by highlighting the correspondence between the reading assignment and a meaningful part of the course. This timing decision closes several gaps that often limit the effectiveness of reading assignments: none-too-precise Day 1 overview statements combined with overly-focused day-to-day course activity; differences between perceptions about teacher-based and student-based activities; abstract course elements, such as goals and outcomes, and ever-present demands like class meeting topics and assignments.

Bridging gaps such as these affects student behavior, particularly with regard to student reading compliance. Although mapping all course reading assignments in the syllabus provides an overall view of the course workload, several studies have found that such a presentation can contribute to non-compliance with reading assignments (Marshall, 1974; Hobson, 2003). When these assignments are made close to the “use date” — the class session during which the information contained in that reading appears — students are more likely to read the assignments (Marshall, 1974; Davis, 1993; Lowman, 1995). Marshall (1974) found that the temporal point during the term when reading assignments were made was a significant factor in predicting compliance. In this study, for students who were given reading assignments at the start of the term, documented “use was concentrated just prior to either the mid-term or end-of-term examinations. In fact, the end-of-term checkouts reached a maximum during the examination week. On the other hand, when short but frequent lists were assigned, use was dispersed quite evenly over weekly periods as well as over the whole term” (p. 455). Hobson (2003) found similar differences between student groups assigned required reading at the start of the term and those assigned reading within two weeks of the material’s use in class.

**Shape Class Activity to Encourage Reading**

The way reading assignments are linked to class activity affects the number of students who will complete the assignments. Too frequently college faculty adopt what Lowman (1995) refers to as a “laissez-faire approach” to reading assignments — they “simply announce assigned chapters, problem sets, or papers in the syllabus and rarely mention them again” (p. 229). As Lowman points out, this approach has detrimental effects: “though requiring less effort and responsibility on the part of the instructor, [the laissez-faire approach] sets up many students to achieve far less in a class than they would have done under more engaging and sophisticated instructor leadership” (p. 230). Many strategies are available to change this situation and increase the likelihood that students will complete reading assignments.4

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4 For more complete suggestions on ways to link reading to class activity, see Bean (1996) pp. 133-148, Davis (1993) pp. 199-201, and “When they don’t do the reading” (1989).
Tip 7: Preview the reading
Many texts used in college courses intimidate students because of their organizational complexity, length, foreign vocabulary, and expectations about readers’ background (Bean, 1996; Maleki & Heerman, 1992). Students can be helped “into the text” when faculty make the assigned reading material part of the in-class activity. In his extensive review of the literature focusing on student motivation to learn, Lowman (1995) concluded that, “Integrating readings into class presentations and discussions is the best means of motivating students to read beforehand — not out of anxiety at the prospect of receiving a low grade on a pop quiz, but in response to the encouragement of an instructor who gives them both an intellectual reason and the freedom to fulfill the assignment” (p. 235).

Previewing course reading to increase student reading compliance can be accomplished in several ways. At the most basic level, the mention of specific readings during a class presentation will increase the likelihood that students will read that work. As Marshall (1974) found, although “few students even bother to use most of the material at all... those items given preference in the lectures are well used” (p. 456). Bean (1996), Davis (1993), and Cannon and Newble (2000) also recommend allocating time during in-class lectures and discussions to tell students something about upcoming reading assignments in order to pique their interest. Because students often wonder why faculty consider reading assignments important, they will listen carefully to brief comments about why a reading assignment is interesting and connected to prior and future issues.

Tip 8: Use class activities that increase compliance and effectiveness
A number of active and collaborative learning strategies receive frequent praise for their utility in encouraging students to read course material. Included among those activities are the following:

- Reading Guides: Summarize important concepts found in assigned reading and identify areas where students may find the going tough. Useful items to include in a reading guide are such things as help with technical vocabulary, explanation of background concepts and cultural values that the author expects readers to be aware of, and suggestions for making the most out of illustrations, charts, graphs, and tables in the text.
- Study questions: Provided in class or via a course webpage, questions keyed to key points in the required reading can increase the numbers of students who read course material. However, the technique has a drawback in that students may use these questions as last-minute test preparation material, not as guides to help their “real-time” understanding of concepts.
- Short writing assignments: Ask students to explore in writing links between reading assigned for a class meeting and the topic(s) that will be addressed during the current class period (or, that were the focus of a preceding class meeting).

Tip 9: Use class time
Allow in-class time (approximately 15 minutes) for students to read material that is “high priority,” particularly if that material will form the core of the class presentation or activities that follow.

Tip 10: Require prior reading
One reason that faculty assign course-based reading is so that students will, hopefully, be prepared and want to participate in subsequent class activity and discussions. Reading compliance is necessary to achieving this outcome, because as Burchfield and Sappington (2000) found, “failure to read assignments is a strong predictor of nonparticipation” (p. 58). To combat low reading compliance levels among students, McDougall and Cordeiro (1993) advocate the use of random questioning because relying on students to volunteer to participate in class discussion and activity “actually reinforces the ‘nonpreparation’ behavior of students who fail to volunteer” (p. 41).

McDougall and Cordeiro (1993) acknowledge that random questioning will strike many faculty members as heavy-handed and many students as mean. Yet, they argue that the method’s benefits carry the day:

...potential or actual discomfort with the procedure should be minimized as students and instructors alike begin to reap the personal benefits of consistent preparation for lecture and discussion, including: (a) increased engagement, understanding, and participation; (b) more consistent coverage of assigned readings and course objectives; (c) decreased reliance on time-honored traditions such as cramming for exams or reading assignments only after lecture and discussion have occurred; and (d) improved short- and long-term academic outcomes. (p. 48)

Tip 11: Test over reading material
Testing students over material contained in assigned reading, and, in particular testing students over reading assignments not covered in class, is the most punitive of strategies presented here to increase student compliance with course reading. The rationale supporting such testing comes from faculty with different perspectives. On the pragmatic side, McDougall and Cordeiro (1993) argue that “many students simply do not complete assigned readings punctually or effectively in the absence of periodic verification or impending grade-contingent tasks” (p. 47). Although he advocates classroom activities that motivate students to read without the threat of a test, even Lowman (1995) acknowledges that including test questions over required reading that is not the focus of in-class presentation or discussion can induce some students to read material that they would not read otherwise.

Develop Needed Reading Skills and Attitudes
To be effective classroom teachers, it is often necessary to be also an effective teacher of reading skills and attitudes.
**Tip 12: Teach reading strategies overtly**

Any teacher who includes reading assignments in a course should also ensure that students have the reading tools they need to use that material for the purposes intended. To read course material at the level of adroitness that faculty desire, students will need to be taught how to do so. Even skills that seem basic to faculty warrant direct instruction, including such a simple skill as marking texts. Nist and Kirby (1989) explain why text marking offers a useful starting point for developing students’ reading skills: “Text marking is generally ignored [in secondary education] because high school students are not permitted to mark their books. Yet it is assumed that college freshmen should be able to make the transition to text marking by the sheer fact that they are college students” (p. 336).

Providing students with suggestions about how to mark texts that work particularly well in specific content areas does not have to be a big burden, nor does it need to entail onerous preparation. A good place to start is to reproduce several pages from the course textbook that are marked in a manner that can aid learning. Even better is to provide annotation of the marking that explains the strategy used and the choice made to determine what was marked and what was not. Such modeling serves two purposes: 1) it brings reading material into class as an object of in-class discussion, and in doing so legitimates the textbook (or other reading materials) and 2) it provides a model of how experts approach material presented in complex structures, including making sense of technical language, shuttling between text and supporting materials, cross-referencing topics via the text’s index, and using study guides for formative assessment purposes.

Such in-class (or out-of-class modeling via a course website) instruction should occur early in the term. As Nist and Kirby’s study of student text marking strategies revealed “while students tend to develop marking patterns and consistently utilize these patterns as they mark text, students, overall, fail to effectively mark texts.” The lack of marking skill is often due to the absence of an effective guiding rationale, Nist and Kirby (1989) found that the material that students

...most often marked was factual material of a nonconceptual nature or random information that probably should not have been marked in the first place. Students seemed to have a difficult time in selecting and marking key ideas in spite of the fact that publishers include numerous cues and textual aids supposedly included to help students...Students ignored these aids (p. 335).

It is never too early to help students tell the forest from the trees. And, given the difficulty of learning to deal effectively with academic prose, such assistance cannot be offered too often.

**Follow Up**

Teachers can set the expectation that reading compliance is essential for a course in many ways, including the strategies described above. However, students will need on-going, organized reinforcement if they are to accept that expectation. Paying regular attention to reading compliance is important because of the norming influence that such attention triggers (Burchfield & Sappington, 2000).

**Tip 13: Use Classroom Assessment Techniques (CATs) to assess compliance**

The cost of not monitoring compliance is marked. Burchfield and Sappington (2000) predict several undesirable results:

- Failure to monitor reading compliance sends a message to students that this aspect of learning is optional and of little concern to the instructor. In that sort of climate, it would not be surprising that students would postpone reading until a pending exam made it a practical necessity. Also, the unprepared student is more likely to adopt the role of silent, uninvolved observer than is the prepared student.” (p. 59)

A number of classroom assessment techniques (CATs) (Angelo & Cross, 1993) can provide teachers with an accurate picture of student compliance with assigned reading. One approach is simple: periodically ask students to anonymously report if they have completed reading assignments for a given class period (McDougall & Cordiero, 1993). Burchfield and Sappington (2000) routinely include the question, “I read my entire assignment for today, true or false,” on class quizzes (p. 59). Angelo and Cross (1993) present 50 CATs that offer myriad approaches to assessing the state of student reading compliance. CATs can provide teachers with important insight into the beliefs that students have about course-linked reading and the rationale(s) used as they choose to read/not read for class.

**Tip 14: Get assistance where/when needed**

Few college teachers are trained to teach reading. It behooves them to become familiar with specialists who staff campus reading programs. Maleki and Heerman’s IDEA paper, “Improving Student Reading” (1992), offers a good introduction to the ways in which college faculty can collaborate with such student support services both to help individual students develop needed reading skills and to shape a campus culture that values reading as part of a mature learning process.

**Conclusion**

Changing the academic landscape so that most students read most course assignments most of the time is a complex challenge. The complexity lies in the fact that when college faculty members state that they want students to be better readers, they are being somewhat misleading in articulating their concern. Leamnson (1999) unpacks their embedded meaning by pointing out “What can be developed, given good teaching, energy, and some
luck, is not so much a skill in thinking, but the habit of thinking...The ability to do a thing is different from the inclination to do it routinely, out of habit” (p. 29).
It is precisely the “reading habit” that the RIF literacy push advocated and that college faculty believe is fundamental to academic success. The goal implicit in faculty members’ commitment to reading as fundamental to college-level learning is one of acculturation: instructors want their students to come to a place where, like the faculty member, they internalize (make tacit) a commitment to reading as one of the essential tools necessary for higher-order thought, rational action, and fulfillment. Helping students get to this point, however, is a process that takes time, during which direct instruction and continuous modeling by faculty members and student maturation must occur. If they choose, college teachers can affect the first two items in this list directly, while affecting the trajectory of the latter item more indirectly.
If high levels of student reading compliance and, by extension, high levels of reading comprehension, are endpoints that truly matter, faculty must accept their role in an inter-dependent process; they are the key agents in making reading fundamental in college.

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References


References continued


When they don’t do the reading. *Teaching Professor*, 1989, 3(10), 3-4.

