Active Learning in the Large Class
## Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>IMPORTANT NOTE ABOUT THIS BOOKLET</td>
<td>1</td>
</tr>
<tr>
<td>Active Learning as a Continuum</td>
<td>2</td>
</tr>
<tr>
<td>Why do this?</td>
<td>2</td>
</tr>
<tr>
<td>As an Instructor</td>
<td>3</td>
</tr>
<tr>
<td>Supporting learning from a lecture</td>
<td>3</td>
</tr>
<tr>
<td>Activities for Individuals</td>
<td>3</td>
</tr>
<tr>
<td>Activities for Pairs</td>
<td>5</td>
</tr>
<tr>
<td>Activities for Small Groups</td>
<td>8</td>
</tr>
<tr>
<td>Group Report-Back Methods</td>
<td>11</td>
</tr>
<tr>
<td>Full class discussions</td>
<td>12</td>
</tr>
<tr>
<td>Encouraging participation</td>
<td>12</td>
</tr>
<tr>
<td>Encouraging questions</td>
<td>14</td>
</tr>
<tr>
<td>Student feedback</td>
<td>14</td>
</tr>
<tr>
<td>Other alternatives to the lecture</td>
<td>15</td>
</tr>
<tr>
<td>Large Classes: Limiting the Chaos</td>
<td>15</td>
</tr>
<tr>
<td>Sample Conduct Statement for Course Outlines:</td>
<td>16</td>
</tr>
<tr>
<td>Activities Outside of Class</td>
<td>17</td>
</tr>
<tr>
<td>What else should I know?</td>
<td>17</td>
</tr>
<tr>
<td>HELP ME</td>
<td>17</td>
</tr>
<tr>
<td>Reference List</td>
<td>18</td>
</tr>
</tbody>
</table>

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**IMPORTANT NOTE ABOUT THIS BOOKLET**

The majority of the material in this booklet is direct quotes. These are all credited to the original authors. All direct quotes are in quotation marks.
Active Learning in the Large Class

Active Learning as a Continuum

Active learning can be considered on a continuum from activities which take a few minutes and are simple, such as muddiest point and one minute papers, to activities which completely revise the course, such as inquiry learning, case based learning, etc. This booklet focuses on the simpler activities. If you are involved in a lecture-based course and are unable to redesign to a more student-centered, active learning format, the techniques in this booklet can be used to help students without significantly impacting the lecture structure. (For more about the active learning continuum, please see: (Bonwell & Sutherland, 1996)

(Figure based on O’Neal & Pinder-Grover, n.d.)

If you are in a position where you are interested and able to consider a more active-learning course, please contact your center for instructional excellence. At Purdue, you may be able to participate in the IMPACT program which supports faculty in course redesign through some funding, special workshops, and faculty learning communities, as well as providing a team of support people. For more on this, please see www.purdue.edu/impact.

Why do this?

“In my experience, a class can follow an instructor for 20 – 25 minutes without too much loss of attention. More than that, and large numbers start to drift. What this means is that if you then put in a short “commercial” break or two where they’re doing something, anything, other than listening to you and taking notes, you can pick up their attention again. The trick is to make this one- to two-minute break something that is educationally useful and complements the traditional narrative part of the hour” (Heppner, 2007, p. 92)

Additional resources:

“With intentional planning, it is possible to begin building community in a large classroom on the first day. See how sharing exercises encourages students to interact with one another and sets the tone for active learning” (Brooke, 2011a).

Article: Implementing Small-Group Instruction: Insights from Successful Practitioners (14 pages) – “In this chapter we will address a number of concerns about using small-group work that have emerged in
the professional literature and that we have encountered as we discussed this approach with colleagues. We will address these concerns based in part on our reading of the literature, but more particularly on the experiences of the practitioners whose approaches are featured in this volume (Cooper, MacGregor, Smith, & Robinson, 2000).

### As an Instructor

- Eliminate the instructor vs. student space
  - When using group discussions, walk up and down the aisles to build community
  - Have students come up to front to talk, write on board, etc.

- Start group discussions on the first day to set expectations

- Stop your lecture occasionally, pose a question on what you've just covered, and have students discuss their answer with their neighbor for a minute. Then, pull the class back together and discuss the right and wrong answers (“Large Class Teaching,” 2011)

- “Many have pointed out that a cordless microphone can facilitate class participation. They recommend walking around and up the aisles, so that students can no longer hide in the back of the room. This makes it appear that everyone is a potential participant”... “Someone reminded that you should repeat student comments and questions (when you are the only one with a microphone), so that everyone can follow--and participate in--the dialogue” (“Large class FAQ: Student involvement/participation,” 2007).