APPENDIX

**Table 1: Bean’s Student Reading Problem/Solution List**

<table>
<thead>
<tr>
<th>Sources of students’ reading difficulties</th>
<th>Strategies to help students become better readers</th>
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</thead>
<tbody>
<tr>
<td>1. Misunderstand the reading process</td>
<td>1. Explain how your reading process varies with your purpose</td>
</tr>
<tr>
<td>2. Fail to adjust reading strategies for different purposes</td>
<td>2. Show students your note-taking and responding process when you read</td>
</tr>
<tr>
<td>3. Struggle to perceive an argument’s structure as they read</td>
<td>3. Help students get in the dictionary habit</td>
</tr>
<tr>
<td>4. Struggle to assimilate the unfamiliar</td>
<td>4. Teach students how to write “What it says” and “What it does” statements</td>
</tr>
<tr>
<td>5. Struggle to appreciate text’s rhetorical context</td>
<td>5. Make students responsible for texts not covered in class</td>
</tr>
<tr>
<td>6. Struggle to see themselves conversing with the author</td>
<td>6. Awaken student interest in upcoming reading</td>
</tr>
<tr>
<td>7. Lack “cultural literacy” assumed by the text’s author</td>
<td>7. Show that all texts reflect the author’s frame of reference and warrant questioning and analysis</td>
</tr>
<tr>
<td>8. Lack adequate vocabulary</td>
<td>8. Show students the importance of knowing cultural codes for comprehending a text</td>
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<tr>
<td>9. Struggle to track complex syntax</td>
<td>9. Create “reading guides” for particularly difficult texts or for texts with unfamiliar cultural codes</td>
</tr>
<tr>
<td>10. Struggle to adjust reading strategies to the varieties of academic discourse</td>
<td>10. Help students see that all texts are trying to change their view of something</td>
</tr>
<tr>
<td></td>
<td>11. Teach students to play the “believing and doubting game”</td>
</tr>
</tbody>
</table>

(Bean, p. 134-37)                                                                                          (Bean, p. 137-43)
Improving Instructors’ Speaking Skills

Nancy R. Goulden
Kansas State University

"Demosthenes, the famous classical orator, was asked ‘What are the three most important aspects of public speaking?’ His answer: ‘Delivery, delivery, delivery.’”

(Nelson & Pearson, 1990, p. 200)

Importance of Speaking Skills

Almost any oral, teacher-directed instruction involves public speaking whether the primary mode is lecture, guided discussion, recitation, or directing small group work (Lowman, 1984). Instructors can enhance the effectiveness of oral instruction through attention to both the verbal and non-verbal aspects of their teaching. Many educators spend a great deal of time and effort in choosing the organization, examples, and words they plan to use in class. (See IDEA Paper No. 14, Improving Lectures; Cashin, 1985.) However, this thoughtful preparation may be wasted, or at least undermined, if the content is delivered poorly. Researchers have found that students whose teachers use dynamic, vocally skillful delivery are more successful at both comprehending and retaining information than are students whose teachers have weak presentation skills (Beighley, 1952; Contra, 1977; Coats & Smidchens, 1966; Vohs, 1964).

The average watcher/listener can judge whether a lecturer's delivery is effective. High or low student ratings of teaching correspond with trained raters' scores of effective or ineffective speaking skills (Albanese, Case, Schuld, & Brown, in press). However, an extensive and complex set of vocal and bodily behaviors combine to produce what is called “speaker delivery.” Even if audience members were to agree on just which behaviors are important in oral delivery, individual backgrounds often provide a diverse set of “do’s and don’ts” for the appropriate execution of those behaviors. In order to provide guidelines to aid the college instructor when speaking to most classroom audiences, this writer reviewed recent editions of five of the most popular public speaking texts in use at the college level (Bradley, 1988; Gronbeck, McKerrow, Ehninger & Monroe, 1990; Lucas, 1989; Nelson & Pearson, 1990; Sprague & Stuart, 1984). The recommendations of these communication authors are based on contemporary experimental research of effective speaking and on the classroom experience of the authors. In addition, two texts written for college teachers (Lowman, 1984; McKeachie, 1986) provided additional suggestions about 1) what is effective lecture delivery, 2) how lecturers can analyze their classroom delivery, and 3) how lecturers can improve their classroom delivery.

What is Effective Speaking?

Effective speaking is determined by both positive and negative elements. For example, using vocal and bodily behaviors which promote audience attention and clear transmission of the speaker’s ideas and facts is positive; distracting behaviors are negative. Effective delivery should not call attention to itself either through unconscious acts such as nervously tapping one’s fingers, or through deliberately planned features such as elegant gestures which are so styled and mannered they become a dance independent of the words of the speaker. The attention of the students should be on the content the lecturer wishes to share, not on what the speaker is doing or failing to do (e.g., making eye contact or changing vocal pitch). Therefore, two means leading to effective speaking are 1) the elimination of distractors, and 2) the use of the voice and body to deliver the message so that the presentation seems effortless.

Textbook authors agree that delivery supports the content best when the presentation appears to be natural and the speaker looks and sounds much as people do during ordinary conversation. At the same time the teacher must project the image of the credible expert. Consequently, college teachers are faced with the difficult task of trying to be themselves in front of the class, only better.

Speaker credibility depends on the students’ perception of the instructor as competent, trustworthy, sincere, attractive and dynamic. These attributes are primarily conveyed to the audience through the nonverbal aspects of delivery. If there is a conflict between verbal and nonverbal messages, audiences tend to believe the nonverbal message and reject the verbal. This means that, although a lecturer may be an outstanding expert in the content field, if he or she appears to be inept when speaking because of nervous or distracting mannerism, the students may decide the information and the speaker are insignificant and ignore what the lecturer has to say.

How Can Lecturers Analyze Their Delivery?

The only information many speakers collect about their presentation skills comes through the clouded mirror of audience reaction or the fleeting, peripheral sights and sounds they half hear or glimpse in mid-speech. These are just not enough! We cannot determine if we are creating barriers to student attention and comprehension without a more complete representation of how we look and sound to the listeners. Teachers can solicit more direct audience feedback by, for example, asking a trusted colleague to sit in on a class and share perceptions of presentational behaviors, or by requesting specific information related to delivery when using student rating forms. Audiotapes and videotapes of actual classes are an obvious source for analysis. Using an audiotape when studying vocal delivery allows the speaker to focus on the impact of the voice alone without distractions of visual body signals. Watching a videotape with the sound off...
provides the analogous advantages when checking the visual non-verbal elements. Although watching and listening to oneself can be anxiety provoking and at times discouraging, change cannot begin without identifying areas where the speaker can improve.

Improving Delivery

Vocal Delivery. The following 32 recommendations highlight aspects of effective delivery. The first two sets of recommendations focus on vocal delivery. College teachers can examine them by analyzing a voice tape. The first nine relate to vocal problems that public speakers often encounter. These are problems because either the behavior becomes the primary focus of the listeners’ attention to the exclusion of the speaker’s content; or the listeners have to work so hard to hear and understand the words that they give up and let their minds wander.

1. Speak loud enough so that the listeners do not have to strain to hear.
2. Do not speak so loudly that sounds are distorted or that you--the speaker--cannot maintain a natural conversational tone.
3. Articulate precisely enough that the audience can understand the words without effort.
4. Do not exaggerate the articulation so that sounds draw inappropriate attention to themselves (especially final consonants). Some speakers explode sounds such as the final “t” in “not,” or they let the “t” sound bleed into the next word (e.g., instead of “not over,” the speaker is heard to say “naw over”).
5. Do not speak so rapidly that both the speaker and the listeners become fatigued.
6. Do not speak so slowly that listeners become bored and their attention wanders while waiting for the next word. Listeners perceive speakers who speak relatively rapidly as more competent and persuasive than those who speak very slowly.
7. Do not fill pauses with vocalizers such as “a,” “um” or filler words such as “okay,” “now,” “you know.” Changing this behavior requires awareness, concentration, and the realization that a brief silence is less noticeable than a meaningless sound.
8. Vary the pitch so that all words do not sound the same. Listeners interpret what they call monotone speech as a signal that the speaker either does not care about the topic or lacks confidence.
9. Do not use repetitive patterns of pitch and emphasis (almost a sing-song quality) which do not reflect the meaning of the words. You may find that you always drop your voice and stop to breathe after the same number of beats whether the meaning of the sentence dictates a pause or not. A good defense against a mechanical delivery is to concentrate on the meaning of what you are saying rather than on the sound of your voice.

The next seven recommendations focus on positive vocal strategies.

10. Have your voice replicate the natural rhythms and pitch changes of conversation. It may help to make an audiotape of a normal conversation and compare it to your teaching delivery.

11. Slow down when explaining complex or difficult material.
12. Increase the pace to reflect changes in the mood or content, or to regain audience attention.
13. Pause to emphasize important content.
14. Pause to allow the students to understand and assimilate information, or to respond to rhetorical questions or to humor. Your jokes may be very funny, yet the students may not laugh unless you signal with a pause that it is acceptable to react.
15. Change volume (either increasing or decreasing) for emphasis or to regain attention of audience.
16. Use standard pronunciation and check the pronunciation of all unfamiliar words.

Use of Body. The next two sets of recommendations concern the use of the body and its relationship to effective speaking delivery. The first eleven recommendations concern distracting or audience-frustrating physical behaviors.

17. Be sure that the audience can see you. The room should be well lighted and free from visual obstructions like pillars if at all possible. In a large room or lecture hall, it may be necessary to remain standing all of the time so that students are not frustrated by not being able to see the speaker.
18. Do not let a speaker’s stand form a barrier between you and the students. If all they can see are your face and hands, the stand probably is a barrier.
19. Do not be too static. The lecturer who stands motionless in one spot, with hands anchored to the speaker’s stand, misses an opportunity to provide the audience with “something to watch.” The result is the audience becomes bored and begins to think of other things.
20. Do not constantly walk from place to place without motivation. It is especially important to remain in place when explaining very complex material.
21. Do not use distracting hand and arm gestures. If the watchers become aware of the movements, the gestures become distracting. Audiences especially notice the stiffness or the stiff-ness of consciously planned gestures and the tiny, jerky movements of aborted gestures which never quite materialize.
22. Do not use repetitive hand or arm movements unless they reinforce or are coordinated with the verbal messages.
23. Avoid negative facial expressions, ones that seem cold or hostile, or project boredom or a lack of interest in the topic. Of course, you will not deliberately set out to create unpleasant facial expressions; they often come from a reluctance to let the students see how you feel or a belief that the most appropriate facial expressions for teaching should be reserved, serious and formal. Try to just relax and let your face naturally reflect your feelings and thoughts. Go ahead and smile, if that is how you feel.
24. Avoid distracting the audience by looking at the ceiling, out the window, or into the hall. Look at the audience or at your visual aids.
25. Do not look at your notes, etc. more than 20% of the time.
26. Make true eye contact with your audience. Do not just skim the audience or look at their chins, foreheads, or at the air above students’ heads.

27. Make sure that your personal appearance and clothing convey the image you wish to project.

The final five recommendations deal with positive body delivery characteristics.

28. Move from place to place as a physical representation of the structure of the lecture. For example, move a few steps when changing to a new subtopic in the lecture.

29. Move to reestablish audience attention or to allow the audience to rest by changing position. The movement also produces the added benefit of helping you to relax by releasing tension.

30. Use mime or air pictures to clarify or emphasize content. The number of gestures is not important; their appropriateness is.

31. Constantly reestablish the link between you and the students by making direct eye contact with individual members of the audience. Initially, you may want to seek out the active responders for feedback and to help you gain confidence. However, at some point, all members of the audience deserve and need contact.

32. Project enthusiasm for the content and the sharing of the content with the audience by your facial expression and bodily stance.

How Can You Put These Recommendations into Practice?

The first obvious step toward improving your instructional delivery is by being aware of how you look and sound. You may be shocked to discover that what you thought was a moderate, considerate pace of speaking, on the tape sounds like a record played at too slow a speed, or that what you considered precise articulation sounds artificial and affected. Simply knowing that a problem exists can help to eliminate or at least reduce it. We can increase volume, slow down, speed up, open our mouths wider and more conscientiously produce the consonant sounds, monitor our speech for meaningless vocalizers, stop pacing back and forth, move away from the speaker’s stand when changing the topic, and deliberately lock eyes with audience members. As we begin to alter speaking behaviors, we need to continue to receive feedback on how we look and sound. More tapes, peer and student reports can be collected. In addition, as we become more aware of our vocal and body behaviors — especially those on our “change” list — we will find that a part of our attention during the lecture can be directed toward reducing distractors and working on improvements. If we watch and listen to the students during class, they constantly provide nonverbal feedback about how effective our lecturing is.

Effective delivery does not depend on a “bag of tricks,” or a set of choreographed moves or emphasized words. There is no one right way to present a lecture, but those who are most successful share the same secrets about delivery style, mental focus, and preparation.

Delivery Style. Outstanding lecturers talk to the audience. If you read or recite your lecture, the students become outsiders, only occasionally eavesdropping on what you are saying. The most important link is between the teacher and the students. The script must not get in the way. Rather than writing the lecture word for word, develop an extensive set of notes. Use color-coded highlights to allow quick identification and location of specific words or information in the notes. Refer to your notes as little as possible.

Educator’s Mental Focus. If lecturers are to teach and not merely broadcast information out into the air, then they must focus on the content and the transmission of that content to the students, not on how uncomfortable they feel. It is normal to feel nervous and self-conscious when facing a new audience of students or a new situation. In your anxiety, you may even feel you are looking out over rows of judges just waiting for you to fail. This performance apprehension causes some speakers to seek safety by impersonally reading the lecture, making little or no eye contact, and producing flat voice and facial signals. We, as teachers, should look at the class situation as a collaborative enterprise involving both the students and ourselves. Working on learning the content together, the students can become our allies. The passion we have for our field and for helping students learn can carry us to a natural, enthusiastic delivery style. Many of the distractors will disappear when we forget about ourselves and are no longer inhibited by apprehension. Hands naturally gesture, the face lights up, the words we need are just there. Eye contact becomes real and the ideal circular flow of communication from instructor to student and back again just happens.

Preparation. Perhaps it goes without saying that successful lecturers are well prepared. However, that preparation must include more than just the content of the lecture. Part of the preparation includes visiting the classroom and planning how to adapt to the room and make maximum use of the space. The instructor needs to decide where to stand to be seen and heard, where to place the desk or speaker’s stand, where and how to display visual aids, where to walk. Effective speaking also requires mental, emotional, and physical warm-up immediately before class. Of these the emotional may be the most important. A few minutes of private time thinking about the class to come, reviewing the content so it becomes new and exciting to the teacher can help the lecturer to meet the students ready to share that excitement. Physical movement, walking across campus, sprinting up the stairs can warm the body up so the lecturer is ready to gesture and move freely and naturally.

In a study designed to identify the traits of the best and poorest speakers that a group of students had ever heard, Henrikson (1944, p. 124) discovered that best speakers were those who spoke “without notes ... and in an optimistic mood” with “good speech material, good delivery, a good voice, and a good personality.” Developing these traits is very achievable if we, as teachers, understand the characteristics of good delivery, are willing to carefully analyze our own delivery, to eradicate as many distracting behaviors as we can, to use the extemporaneous mode of delivery, to prepare, and above all to develop an optimistic, enthusiastic attitude.
References

Those references below which are followed by an asterisk are either public speaking textbooks or texts written for college teachers. Each has one or more sections on speaking skills.


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Background
The foundations of any discipline are its definition, knowledge base, terminology, structure, methodology, and epistemology. As we move from basic knowledge to the complex organization and hierarchies of information in the disciplines, we parallel the levels of Bloom’s cognitive taxonomy (1): knowledge, comprehension, application, analysis, synthesis, and evaluation.

IDEA Objective 1 deals with acquisition of basic information upon which more complex learning relies. While traditional teaching methods, especially lecture and readings, are quite efficient at “delivering” this kind of information, the question is whether “delivery” is enough. Simply having the information at hand does not guarantee that students will understand it or know how to learn it. Are there ways to help students learn the material more effectively and also be able to use the information as they move into more complex cognitive tasks?

Research (2) has shown that there are two essential tasks to foster student achievement: help students see the relevance and importance of the information, and make it understandable. In fact, the dimensions of teaching that are the strongest correlates of student achievement are: 1) preparation and organization; 2) clarity of communication; 3) perceived outcome of the instruction; and 4) stimulating student interest in the course content. The first two concern the organization of information and its effective presentation and have traditionally been part of a teacher’s preparation. The second two deal with motivation and engaging students in their learning.

If students understand why information is important and useful, if their curiosity is piqued, if they are appropriately challenged, and if they perceive relevance of the content, they will be willing to exert more effort and will perform better as a result (3, 4). From a different, but nonetheless important perspective, these same dimensions are among the most strongly correlated with overall student ratings of teaching and courses (2, 5).

Teachers must possess a great deal of different kinds of knowledge. Lee Shulman (6) has identified three general kinds of knowledge required by teachers. The first is “content knowledge,” an obvious and necessary ingredient. The second is “pedagogical content knowledge,” or understanding of pedagogy, teaching and learning, and its application to the discipline. Finally is “curricular knowledge,” an enhanced version of the latter where the teacher has a repertoire of strategies, materials, approaches, and alternatives that are called on to help students learn. Master teachers, by Shulman’s definition, also possess the ability to take the principal concepts of the discipline and translate them into language, demonstrations, or activities that students can understand. In other words (and particularly in introductory courses where students most frequently have to learn terms, definitions, classifications, etc.), the teacher provides both the organizational structure and the appropriate level of complexity for the students. Quite simply, this makes learning easier, promotes success and enhanced efficacy (7), and creates a positive motivational cycle in which students become more and more willing to work and reap both intrinsic and extrinsic rewards as a result.
However, structuring and organizing information and activities does not mean exercising complete control over all aspects of the course. Making a course “learner centered” (8) can help you to get your students more deeply engaged in the content, and it can promote the kind of “deep learning” (9) that characterizes academic success.

If possessing basic knowledge is critical to deeper understanding, it follows that this objective should relate to other IDEA objectives that deal with cognitive gains. This is the case, as Objective 1 is very strongly related to Learning fundamental principles (Objective 2), Learning to apply course material (Objective 3), Developing specific professional competencies and skills (Objective 4), and interestingly, Acquiring an interest in learning more (Objective 12). The positive motivational cycle at work again!

Helpful Hints
IDEA research has identified a number of specific teaching methods that are related to Objective 1. The most important seem to be Demonstrating the importance of the subject matter (Item 4), Stimulating intellectual effort (Item 8), Using assessments that cover important points in the course (Item 12), and Introducing stimulating ideas (Item 13). It is obvious how these relationships reinforce the research referred to above: motivation, organization, and clarity lead to successful acquisition of knowledge level objectives. The relevance of these methods is also apparent in many of the following hints.

Incorporate motivational strategies into your teaching. The most productive motivational strategy is one that considers the entry characteristics of students, adapts instruction accordingly, demonstrates relevance of the content, provides opportunities for success, and leads to the satisfaction of positive performance (3). The intrinsic motivation that results has been related to brain function in the sense that successful execution of a task based on personal effort is a powerful emotional force. As Zull (10) points out, motivation is intensified when a student can say, “I did it myself.” Thus, using activities that allow students to find information, to organize it in meaningful ways, or to use it, all have the potential to provide opportunities for success and intrinsic motivation. This applies even to learning basic information because students can acquire some of that information/knowledge through their own efforts as well as through a teacher’s effective presentation and organization. When students passively sit and listen to 50 minutes or more of a lecture, they have little investment in learning except to do it in order to pass a test and get a grade.

Be a role model for learning how to learn (meta-cognition). You can exhibit skills that help students to see structure, to relate topics, and to organize information. When you do this kind of modeling, you provide a meta-cognitive assist. Students who follow your example are not only discovering what to learn, but how to learn it. A teacher who says, “This is how we approach a problem in our discipline” or “This is how I would go about answering this question,” is showing students a process that is transferable. It isn’t necessary to provide an answer to a problem – students can work on that. Even when dealing with knowledge level objectives, a teacher can show students how topics relate to and build on each other. Combining the modeling process with carefully chosen questions that lead students from one point to another is another strategy for engaging students in meta-cognitive activity.

Use teaching strategies that directly connect to the objective. There are many ways to enhance your skills in organizing information for students and to get them engaged with you and your content. With respect to organization and presentation you can attend to what Harry Murray (11) has called “low-inference behaviors”. That is, specific and observable teacher behaviors that help students learn. For example, Murray notes that for more effective explanations, a teacher can use concrete examples, repeat difficult concepts, or stress important points. Hativa (12) has gone further, describing “upper,” “intermediate,” and “lower” levels of low-inference behaviors. For example, one set of behaviors targets clarity of explanation. An intermediate behavior in this category would be “simplifying the material presented.” This behavior could be broken down into “teaching in two or more cycles,” “teaching in small steps,” “using simplified verbal presentations,” and “providing further support after direct instruction.” Each of these behaviors promotes more effective learning of facts.
The IDEA teaching methods and strategies related to this objective should also be considered. The POD-IDEA Center Notes cited at the end of the paper should be helpful.

Consider using active learning or team-based methods. Content-heavy courses may not seem to be the right places for instructional methods that have been shown to enhance conceptual learning, but conceptual understanding can often help students make sense of the facts, terms, and organization of the subject. It is the disassociation of facts, the frequent error of students presuming that memorization of bits of information is learning, that can be overcome by creating engaging problems and encouraging teamwork (13). When you ask students to organize information or place it in context (and that, in itself, can be a team assignment) you help them to construct more complete knowledge. Concept maps (14) are useful at this level because they provide a structural picture of the relationships of information and concepts. Students benefit from a clear description of how concept maps are constructed and with some training, they can use the technique themselves. In teams, they can then compare their work and discuss their reasons for their organization of the information. Of course, you will have to include some review of the team decisions in order to verify that students are on the right track, but this is a beneficial activity in itself, since it provides a review of the thought process needed to arrive at the correct response.

Assessment Issues
Almost any kind of strategy for tracking student progress will be useful (15). When the objective is for students to learn basic facts, the assessments you choose should provide direct evidence of knowledge, and if possible, they should also link that knowledge to deeper understanding of the material. Here are some strategies.

Collect formative evaluation data. Courses that most often require students to learn basic information are frequently offered in the first year and in large-enrollment settings and thus, they pose particular challenges. Your students probably have little experience with the content and they may not have sophisticated learning skills, so it is important to keep track of their progress and problems. You cannot wait until mid-semester or later to assess learning, and, keeping in mind the motivational notes above, it is often the case that non-graded assessments will be most effective in promoting learning without the threat of failure or possible discouragement that comes with errors.

One effective technique for following progress is the use of knowledge surveys (16). These assessments ask students to estimate their knowledge and/or their confidence in their ability to respond correctly to questions. When their estimates are contrasted to actual responses, students become more aware of what they do and do not know, and the areas that need attention. When you and your students know what needs attention, both teaching and learning become more efficient.

Another approach that has been successful is to use new technologies, such as student response systems. These require remote devices sometimes called “clickers” that students use to answer in-class questions. These systems can then display the responses with two beneficial results – you can immediately see the level of student understanding and you can follow-up with other questions or involve students in a discussion about correct answers and students' reasons for their choices (see IDEA Paper No. 43).