### Supporting learning from a lecture

- “Provide empty outlines: in a limited amount of time students complete an empty or partially completed outline of an in-class presentation or homework assignment” (Angelo & Cross, 1993).

- “In an outline form, students analyze the “what” (content), “how” (form), and “why” (function) of a particular lesson or message (e.g. poem, newspaper story, billboard, critical essay)” (Angelo & Cross, 1993).

- “Concept Maps: students draw or diagram the mental connections they make between a major concept and other concepts they have learned” (Angelo & Cross, 1993).

- “Many teachers put outlines of their notes on the Web page. This encourages students to come to class, but it makes them more selective in their notetaking since they know what key concepts are” (“Large class FAQ: Notetaking,” 2007)

- “Before class starts, display an overhead with key words or an outline for the upcoming lecture” (“Large class FAQ: Notetaking,” 2007)

### Activities for Individuals

- “When you come to a natural stopping point in your material, tell the students to pull out a fresh piece of paper. Then tell them, “Write down the three most important things I said in the last 25 minutes. Be prepared to read them aloud.” Give them 45 seconds or so, then start calling on them. You will discover that the phrase “most important” may mean something very different to you and your students. ... After the first time we do the exercise, I have an excuse to talk about “important things” and what they are. I emphasize that they have to listen to the lecture, not just transcribe it” (Heppner, 2007, p. 93)
Active Learning in the Large Class

- Technology option: Use Hotseat (or another mobile app) to collect the ‘3 most important things’ and possibly have students ‘vote’ on them.

- **Case study** - Time requirements: 20-50 minutes
  (“Varying your teaching activities: nine alternatives to lecturing,” n.d.)
  - Special features: The case-study method was pioneered at the Harvard law and business schools. Business and law cases tend to be very detailed and long, and take several classes to analyze, but instructors can apply a simplified case-study method (described below) for teaching in many disciplines. Applying theory to an instance as described by some source material can demonstrate the applicability of the course material beyond the classroom. A good case study:
    - Presents students with a situation they can relate to from their own life experience.
    - Includes realistic information. Examples can include scripts of exchanges that took place between key parties, news articles about situations of interest, background information about the organization of interest, etc.
    - Has a conflict that students can resolve.

- **Procedure**
  - Get source material (short story, news articles, account of a decision or procedure, video, role-play script, etc.) to use as the basis for the case study.
  - Provide students with a focus or framework to use in doing their analysis.
  - Give students time to analyze the case individually or in groups, and to write down their analysis.
  - Begin a discussion of students’ analyses.
  - Act as a mediator of the discussion. Don’t offer your own opinion except to provide guidance on the process (remind students of the framework if discussion becomes unfocused).
  - After analysis has been completed, show how the case study illustrates application of theoretical or background concepts in course material.

- **Function in the class**: Use a case study to lead into a discussion or lecture of course material, showing its relevance by referring back to the case study.

Technology options: Technology can be integrated into various parts of a case study activity:
- **Introduction**
  - Media (audio/video/game, etc) can be used to anchor case study to reality and to provide context
  - Clients or subject matter experts can be brought in (Skype, Connect, etc) to provide an introduction and answer student questions
- **Analysis**
  - Students can use online resources to find information in response to the case
  - Students can communicate with authors, subject matter experts, or other stakeholders
- **Dissemination**
  - Students can create presentation materials
    - Traditional presentations like PowerPoint
    - Web 2.0 tools such as Glogster and Prezi
    - Video presentations with mobile devices and/or tools such as Jing or Camtasia
  - use a discussion board for each group

- **Variation on case study**: “Rather than using case studies of the Harvard Business School variety, many teachers employ such things as video scenarios, brief narratives, students’ own experiences, newspaper articles, mechanical design snags, graphs, and even data sets to help students apply difficult concepts to real-world problems. For example, a single case can be used in conjunction with
a related data set to show that while the data may support a particular theory, that theory may be difficult to apply in the single instance” (“Large Class FAQ: Active Learning Elements,” 2007).