Complete the feedback cycle. As noted above, assessment with feedback is most beneficial for student learning. No matter what technique is chosen, the objective is not simply to determine right or wrong, but rather to focus on why a given answer is correct and on the process used to arrive at that answer. There are various ways to provide feedback. Some, like the response systems described above, provide feedback immediately. Some, like team review if individual work, provide feedback as part of their process. Face-to-face feedback is always useful, but there are other ways to keep students apprised of their progress. You can use technology (e.g., course management systems) to respond to student work in on-line or hybrid courses. In some of these courses, direct contact by telephone can be very effective. Whatever the methods used, the most effective feedback is that which is clear, focused, supportive, and includes information about strengths as well as specific recommendations for improvement.
References and Resources


Related POD-IDEA Center Notes

IDEA Item #4 Demonstrated the importance and significance of the subject matter, Nancy McClure

IDEA Item #8 Stimulated students to intellectual effort beyond that required by most courses, Nancy McClure

IDEA Item #12 Gave tests, projects, etc. that covered the most important parts of the course, Barbara E. Walvoord

IDEA Item #15 Inspired students to set and achieve goals which really challenged them, Todd Zakrjasek

Additional Resources

IDEA Paper No. 14: Improving Lectures, Cashin

IDEA Paper No. 15: Improving Discussions, Cashin and McKnight

IDEA Paper No. 16: Improving Multiple-Choice Tests, Clegg and Cashin

IDEA Paper No. 24: Improving Instructors' Speaking Skills, Goulden

IDEA Paper No. 41: Student Goal Orientation, Motivation, and Learning, Svinicki

IDEA Paper No. 43: The Technology Literate Professorate: Are We There Yet? Madigan

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In the late 1980s, when the first signs of digital technology began to infiltrate the college campuses, very few faculty in higher education, outside of computer sciences and some small pockets of innovators, were savvy users of the technology. But in 1989 all that began to change when Tim Berners-Lee invented HTML and HTTP, and basically worked with others to standardize communication and document retrieval through the web. College campuses embraced the web and its potential, and by 1994 educational personnel worldwide were demanding more, better, and relevant technology in which to do their work. That was then, this is now.

Today there are those who argue that universities have poured money into digital technology at the expense of important academic programs. Shouts of technology bankruptcy can be heard from the hallowed halls of academe. Some say that digital technologies have increased the workload of faculty without commensurate gains in productivity or enhancement of student learning. In many cases across campuses, this charge would not be difficult to prove. For example, we see laptop computers being used for connectivity in the classroom, but for purposes not related to the learning outcomes of the subject. And, we see the Internet replacing valuable teacher to student contact. Certainly we have all felt, at one time or another, that the technology has not lived up to its hype.

But at the risk of alienating those who hunger for a debate about technology waste, I’ll take a stand. Used responsibly, digital technology is, and most likely will be, an important factor in the higher education equation and its potential for increasing student learning and faculty productivity should not be casually dismissed. Computer Aided Instruction (CAI), for example, has been researched extensively over the years and has shown it can improve test scores and motivate students. To date, however, there has been a dearth of critical research that investigates the value, in regards to student learning, of digital technologies in educational institutions.

As a primary and practical focus, this paper addresses the kinds of technology that have the potential for enhancing student learning, the ways in which new technologies can be assessed to determine its impact on learning outcomes and ultimately student learning, and some creative ways that universities can support this judicious use of technology. But before the practical focus in this paper, some important background is necessary.

Our World is Changing
Much has been made about how the world has changed because of the advancement of digital technology into our daily lives. Thomas Friedman (2005), for example, reminds us that people are using the Internet and digital technologies to level the playing field worldwide — especially in the business environment — so that knowledge and services are readily accessible and available through cost-efficient means and by anyone, anywhere, and at any time. How does such a notion transfer into the world of higher education? We only have to look at the rise of private online universities to get a prime example of how digital technology is transforming the landscape of today’s university. There are even more obvious examples. For instance, who in higher education has not been impacted by the predominance of email, presentation software, listserves, and documentation programs? Further, many universities, colleges, and K-12 schools have adopted variations of content management systems (CMS) that either are homegrown, adapted from open source programs, or commercial. The list of new technologies available for today’s educator and student seems inexhaustible as podcasts, webcasts, smartphones, etc., illustrate. Our world is definitely changing and we need to learn how to invest wisely in technology to support our learning needs.

The Millennial Student
To invest wisely, educators first need to know the purposes for using technology for pedagogical practices. It is not about spending the most, nor about keeping up with the Jones’s that is most important. It is, however, all about the student learner. We are at a place in this evolving digital
environment where we need to stop, take inventory and reflect on our successes and failures in using technology to enhance student learning. We need more ideas about how to use and assess this technology for what it can and cannot do to support learning. And, we need to find creative and alternative ways to efficiently learn the technology that supports student learning. We can begin this process by reviewing what we know about our students as learners and what we mean by learning. Only then can we develop an effective strategy for implementing a technology plan across educational institutions that supports student learning.

![Abbott's cartoon](https://example.com/abbott-cartoon.jpg)

*You're WRITING a note to my Mother? How quaint.*


One of the biggest changes reflecting the evolving technology revolution has been the student learner. Although Abbott’s cartoon (2005) is about today’s children, it reflects the attitudes of the millennial student who were born between 1980 and 2000. These students are the bulk of the students at many universities today. They are different in many ways from the students we educated when the digital revolution first swept college campuses. Much has been written and said about millennial students (Stern, 2005; Lancaster and Stillman, 2003; Martin and Tulgan, 2001; Raines, 2003) and how these students are challenging educators in interesting new ways. Among their many strengths, students are goal and achievement oriented and they are used to multi-tasking. In addition, these students are technology savvy. It is this last strength that demands particular attention.

There are those who say that our educational institutions, and the way we teach, need to change dramatically in an effort to accommodate the millennial/digital student (Carlson, 2005). And why not? Today’s students, like faculty, are mobile workers. They use technology daily for such needs as communication, collaboration, and as a way to learn. In response, some universities have changed dramatically. For example, the University of Texas is going bookless in their main library (Mangan, 2005). The reason? They needed to make room for an “information commons” — a place that parallels a trend in society to create spaces where students expect wireless, easy, and full access to information any time of the day. Others disagree with catering to the digital student. They say, just because students are immersed in technology throughout their daily lives does not mean we have to use it in the classroom — especially if it does not serve to enhance student learning. As this debate continues, we should not lose sight of the reality, nor of the nuances of the debate. Today’s students are comfortable with technology for learning and we should use this knowledge to create a dynamic learning environment wherever that might be.

Most importantly for this discussion, however, is that students may not be using technology in ways that promote critical thinking and deeper learning. We have ample evidence of how students achieve such learning (Donovan and Bransford, 2005; Zull, 2002; Bransford, Brown, and Cocking, 2000; Pelligrino, Chudowsky, and Glaser, 2001), and we need to use such knowledge to develop a dynamic learning environment that uses technology to support learning. Prior to the explosion of digital technology on campuses, Kozma (1987) argued that the computer is a perfect tool for learning as it closely parallels the learning process of humans. I would add that computers and digital technologies of today have even more potential for enhancing learning as they parallel the tools we use daily for such needs as communication, collaboration, and information retrieval.

### New Technologies that are Shaping Teaching and Learning

Although there have been many claims of late that digital classroom technology produces gains in student learning, most research in this area is sparse and too often anecdotal (Cuban, 2001). Individually, we as faculty need to be better researchers in our own courses — to ask better questions regarding how any technology might impact student learning. Before we look at any technologies for use in teaching, we need to ask ourselves these key questions: How does the technology support the learning goals of any given course? And more specifically, we need to ask ourselves how the technology will support what Fink (2003) refers to as the key components of an integrated course design. This means the integration and interconnection of course learning outcomes, their assessment, and the activities that support the achievement of learning outcomes. Of course, without good pedagogy even the best of technologies can prove ineffective for student learning.

In this section, we will look at 10 examples of technologies that are shaping or have the potential for shaping the way we teach today. Within these examples will be a description of the technology and a discussion about its potential to enhance the student learning experience. These discussions are framed around some important ways that technology can be used to support an integrated course design. That is, technology can be used to:

- Further support and strengthen learning activities and assessment strategies that have proven over time to be
effective pedagogical practices.

- Create new learning environments and opportunities where communication, collaborations, resource sharing, and creativity are encouraged in ways that positively impact student learning.

Before deciding on a technology for your course ask yourself:
To what degree will the technology enhance and support assessment strategies and learning activities that in turn help students achieve each of the learning outcomes you have identified in your course? Is the technology necessary or could you achieve an integrated course more effectively with other pedagogical methods?

**Blogs**

*Description:* A web log or blog is a web-based publication consisting primarily of articles that are usually made public. Blogs have gone through a remarkable growth over the last 4 years, partly because they are free and easy to create and range in scope from individual diaries to political, social, public and private forums. Many blogs are interactive in that they allow guests to post relevant comments or ideas in response to other postings. Blogs also have the potential for including media such as images, audio and video. Blogs have become one of the most popular forums for discussion and dissemination of current news and events. Blog technology allows blogs to be syndicated and aggregators allow users to automatically search for favorite blogs on the web and have them delivered to personal accounts.

*Potential:* Today, many college courses include a blogging activity as they help promote the skills of reading, writing, and communication in unique, creative ways. Because they are easy to use and set up, students find blogs useful forums for making public multi-genre writing that includes letters, journals, essays, and short stories. For purposes of convenience, student blogs can be easily accessed through an Internet connection, and archived for later use. Blogs not only allow a forum for students to self-assess their own work, but the global nature of the blogs allows others from anywhere in the world to comment and assess an entry in an easy and fluid way. Faculty and students can also take advantage of the syndication technology inherent in the blog design to automatically receive topic-based blogs on a personal web space. For example, in a political science class, faculty might want to encourage students to receive the blogs of candidates or action groups for comparison, contrast, and analysis. Students could post their analysis, resources, and reflections on their own blog that can be used for other classroom activities.

**Wiki**

*Description:* A wiki is a compilation of web pages that is very organic in nature. Often, users can add and edit content on wiki web pages in unrestricted ways. It is the ability to edit anything on a wiki page that distinguishes this tool from a blog. Typically, wiki content represents the work of the last person to edit a wiki site, the date and time of the contribution and an option to revert the page back to the original source page and author. Wikis are particularly valuable to people who work collaboratively and who want the convenience of a web-based environment that easily allows all content and all changes to be archived and reviewed. These sites can be made private and/or public. Like blogs, wikis are multi-genre forums that can be accessed by local and global audiences. There are many places on the web that offer wiki support for free wiki.

*Potential:* By their very nature, wiki’s foster interaction, group ownership and encourages individual responsibility. This makes the tool ideal for educational purposes as wikis create spaces for students to engage in collaborative projects and writing assignments. Wikis make it possible for writers to continually build upon a text, revising, editing, and making comments through the duration of the project. This encourages shared ideas, assessment, and reflection. Like blogs, wikis extend the boundaries of the bricks and mortar classroom and can be shared globally. Think of language students in Spain creating a co-authored piece of writing with students in the United States. The cultural and linguistic impact of such collaboration could lead to a richer understanding of both Spanish and English. The history of a wiki site can serve as a valuable assessment tool for teachers as they can instantly see who has contributed to a project and to what extent. This allows teachers, for example, to provide formative feedback to a group or an individual just in time and as needed. One can imagine a wiki as a place where ideas are generated for a project and where the thinking can be observed by the authors in ways that lead to a deeper understanding of an idea.

**Learning Management System**

*Description:* A Learning Management System (or LMS) is a software package that enables the management and delivery of learning content and resources to students. The most common and practical LMS systems are web-based to facilitate a 24/7 anytime, anywhere access to learning content and administration of that content. A comprehensive LMS allows for such things as student registration, the delivery and tracking of e-learning courses and content, tests and quizzes, discussion forums, the sharing of resources, and virtual live classes. Most systems allow for learner self-service, facilitating self-enrollment, and access to courses. An LMS is usually password protected to insure privacy and to recognize and observe copyright licenses. Many universities buy a proprietary LMS, but increasingly universities are building their own LMS based on open source software like Moodle. Its no cost (excluding costs associated with hardware and support), flexibility to adapt to small or large institutions, departments, programs and individuals, and world-wide support are attractive features.

*Potential:* LMS systems are increasingly becoming a staple of educational institutions today. Universities use them to deliver web-based courses and web-enhanced courses to
manage those courses from an administrative and teacher perspective. An LMS creates opportunities for various kinds of learning activities to occur within an enclosed online environment. For example, LMS systems support discussion boards where students can post in threaded discussions relevant to course content. These discussions can be open to everyone or restricted to small groups. In addition, teachers can use discussion histories to assess particular learning outcomes such as whether the students understand certain concepts introduced in the online discussion forum. Assessment tools are also built into an LMS and can quickly calculate grades for instant feedback to students. Perhaps the most common use of an LMS by the typical face to face teacher is to support the sharing and archiving of resources such as presentations, notes, papers and valuable links for retrieval anywhere and at anytime. An LMS can become a home away from home for the mobile student and teacher. Although an LMS is not unique in its support of some of the popular applications described here, it does offer one stop shopping for the users as it manages those tools in a common space.

Presentation Software
Description: A presentation program is computer software designed to support the creation of presentations, normally in the form of a slide show. In early iterations of this type of program the output was for the creation of slides, overheads, handouts, and speaker notes. Today, these programs are mostly used in conjunction with a dedicated LCD-based projector so that the slide show can be projected on a screen for large or small audiences. Typical programs allow the author to edit and display content in the form of text, images (including charts and graphs), sound, and video. Although PowerPoint may be the most common example of this program, there are many other programs including Keynote, Adobe Acrobat, and the popular and free Open Office Suite package that includes IMPRESS as its presentation program. Simple presentations can also be created using the Simple Standards-Based Slide Show System (S5). This open source system requires only basic knowledge of web skills and can be learned quickly.

Potential: Presentation tools are best used to convey information in a pleasing way through various forms of expression, and not as teleprompters to regurgitate information that students could have learned through readings or other ways. Dynamic presentations support slide content that enhances the meaning of an idea or concept rather than acting as an anesthesia for the audience. For example, an image or a slideshow of digital images can be used to convey ideas in creative ways that support the different ways humans learn through audio and visual stimuli and storytelling. A diagram, graph, chart, or image are some types of media commonly used to convey ideas through presentation software. Digital stories created through presentation software are a powerful way for both teachers and students to present complicated ideas visually and with supporting audio that might include interviews, music, sound effects, and narration. These “stories” can complement lectures and other ways to learn course content and also serve as types of assessment for learning outcomes. There are other ways in which such software can be used to assess students’ learning. For example, after presenting concepts and ideas via a slide show a slide can include an assessment activity for either individuals or groups to complete. This kind of activity supports an interactive environment where students are encouraged to challenge one another’s answers and to support critical inquiry.

Tutorials/Self-tutorials
Description: Traditionally, tutorials were small classes of one or a few students that were given individual attention by a teacher. Today, tutorials more likely refer to a list of instructions or tips for how to do any of a wide variety of tasks. Digital technology allows educators to create more advanced tutorials that are interactive, visually appealing and competitive with other pedagogical methods for contributing to student learning. A basic tutorial can be created with any text editor and delivered to students through a variety of digital technologies such as email, Portable Document Files (PDF) that can preserve the document format and colors, web pages, and CDs. Tutorials that appeal to the visual learners can be created with scanning software or basic screen capture software found on any operating system. Video tutorials, like those for software applications, can be created with screen capturing software that captures the movement of a mouse as it is used to open windows and select options in a program. A microphone, used simultaneously with the screen-capturing tool to narrate the actions and video-editing software, completes the process. More advanced tutorials include functions that, for example, mimic teacher/student interactions and exchanges, and include an assessment of those interactions. These interactive tutorials can be created through advanced programs such as Adobe FLASH and java scripting.

Potential: Digital tutorials are very utilitarian and versatile. Simple video tutorials, for example, allow for just-in-time learning that appeals to both instructor and teacher. Imagine teaching a business course where your students are required to learn spreadsheet skills and presentation skills using typical software available on campus. Some of your students already know how to use the software and some have no clue. Do you require the whole class to attend a workshop on these tools or just the students who lack the skill? Do you teach the class or does someone else from support services teach the class? Consider the digital video tutorial and their advantages. They can be viewed as many times as the user would like and can be viewed simultaneously on the screen with the software being learned. Instructors do not have to use valuable class time to teach tools that can be learned just in time and anywhere. Digital video tutorials can be custom made by individuals or licensed by educational institutions from vendors such as Atomic Learning. More complex digital tutorials, like algebra tutorials developed by artificial intelligence researchers at the Pittsburgh Science of
Learning Center (Corbett, Koedinger, and Anderson, 1997), are interactive and have self-assessment support built into the tutorials. These tutorials lead students through a process of learning where interventions are built into the tool to ensure that students are fully learning a concept or strategy in Algebra. These digital tutors make smart decisions about when to step back and let students try problems on their own.

Concept Mapping Software

Description: Concept mapping (a method of brainstorming) is a technique for visualizing the relationships between concepts and creating a visual to represent the relationship. Concept mapping software serves several purposes in the educational environment. One is to capture the conceptual thinking of one or more persons in a way that is visually represented. Another is to represent the structure of knowledge gleaned from written documents so that such knowledge can be visually represented. In essence, a concept map is a diagram showing the relationships, often between complex ideas. With new mapping software such as the open source Cmap, concepts are easily represented with images (bubbles or pictures) called concept nodes, and are connected with lines that show the relationship between and among the concepts. In addition, the software allows users to attach documents, diagrams, images other concept maps, hypertextual links and even media files to the concept nodes. Concept maps can be saved as a PDF or image file and distributed electronically through a variety of ways including the Internet and storage devices.

Potential: Concept mapping software is readily available at low or no cost, but is underutilized as a tool for visually representing both simple and complex ideas. Typically, instructors rely more on outlines and brainstorming activities using paper, stencils, and pen rather than digital technologies to convey ideas. While these strategies may work well for some students, they may not necessarily be the most appealing or practical for others. Concept mapping software allows even the most artistically challenged individuals to create visual maps that represent thinking about complicated ideas. For example, imagine a marketing class that is trying to assess the value of concept mapping tools for developing thought on organizational change. The visual might start with a node at the top representing a particular concept mapping tool. Lines from that node might go to other nodes that represent where the tool was developed, how and where organizations use the tool, examples of archived concept maps, and where the tool can be downloaded. Imagine also that each of the nodes can contain pertinent links to such things as resources and contacts. Additionally, concept mapping software can be effectively used as an alternative assessment tool that, with practice, can convey to teachers how a student makes relationships between concepts and ideas.

Webcast

Description: A webcast is the delivery of a program that is transmitted over the Internet. These programs are similar in many ways to television broadcast programs; however, they can be more interactive than TV broadcasts. Webcasts allow the user to connect to a server where they will become real-time participants in a program — which often takes the form of a facilitator-guided workshop or class. These live sessions are highly interactive and allow users to share applications, such as whiteboards, concept maps and word documents, and to communicate live through audio and chat. Elluminate is one of many server-based software programs that is enjoying popularity in educational settings. Webcasts provide educational institutions with the ability to support conferencing and to deliver training and presentations to personnel anytime and anywhere. Recorded and archived webcasts, because they are economical to develop and store, are increasingly becoming the preferred way for universities to deliver lectures, events and presentations to faculty and students through the web, CDs, DVDs and even TV broadcasts.

Potential: Although interactive webcasts are cheaper to deliver than other forms of broadcast and satellite delivery methods, they are still a relatively expensive method for delivering content to students. For campuses that must stay within a limited budget, webcasts can be recorded, compressed using common video editing software, and delivered through broadband that is already supported at the university. Recorded lectures and presentations can be packaged together and turned into a webcast when instructors can’t meet face to face with their students. This supports the mobile worker and helps to increase learning opportunities outside of the classroom for students. With the newer technology available, webcasts can now be syndicated and uploaded to any device, such as an iPod, that is capable of playing videos on screens commonly found in all classrooms and lecture halls. Webcasts can be sorted and automatically delivered to faculty and student websites for use anytime and anywhere the user/subscriber has access to the Internet.

Podcasts

Description: Podcasting is a method of publishing audio and video programs via the Internet that allows users to subscribe to a “feed” that delivers those files directly to a user’s computer. This is similar to getting a newspaper delivered to your door whenever a new publication is released. Using podcast technology, independent producers can publish a digital program, for example, as a series of digital lectures or interviews about higher education, and have it syndicated so that any subscriber can receive updates (new feeds) on their personal computer. Listeners and viewers can subscribe to feeds using podcatching software (a type of aggregator) which periodically checks for and downloads new content automatically. Podcatching software also enables the user to copy podcasts to portable devices for listening or viewing. Some popular free podcatcher websites are iTunes and iPodder. The browser Firefox also has podcatching features.
Potential: As a web-based technology, podcasts are available to users anytime and anywhere. This opens up a whole new way of not only making available important university resources such as lectures, speeches, radio shows, debates, campus events and interviews, it does so in ways that make it convenient for faculty and students to have these podcasts delivered to their laptops. From a personal computer, the podcast can be transferred to any player device such as a CD player, MP3 player, or iPod for listening at any time. The possibilities for such technology are endless, and some universities are already developing the technology so that important lectures and other audio resources might be automatically uploaded to a student’s computer or a learning management system to supplement class materials and as a way for students to review important information. For example, an interview by a famous novelist who was part of the university’s lecture series can easily be made into a podcast that finds its way into a student’s mini MP3 player for listening at the user’s convenience. Podcasts can be sorted and automatically delivered to faculty and student web sites for use anytime and anywhere the user/subscriber has access to the Internet. As universities learn more about the potential of podcasts, the number of speeches, events, etc. made available electronically to students and faculty will increase dramatically in ways that are both convenient and creative.

ePortfolios

Description: An electronic portfolio (ePortfolio) serves as a depository of artifacts for individuals or groups that can be shared with anyone given permission to view it. There are three main types of ePortfolios: developmental, reflective, and representational. In the context of education, ePortfolios recently have gained popularity. Students use ePortfolios to archive select artifacts that are representative of their growth as learners over a period of time. Artifacts can include written documents representing multiple genres, videos, audio recordings, artwork, and other images. The ePortfolio offers students the opportunity to determine who has access to the portfolio and what artifacts visitors can see. Although many standard software programs can be used to create basic ePortfolios, the most dynamic programs, such as Open Source Portfolio, are designed specifically for developing portfolios that serve a variety of reflective and representational functions within a password protected system.

Potential: At the basic level, the ePortfolio serves the same function as a conventional portfolio to document student work over a period of time. However, with a little creativity, the electronic portfolio can offer more than the standard model. For example, some universities have been using student ePortfolios to demonstrate the student’s growth related to both discipline and university identified learning outcomes. These types of portfolios can be easily shared over the web with advisors, instructors, and potential employers. Advisors might want to view the ePortfolio periodically to see areas in which students might need more work or are most proficient. Instructors might use the ePortfolio to assess the progress of student work throughout a course. Employers might view the student ePortfolio to see specific samples of work that show creativity, skills, and critical thinking. Finally, students might use their own ePortfolios as a self-assessment tool for constant improvement. Some universities are also supporting the notion of life-long learning by hosting student’s ePortfolios after graduation.

Personal Response Systems (Clickers)

Description: Personal Response System (PRS) remote units are similar to wired systems used by universities 25 years ago that mimicked game show technology that simultaneously captured and tabulated audience responses electronically. The biggest difference between the game show technology of the past and today’s PRS is its portability, low cost installation and operation, and the ability of the PRS to synchronize with other computer digital applications such as Powerpoint. Individuals are equipped with their own remote control keypads that have letters or numbers that correspond to choices given by a presenter. The results of the responses are captured on a computer either through infrared or radio signals and compiled in ways that show such breakdowns as class distribution and individual responses. Typically, the results are instantly made available to the participants via some type of graphic that is displayed on a projector. Presenters can set automatic controls within the system that limit the time a responder has to answer a question. Each remote “clicker” has a serial number so that all users and their responses can be individually identified and recorded.

Potential: There are many reasons for the increased use of personal response systems in an educational setting. Such systems can promote interaction and further the pedagogy of active learning as students can work together and post group responses. They allow immediate student feedback so a teacher can gauge how students might understand a particular concept and then adjust a lecture or presentation accordingly. These systems support simple quizzes that can be automatically tabulated and entered into an electronic grade book. Since a PRS allows for quick and anonymous responses to in-class questions by instructors that would otherwise require an oral response, student answers are less likely to be influenced by a crowd psychology and more likely to reflect individual knowledge. Although teachers report that the PRS system has contributed to increased participation, better motivation, better attendance, and more student interest in a course, more research is needed to verify these affects. The real impact of these systems on learning seems to be the way they can facilitate immediate formative feedback. This just-in-time feedback allows and encourages teachers to push continual assessment to the front of their lectures and make adjustments in their teaching to ensure that all students are learning targeted concepts.
Supporting Digital Technology for Teaching and Learning

As instructors are carefully assessing their use of technology for purposes of teaching and learning, universities need to assess whether their technology support is adequate and responsive to the needs of those instructors. During the early phases of the digital revolution on campuses, this meant building an infrastructure, providing equipment and offering basic skills workshops to faculty and students. Over the years, however, we have learned that basic technology support has not always been enough to ensure that digital technologies are being used effectively as ways to enhance student learning. Some universities have heeded the challenge and are creatively building upon existing programs to develop a technology of support that is responsive to the professional lives of today’s faculty. What follows are five examples that serve to represent ways that universities are developing creative solutions for supporting a learning environment that is increasingly being influenced by a digital revolution that shows no signs of abating anytime soon.

Faculty Involvement

Faculty need to have a critical voice in university decisions about technology improvement and deployment on campus — especially when the technology relates to teaching and learning issues. This pedagogical voice needs to go beyond the boundaries of the typical university committee advising on software and hardware issues for the classroom. It needs to be a voice coming from the bottom up — pedagogical voices from the classroom. These collective voices should drive discussions on such topics as wired classrooms, courseware, online courses, hardware deployment, and basic technology support. Forward thinking universities find new and inclusive ways to tap into the collective voice so that student learning and new technologies can be effectively aligned.

Blended Workshops

Forward thinking universities go beyond the skills-based technology workshops. They have found creative ways to blend pedagogical instruction with technology instruction. In some cases universities link stand-alone technology workshops with stand-alone pedagogy workshops in ways that show the relationship between the two. These linked workshops do not necessarily have to occur in the same physical space nor at the same time, but can reference one another. Also, universities have begun to offer blended workshops that have a distinct pedagogical focus yet blend in thinking about resources, including technology resources, which can support a strong pedagogical focus. These blended workshops can be linked to just-in-time resources, such re-occurring technology workshops, that are also offered by the university.

Threaded Workshops

Universities are using the threaded workshop model as a framework for teaching and learning workshops that include learning about new technologies. Each workshop in the series is “threaded” in such a way as to relate to and play off one another. Thus, a series on integrated course design might have individual workshops on such topics as assessment, learning activities, motivation, and learning outcomes that are aligned in such a way as to give participants a more comprehensive view about how to build a dynamic course. All discussions about technology in these threaded workshops are contextualized within the larger pedagogical discussion, and are focused on how the technology serves to support the pedagogy. Because instructors attend the series over a period of several weeks, they bring back to each workshop their applied knowledge and share it with one another as real world and relevant experiences. This type of sharing builds trust among group members, which leads to better learning and helps to establish future networks of support.

Just-In-Time Resources

Universities are increasingly realizing that busy instructors do not need to be experts in all areas of digital technology in order to use technology effectively in the classroom. Universities support this notion by making technology learning easy, accessible, and just-in-time. Today’s digital technology allows just-in-time resources to flourish on campus. For example, Internet available tutorials that are home grown or licensed make it easy for instructors to learn new software/hardware in bits and pieces and when needed. Why learn everything there is to know about PowerPoint or your computer operating system when you can learn only what you need by going to a two-minute video that is available anywhere and anytime? In addition, just-in-time resources extend the learning environments of students. Why spend valuable class time teaching students how to use a certain technology application for a project or activity when just-in-time resources can be made available to students at their level and outside of the class?

Open Source

Many universities are supporting an Open Source software philosophy as a way to increase flexibility for purchasing and supporting critical software needs across the university community. One of the advantages of Open Source software is that it is free and customizable. For universities and faculty, this means they can save costs in proprietary software purchases and the cost of developing software from scratch. In addition, the Open Source community represents a social constructivist approach to learning and development. As these community members share ideas with one another in open forums they create a valuable and free support structure for university members. One of the best features of Open Source software is that it can be customized to fit the specific mission of universities and individual (student) needs. Some of the more popular open source software programs include: Moodle and Bazaar, two LMS programs; MySQL, a data base program, and; Open Office, a productivity suite that supports word processing, spreadsheet, and presentation applications.
Conclusions

Universities are home to a rich diversity of student learners whose cultures have been tremendously impacted by the digital revolution of the last fifteen years. These students grew up communicating, creating knowledge, and sharing resources through the Internet and all its applications. As university students, they are poised to take advantage of the digital world for learning. But, are we as teachers? We should not jump headfirst into this potential digital cauldron without taking stock of an important detail — as with all technologies and instructional practices, we must not only understand their potential to impact deeper learning in students, we must also understand their limitations as a means to achieve a deeper learning. It is not the lecture, cooperative learning, or the problem-based method itself that enhances student learning any more than it is the Internet, podcast, or blog. It is far more important to know how to use the instructional methods and technology to support learning outcomes that are integrally linked to the student learner as a critical thinker. Students may know how to navigate the Internet and use other forms of digital technology for purposes of their own learning, but do they know how to take full advantage of those technologies for learning at the university level? This is where progressive universities enter the equation and lead.

In today’s educational climate of decreasing state support and public scrutiny of educational spending, universities can ill afford to squander important dollars on technology resources that have not been critically assessed in terms of supporting student learning. But universities cannot stop there. Faculty and administrators must combine efforts to celebrate openly the important symbiosis between technology and learning. Nothing less will suffice or we will suffer from our own negligence.

For online resources related to this topic, go to: <http://www.idea.ksu.edu/papers/paper43links/>

Dan Madigan was the founding director of the Center for Teaching, Learning & Technology at Bowling Green State University. He currently has new responsibilities as the Interim Director of the Scholarship of Engagement. As the director of CTLT for the past 10 years, Dan has been instrumental in establishing faculty learning communities that provide faculty with an opportunity to participate in an interdisciplinary forum that focuses on sharing ideas and information about topics that promote professional growth in the areas of learning, teaching and research. He has also developed a staff that supports a variety of faculty development initiatives on topics such as assessment of student learning, tenure and promotion portfolios, active learning strategies and the integration of technology into the classroom.

Dan’s research interests are in the area of literacy and he has published a book, articles and chapters in this area. Recently, he has broadened his literacy interest and focus from reading and writing to include digital literacy in the information age. He is currently co-editing a book concerning learning and literacy in the digital age.
References


Interteaching (Boyce & Hineline, 2002) is a new, multi-component method of classroom instruction that has its roots in B. F. Skinner's operant psychology, or as it is more commonly known today, behavior analysis. Behavior analysis views a person's behavior — which includes acting (overt behavior) and thinking or feeling (covert behavior) — as a function of three interacting variables: genetics, past experiences, and current environmental conditions (e.g., Hineline, 1980). Because a person's genetics and past experiences cannot be manipulated, modifying behavior becomes largely a matter of manipulating current environmental conditions (Cooper, Heron, & Heward, 2006). When changes in behavior occur as a function of these manipulations, we say that learning has occurred. In accord with this view, interteaching attempts to improve student learning by rearranging the classroom environment, and by modifying many of the environmental variables (those that are manipulable) that impact the way students act, think, and feel.

**Interteaching: A Brief Review**

A typical interteaching session may proceed as follows (Boyce & Hineline, 2002, and Saville, Lambert & Robertson, 2011): First, the instructor creates a preparation (prep) guide, which guides students through a reading assignment before class. The prep guides typically cover five to 20 pages of material (depending on the difficulty of the material, number of weekly meetings, and so on), and include eight to 15 items that require students to define and apply course concepts and engage in higher-order thinking. The instructor makes the prep guide available several days in advance (often via a course web site), and students complete the prep-guide items before they come to class. Once in class, students hear a brief clarifying lecture that lasts about one third of the class period, and covers material from the previous class that students had a hard time understanding. After the lecture, students get into pairs (usually with a different partner each day), and spend the remaining class time discussing the prep-guide items that they prepared for that day. During the discussions, the instructor (and sometimes a teaching assistant, if necessary and available) moves around the room, answering questions and guiding students' discussions. Once students have finished their discussions, they complete a record sheet on which they list, among other things, any prep-guide items they would like the instructor to discuss at the start of the next class period. The instructor then uses the information on the record sheets to construct a clarifying lecture that begins the next class period, targets items from the prep guide that students found confusing, and precedes discussion of the next prep guide that students prepared for that day.
In addition to the general structure outlined above, there are other components to interteaching. For each discussion they complete, students earn a small number of participation points that, across the semester, total approximately 10% of their course grade. Boyce and Hineline (2002) also suggested that instructors should give at least five “probes,” or exams, during the semester, and consider dropping the lowest score. Importantly, the exam material should be closely tied to the prep-guide items, which lets students know that discussing the prep guides thoroughly will serve as practice for the subsequent exams. Finally, Boyce and Hineline (2002) introduced quality points as a way to improve the quality of students’ discussions. In essence, quality points refers to a cooperative contingency in which part of each student’s course grade is dependent on how his or her discussion partners performed on certain exam questions (although see Saville & Zinn, 2009, for a study in which quality points did not significantly affect exam performance). Boyce and Hineline suggest that quality points should account for 10% of each student’s final course grade.

Since Boyce and Hineline’s (2002) introduction of interteaching a decade ago, researchers have begun to examine its efficacy relative to more traditional teaching methods. In an early, lab-based study, Saville, Zinn, and Elliott (2005) compared interteaching to lecture and reading, and found that interteaching produced significantly higher performance on a quiz given one week later. In a subsequent classroom-based study, Saville, Zinn, Neef, Van Norman, and Ferreri (2006, Study 2) compared interteaching to lecture in two sections of an undergraduate research methods course, and observed that interteaching increased exam scores on average by about ten percentage points. More recently, Saville, Pope, Truelove, and Williams (in press) found that interteaching had its biggest impact on the exam scores of students with low and moderate GPAs. A growing number of studies have found that interteaching produces superior student-learning outcomes when compared to lecture (Arntzen & Hoium, 2010; Saville, Zinn, Lawrence, Barron, & Andre, 2008; Scoboria & Pascual-Leone, 2009), and that many students prefer interteaching to lectures (Goto & Schneider, 2009; Saville et al., 2006; Scoboria & Pascual-Leone, 2009).

Although interteaching seems to be an effective pedagogical tool, introducing a new teaching method is often complicated by factors that are unique to specific teaching settings (Chew et al., 2009; Daniel & Poole, 2009), and the same goes for interteaching. Over the past eight or so years, there have been several factors that have forced me to reconsider how I implement interteaching in my courses. Below are ten teaching tips that may help smooth the transition for instructors who are interested in adopting interteaching in their classrooms.

To access entire article, go to http://www.psychologicalscience.org/index.php/publications/observer/2013/february-13/interteaching-ten-tips-for-effective-implementation.html
Lectures

The keys to delivering an effective lecture are clarity, organization, and content.

1. Overcome stage fright
   • Be physically active
   • Practice
   • Know your material so you don’t have to read your notes word for word
   • Focus on your message and your performance, not on your emotions
   • Don’t drink caffeine before your speak

2. Prepare for the worst
   • Leave nothing to chance.
   • Have a backup plan

3. Speak to your audience
   • Resist the temptation to simply read your presentation
   • Begin by speaking to one person
   • Share personal experiences with the content (or your learning of the content)

4. Be animated
   • Non-verbal communication is important
   • Maintain eye contact
   • Have an erect posture
   • Use appropriate movement and gestures
   • Use vocal special effects, including dramatic pauses, repetition, varying your pitch and volume

5. Use visual organizers (images, graphs, charts, video clips, or graphic organizers)
   • Avoid text-heavy slides.
   • Include visuals that illustrate key concepts or arguments

6. Don’t push too much content into your lecture
   • One slide, one idea
   • Avoid extraneous information on your slides
   • Limit the number of main points to 3-4 per lecture

7. Make connections
   • Connect today’s lecture with yesterday’s and tomorrow’s
   • Begin by stating learning objectives for the day
   • Leave time at the end to summarize main points of lecture

Giving a Lecture: From Presenting to Teaching by Kate Exley and Reg Dennick (2009) is a good book to use to develop your lectures.

William Buskist developed the Teacher Behavior Checklist, which can be uploaded into Blackboard or given in paper form. The TBC allows you to get an early reading on how well you are doing in the eyes of students. Mid-semester is a good time to do this.
One problem with conventional teaching lies in the presentation of the material. Frequently, it comes straight out of textbooks and/or lecture notes, giving students little incentive to attend class. That the traditional presentation is nearly always delivered as a monologue in front of a passive audience compounds the problem. Only exceptional lecturers are capable of holding students' attention for an entire lecture period. It is even more difficult to provide adequate opportunity for students to critically think through the arguments being developed. Consequently, lectures simply reinforce students' feelings that the most important step in mastering the material is memorizing a zoo of apparently unrelated examples.

In order to address these misconceptions about learning, we developed a method, Peer Instruction, which involves students in their own learning during lecture and focuses their attention on underlying concepts. Lectures are interspersed with conceptual questions, called *ConcepTests*, designed to expose common difficulties in understanding the material. The students are given one to two minutes to think about the question and formulate their own answers; they then spend two to three minutes
discussing their answers in groups of three to four, attempting to reach consensus on the correct answer. This process forces the students to think through the arguments being developed, and enables them (as well as the instructor) to assess their understanding of the concepts even before they leave the classroom.

We have taught two different levels of introductory physics at Harvard using this strategy and have found that students make significant gains in conceptual understanding (as measured by standardized tests) as well as gaining problem solving skills comparable to those acquired in traditionally taught classes. Dozens of instructors at other institutions have implemented Peer Instruction with their own students and found similar results.

Peer Instruction is easy to implement in almost any subject and class. It doesn't require retooling of entire courses or curricula, or significant expenditures of time or money. All that is required is a collection of ConceptTests (available on Project Galileo) and a willingness to spend some of class time on student discussion.
an intellectual life. Some are actually hostile to scholastic achievement and academic values and think nothing of disrupting classrooms with boorish behavior" (p. 5). Although some universities and colleges are implementing a zero-tolerance policy for workplace violence (Carpenter, 1998) and other institutions have expelled students for aggression toward faculty ("Agency determines," 1996), in general, faculty are responsible for developing strategies to minimize uncivil behavior. Toward this end, the following practical strategies have been developed and are presented for consideration.

Practical Strategies to Reduce or Eliminate Student Incivility

Despite the absence of attention devoted to the origin and reduction/elimination of incivilities in higher education, faculty can be instrumental in establishing boundaries, influencing student behaviors, and promoting civil learning environments (Clayton, 2000; Heinemann, 1996; Monaghan, 1995). Specific strategies addressed below include: the use of effective communication skills, spelling out expectations in the syllabus, defining appropriate conduct, using mid-term teaching feedback, establishing a collaborative learning environment, using peer observations, setting a good example, reframing potential conflicts, re-engaging students, using the student grievance process, and using a back-to-basics faculty orientation. Each strategy is briefly described below.

Effective Communication Skills

Faculty can remain respectful and manage student behavior through effective communication (e.g., active listening). To improve faculty-student communication and avoid incivility, Heinemann (1996) suggested that faculty (1) use civil language, (2) maintain inclusive attitudes, (3) teach the language of disagreement, (4) respectfully listen to students, and (5) serve as role models for respect and understanding. From the aforementioned suggestions, it can be concluded that faculty can exercise fundamental interpersonal skills and work toward speaking with rather than speaking at students. As pointed out by Downs (1992), faculty can sometimes flaunt their power and resort to authoritarianism. Although more will be said about establishing respectful relationships with students later, it should be underlined that practicing effective interpersonal skills and common courtesies is essential to achieve this end. Students who sense that faculty are genuinely trying to understand and honor their perspective are probably less likely to feel disregarded or belittled in front of their peers. Conversely, students who feel insulted or needlessly ridiculed may retaliate covertly (e.g., inviting other students to challenge the course requirements) or overtly (e.g., constantly challenging lecture content).

Attempting to clearly communicate may involve more effort with some students. What should not be underestimated, however, is the value in having other students observe one’s concern and regard for a student who may be struggling to articulate an idea or response. Moreover, setting a tone of respect can be invaluable when establishing an overall trusting rapport with students.

Spelling Out Academic and Behavioral Expectations in the Syllabus

Course syllabi can be introduced as contracts between faculty and students that describe realistic and achievable educational objectives (Matejka & Kurke, 1994). During the first class, rather

than simply distributing a syllabus, faculty can carefully review the contents of the document to ensure that students understand course objectives, expectations, and evaluation criteria. A careful review with students can be useful in identifying a variety of common errors (e.g., assignment dates, exam times). For the most part, ambiguous or poorly constructed syllabi may contribute to student resentment and anger. Downs (1992) contended that faculty should continually evaluate syllabi to ensure that expectations are clear and concise. She further remarked that student anxiety and resentment grows when there is a lack of clarity.

A common concern among students pertains to faculty who arbitrarily and independently change course objectives and expectations. When such behavior occurs, students express anxiety regarding the direction of the course and newly established expectations. In short, students resent professors who abandon initial learning agreements, alter assignments, and redesign courses in mid-stream.

Syllabi can also be used to communicate appropriate social and inter-personal boundaries and classroom behavior. For example, to promote appropriate classroom behavior, faculty can spell out unacceptable behavior (e.g., chit-chatting and mindless talking during lectures) and stipulate guidelines in their syllabi. Faculty can also articulate student codes of courtesy regarding lectures by guest speakers (e.g., appropriate timing of questions, dismissal times).

To set standards and the desired tone for a civil classroom, Moore (1996) contended that faculty should establish their credentials early on and dress in a fashion that projects professionalism and leadership. Faculty who ignore important professional boundaries between themselves and students can quickly lose the respect of students and contribute to student confusion about their role. In an effort to gain support and form alliances, faculty may begin to fraternize with students. Although sounding innocuous, professors can experience difficulty when attempting to re-establish their credibility in the classroom. Further, students can become resentful toward professors who behave differently within social and classroom contexts.

**Arranging for Mid-term Teaching Feedback**

To assist faculty while providing students with an opportunity to share their opinions, mid-term teaching evaluations can be designed and instituted. In addition to quantitative information, such evaluations should include space for qualitative responses. When reviewing student feedback, faculty may detect patterns (both positive and negative) or blind spots that can be addressed to prevent or diffuse hostile student-faculty interactions. Demonstrating a willingness to evaluate one's own work while seriously considering student observations can contribute to an open and honest learning environment.

Students can be asked to complete mid-term evaluations in order to provide faculty with information that faculty can use to improve their teaching and interaction skills. Taking the initiative to secure this information, and eventually integrate it to enhance course delivery, can demonstrate faculty’s openness to feedback, flexibility, and a willingness to make necessary changes. This process is collaborative in nature and can assist faculty in keeping a pulse on student needs. Faculty who remain oblivious to student feedback, or mistakenly assume that all is well, can encounter a rude awakening when reviewing their teaching evaluations.

Arranging for Peer Observations and Reviews

The peer observation and review process can provide faculty with invaluable insights into their teaching and interactional style. This process can be accomplished by inviting colleagues from different departments to review syllabi and observe classroom instruction. In addition to inviting feedback from university colleagues, the author has welcomed the input from respected community colleagues who possess expertise in a specific subject matter. These individuals can be especially helpful in providing important feedback about course content and the anticipated needs of future graduates. To assist in organizing the peer observation process (e.g., timing and delivery of feedback), Mentz and Giampetro-Meyer (2000) have developed the Colleague Observation Form.

Coupled with mid-term/final student evaluations, peer observations and reviews can be helpful in identifying and confirming patterns, strengths, and needs (Osborne, 1998). Faculty can be particularly helpful to reviewers by requesting feedback in specific areas of teaching and facilitation. Attempting to scaffold or build on suggestions from previous peer reviews may serve to fortify positive interactional styles and instructional methods.

Establishing a Collaborative Learning Environment

The California Community Colleges Academic Senate (1996) asserted that faculty members can be creative in designing classroom experiences that focus on student success by fostering a collaborative versus competitive learning environment. Consequently, the traditional lecture format, individual assignments, and examinations would need to be reconsidered. To encourage collaboration, a co-operative learning environment involving students and faculty could be instituted and reinforced. In essence, the traditional transmission model of education wherein students are perceived as empty vessels waiting to be filled with information would be replaced with learning environments influenced by constructivist learning principles (e.g., Fisher, Taylor, & Fraser, 1996). This latter approach values prior experience and knowledge and welcomes appropriate student challenge, questioning, and debate.

Although sounding reasonable in theory, establishing a co-operative learning environment is complex and involves several key ingredients such as effective social and team building skills. According to Downs (1992) when creating a co-operative learning environment, faculty role modeling can be a powerful tool. As alluded to earlier, the onus is placed on faculty to remain sensitive to the developmental needs of students and more importantly, their behavior and responses toward students.

Setting a Good Example

Boice (1996) stated that, "The most experienced researchers on classroom incivilities assume that students and teachers are partners in generating and exacerbating it" (p. 458). He echoed an earlier remark made by Downs (1992) who asserted that, whether faculty want to admit it or not, they can be the source of conflicts. In discussing student and teacher power in the classroom, Kearney and Plax (1992) emphasized prosocial and antisocial teacher behaviors and student responses. In terms of prosocial behaviors, faculty are perceived as warm, friendly, and
motivational. More specifically, they maintain a positive attitude toward students and demonstrate an interest in them. Antisocial behaviors, on the other hand, include aloofness and disinterest on behalf of faculty.

Faculty can inadvertently provoke a violent cycle by publicly debasing, humiliating, or invalidating students (e.g., remarking that a question is ridiculous or unworthy of an answer) or by making snide remarks. From a systemic perspective, such antisocial behavior can invite hostile student reactions and retaliation.

The arrogance of some faculty can blind them to the fact that incivility often begets incivility. For example, students can feel unfairly criticized, embarrassed, and/or disrespected by faculty who are either unaware of or indifferent to their inappropriate behavior. Faculty can model appropriate behavior (Mills, 1998) starting with how they address students. Although some faculty expect to be addressed formally (e.g., Dr. Jones, Professor James), students rarely enjoy the same courtesy and are commonly referred to on a first name basis. To demonstrate respect, faculty can simply ask students how they would like to be addressed. Even colleagues who teach large classes make an effort to follow this practice.

**Reframing Potential Conflicts**

The purpose of reframing behavior is to side-step unnecessary power struggles. To reframe, faculty need to plan ahead and understand that such situations will arise despite their best efforts to create a respectful learning environment. The idea that student challenge behavior can be an attempt to seek additional information (Jones & Simonds, 1994) may be useful in helping faculty avoid personalizing ill-mannered student responses or reactions.

Faculty reframing can include responding non-defensively and respectfully to a student's comment or behavior. For example, when a student excessively criticizes the content and process of a course, his or her obvious disappointment can be acknowledged. Further, the student’s commitment to acquiring information that is personally meaningful and his or her willingness to speak out for the betterment of the course can be noted. In essence, reframing can assist faculty in viewing student behaviors in a different light. The reframing process also allows faculty to respond productively rather than reacting harshly to students. In order to effectively reframe situations, it is critical that faculty avoid personalizing student remarks (e.g., the text is useless!, this class time is bogus!). Rather than reacting and entering into feuds with students, faculty can simply acknowledge concerns and empathize with their disappointment.

**Re-engaging Students**

To repair strained relationships, faculty can take appropriate steps to re-engage students and resolve differences. Although faculty are encouraged to establish mutually rewarding relationships with students, faculty should only meet with uncivil students to resolve issues in the company of other staff (Amada, 1992). In cases where a male faculty wants to re-engage a female student, a female colleague should be invited to participate to reduce the possibility of student-directed allegations of faculty misconduct.
The re-engagement process provides faculty with opportunities to identify patterns or issues that would otherwise persist. Once again, a secondary benefit that can be gained from this process is student recognition and respect. Some faculty who have been encouraged to use this approach have been reluctant and have expressed a concern regarding their loss of status. On the other hand, faculty who invest in the re-engagement process can be perceived as individuals who are genuinely committed to student learning and personal growth.

Establishing Student Grievance Process

To prevent student-faculty conflict from escalating, a process needs to be established wherein student complaints and concerns are taken seriously and appropriately investigated. Students often report that their concerns are trivialized and are easily dismissed. Although most universities have a grievance process in place, it may only be symbolic and lack integrity. The grievance process is particularly important when considering:

In samplings of core courses at large public universities, as many as a third of faculty treated students with unmistakable rudeness and condescension. In a few cases, they physically assaulted students who pressed them for answers or help (Boice, 1996), perhaps about as often as students assaulted professors. In many more instances (we do not know the exact figures), professors take advantage of teaching dynamics to sexually and otherwise compromise students” (Amada, 1992, p. 458).

If fair and effective student grievance procedures are lacking, students and faculty must demand an institutional policy change. Training for faculty and students about the grievance procedure should be implemented. The institution must also make a determination about the privacy and right-to-know issues surrounding the grievance process.

Using a Back-to-the-Basics Approach

A back-to-the-basics approach to conflict resolution is recommended at the beginning of each semester during college/university or departmental gatherings. Although sounding simplistic, it is important that faculty be reminded of the potential ramifications of uncivil student behavior. The California Community Colleges Academic Senate (1996), lists several suggestions designed to avoid classroom conflict and this includes inviting or hiring experts to introduce conflict-management skills to faculty and staff. Although some faculty may scoff at the notion of discussing the importance of promoting civil behavior in the classroom, the negative ramifications of such behavior cannot be ignored.

Conclusion

Based on the extant literature and media accounts, incidents of student incivility against faculty are increasing. Consequently, faculty are encouraged to continually examine how their teaching styles, conduct, and inter-personal communication styles can inadvertently contribute to unruly (and potentially dangerous) classroom environments. In doing so, faculty can avoid unnecessary conflict with students and the personal distress associated with such conflict. In other words,
## Teacher Behavior Checklist

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<tr>
<th>Item</th>
<th>Teacher Qualities and Corresponding Behaviors</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Accessible (Posts office hours, gives out phone number, and e-mail information)</td>
</tr>
<tr>
<td>2</td>
<td>Approachable/Personable (Smiles, greets students, initiates conversations, invites questions, responds respectfully to student comments)</td>
</tr>
<tr>
<td>3</td>
<td>Authoritative (Establishes clear course rules; maintains classroom order; speaks in a loud, strong voice)</td>
</tr>
<tr>
<td>4</td>
<td>Confident (Speaks clearly, makes eye contact, and answers questions correctly)</td>
</tr>
<tr>
<td>5</td>
<td>Creative and Interesting (Experiments with teaching methods; uses technological devices to support and enhance lectures; uses interesting, relevant, and personal examples; not monotone)</td>
</tr>
<tr>
<td>6</td>
<td>Effective Communicator (Speaks clearly/loudly; uses precise English; gives clear, compelling explanations)</td>
</tr>
<tr>
<td>7</td>
<td>Encourages and Cares for Students (Provides praise for good student work, helps students who need it, offers bonus points and extra credit, and knows student names)</td>
</tr>
<tr>
<td>8</td>
<td>Enthusiastic about Teaching and about Topic (Smiles during class, prepares interesting class activities, uses gestures and expressions of emotion to emphasize important points, and arrives on time for class)</td>
</tr>
<tr>
<td>9</td>
<td>Establishes Daily and Academic Term Goals (Prepares/follows the syllabus and has goals for each class)</td>
</tr>
<tr>
<td>10</td>
<td>Flexible/Open-Minded (Changes calendar of course events when necessary, will meet at hours outside of office hours, pays attention to students when they state their opinions, accepts criticism from others, and allows students to do make-up work when appropriate)</td>
</tr>
<tr>
<td>11</td>
<td>Good Listener (Doesn’t interrupt students while they are talking, maintains eye contact, and asks questions about points that students are making)</td>
</tr>
<tr>
<td>12</td>
<td>Happy/Positive Attitude/Humorous (Tells jokes and funny stories, laughs with students)</td>
</tr>
<tr>
<td>13</td>
<td>Humble (Admits mistakes, never brags, and doesn’t take credit for others’ successes)</td>
</tr>
<tr>
<td>14</td>
<td>Knowledgeable About Subject Matter (Easily answers students’ questions, does not read straight from the book or notes, and uses clear and understandable examples)</td>
</tr>
<tr>
<td>15</td>
<td>Prepared (Brings necessary materials to class, is never late for class, provides outlines of class discussion)</td>
</tr>
<tr>
<td>16</td>
<td>Presents Current Information (Relates topic to current, real-life situations; uses recent videos, magazines, and newspapers to demonstrate points; talks about current topics; uses new or recent examples)</td>
</tr>
<tr>
<td>17</td>
<td>Professional (Dresses nicely [neat and clean shoes, slacks, blouses, dresses, shirts, ties] and no sneakers)</td>
</tr>
<tr>
<td>18</td>
<td>Promotes Class Discussion (Asks controversial or challenging questions during class, gives points for class participation, involves students in group activities during class)</td>
</tr>
<tr>
<td>19</td>
<td>Promotes Critical Thinking/Intellectually Stimulating (Asks thoughtful questions during class, uses essay questions on tests and quizzes, assigns homework, and holds group discussions/activities)</td>
</tr>
<tr>
<td>20</td>
<td>Provides Constructive Feedback (Writes comments on returned work, answers students’ questions, and gives advice on test-taking)</td>
</tr>
<tr>
<td>21</td>
<td>Punctuality/Manages Class Time (Arrives to class on time/early, dismisses class on time, presents relevant materials in class, leaves time for questions, keeps appointments, returns work in a timely manner)</td>
</tr>
<tr>
<td>22</td>
<td>Rapport (Makes class laugh through jokes and funny stories, initiates and maintains class discussions, knows student names, interacts with students before and after class)</td>
</tr>
<tr>
<td>23</td>
<td>Realistic Expectations of Students/Fair Testing and Grading (Covers material to be tested during class, writes relevant test questions, does not overload students with reading, teaches at an appropriate level for the majority of students in the course, curves grades when appropriate)</td>
</tr>
<tr>
<td>24</td>
<td>Respectful (Does not humiliate or embarrass students in class, is polite to students [says thank you and please, etc.], does not interrupt students while they are talking, does not talk down to students)</td>
</tr>
<tr>
<td>25</td>
<td>Sensitive and Persistent (Makes sure students understand material before moving to new material, holds extra study sessions, repeats information when necessary, asks questions to check understanding)</td>
</tr>
<tr>
<td>26</td>
<td>Strives to Be a Better Teacher (Requests feedback on his/her teaching ability from students, continues learning [attends workshops, etc. on teaching], and uses new teaching methods)</td>
</tr>
<tr>
<td>27</td>
<td>Technologically Competent (Knows now to use a computer, knows how to use e-mail with students, knows how to use overheads during class, has a Web page for classes)</td>
</tr>
<tr>
<td>28</td>
<td>Understanding (Accepts legitimate excuses for missing class or coursework, is available before/after class to answer questions, does not lose temper at students, takes extra time to discuss difficult topics)</td>
</tr>
</tbody>
</table>

**Scales:**
Professional Competency and Communication-alpha= .90
Caring and Supportive-alpha= .93
Total Scale-alpha= .95

Test-Retest Reliability (midterm and end of semester; all <.001):

Professional Competency and Communication = .72
Caring and Supportive = .68
Total Scale-alpha = .71

Comparison of Student and Faculty Ratings of the "Top 10) Qualities/Behaviors
(Original Study)

Students and Faculty Agreement on Top 10:

<table>
<thead>
<tr>
<th>Quality/Behavior Category</th>
<th>Students</th>
<th>Faculty</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
</tr>
<tr>
<td>Realistic Expectations/Fair</td>
<td>587</td>
<td>64</td>
</tr>
<tr>
<td>Knowledgeable About Topic</td>
<td>558</td>
<td>61</td>
</tr>
<tr>
<td>Approachable/Personable</td>
<td>543</td>
<td>59</td>
</tr>
<tr>
<td>Respectful</td>
<td>488</td>
<td>53</td>
</tr>
<tr>
<td>Creative/Interesting</td>
<td>469</td>
<td>51</td>
</tr>
<tr>
<td>Enthusiastic About Teaching</td>
<td>448</td>
<td>49</td>
</tr>
</tbody>
</table>

Students and Faculty Disagreement on Top 10:

<table>
<thead>
<tr>
<th>Quality/Behavior Category</th>
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</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
</tr>
<tr>
<td>Understanding</td>
<td>554</td>
<td>60</td>
</tr>
<tr>
<td>Happy/Positive/Humorous</td>
<td>453</td>
<td>49</td>
</tr>
<tr>
<td>Encourages/Cares for Students</td>
<td>452</td>
<td>49</td>
</tr>
<tr>
<td>Flexible/Open-minded</td>
<td>450</td>
<td>49</td>
</tr>
<tr>
<td>Promotes Critical Thinking</td>
<td>164</td>
<td>18</td>
</tr>
<tr>
<td>Prepared</td>
<td>208</td>
<td>23</td>
</tr>
<tr>
<td>Master Communicator</td>
<td>323</td>
<td>35</td>
</tr>
<tr>
<td>Presents Current Information</td>
<td>166</td>
<td>18</td>
</tr>
</tbody>
</table>