• “A number of instructors are assigning problems related to data provided by current students on the first day of class. This gives students the opportunity to analyze data provided by their own cohort and to design data collection forms for the same group. Laura Simon (Statistics) has generously provided URLs so that you can take a look at two such forms, the first designed by her and the second by her students: http://www.stat.psu.edu/~lsimon/webforms/forms/instr250.html and http://www.stat.psu.edu/~lsimon/webforms/forms/instr250b.html” (“Large Class FAQ: Active Learning Elements,” 2007).

• “For case studies or any other group problem-solving activity to be successful, students must be prepared for the activity ahead of time and must understand how to tie it back to course objectives once they’ve completed it. For example, one faculty member gives an individual writing assignment prior to asking students to work in groups on a related problem so that the transition to group activities is gradual. Another gives a “prepare quiz” to make sure students understand the goals and procedures for the upcoming group project. Some of the integration of group problem-solving and course objectives can be done on a course Web page and through discussion via a class list” (“Large Class FAQ: Active Learning Elements,” 2007).

**Activities for Pairs**

• “Ask them to sit next to a partner, write down the three most important things individually, then negotiate with the partner until they can agree on at least two important things. Then I call on individual groups to name off one of their important things. A remarkable amount of learning takes place in these little negotiating sessions. There is also a bonus because they know that if I call out this activity, and they’ve been sleeping or off on Mars someplace, there is a certain embarrassment potential when they have to compare lists with a partner” (Heppner, 2007, p. 93)

  • Technology option: Have pairs post their negotiated take-aways to a public area such as BB or a course wiki. A tool like Hotseat could also be used for sharing and voting for the most important lessons.

• **Guided analysis - Time requirements:** 30-50 minutes
  (“Varying your teaching activities: nine alternatives to lecturing,” n.d.)
  
  o **Special features:** This technique helps students develop their analytical skills in any field by observing your analytical skills in action.
  
  o **Procedure**
    
    ▪ Select a document (a short review, section of computer programming, poem, proof, chart, abstract from an article, news item, etc.) to analyze as an example.
    
    ▪ Make enough copies of a similar document to distribute to all class members or to small groups (depending on your preference).
    
    ▪ Perform an analysis of your document in front of the class, making clear the procedure you use to reach your assertions, and using visual aids and supplementary material as necessary.
    
    ▪ Give students five to ten minutes to analyze their document: the conclusions they reach will be their own, but they will have learned rigour and analytical skills from you.
    
    ▪ Depending on class size, have students (or representatives from small groups) present their analysis, and respond to each one.
Active Learning in the Large Class

- **Function in the class:** An entire 50-minute tutorial or lecture can be structured around this exercise. Consider leading into the exercise with a mini-lecture on the type of document you and your students will be analyzing.

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<th>Technology options: Guided Analysis</th>
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<td>o Record a document analysis using software such as Camtasia or Captivate</td>
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<td>▪ Edit it, add call-outs, and otherwise make clear the procedures used</td>
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<tr>
<td>o Store a similar document in an online area accessible to students (BB, Dropbox, etc)</td>
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<tr>
<td>o Have students analyze the document(s) using a computer/tablet/phone</td>
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<td>▪ iPad users could use an app such as GoodReader to annotate a PDF with notes, drawings, highlights, etc</td>
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<tr>
<td>o Analysis can be presented</td>
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<tr>
<td>▪ In class</td>
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<tr>
<td>▪ As a video captured on a mobile device</td>
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<tr>
<td>▪ In writing on class blog, wiki, or discussion board</td>
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- **Word pairs** – each student writes down the key terms for the lesson then they exchange papers and write in definitions, then discuss.

  | Technology option: Terms can be added to a class glossary (wiki, BB, etc.) that the students are responsible for creating/maintaining |

- “Create small ad hoc groups (or pairs) that work in class on a focused question, problem, or exercise; this gives students an opportunity to interact and really engage the material, and it also gives them a needed lecture break. Those with recitation sections sometimes assign the group problems there, and then hear reports in the lecture” (“Large Class FAQ: Active Learning Elements,” 2007).

- “Invite student groups or partners to present the assigned reading and lead the class in discussion (they can use questions you provide as a start). Although only a small fraction of the class gets to present, many more are willing to participate when their peers take the lead” (“Large Class FAQ: Active Learning Elements,” 2007).

<table>
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<th>Technology option: Have pairs sign up online (BB) for a date they will lead class discussion</th>
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<td>o Pairs may add links, documents, or other artifacts that will help discussion (may be in addition to required course readings)</td>
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<td>o Pairs facilitate discussion (online or F2F can work)</td>
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- “Conduct demonstrations that involve all or a subset of your students. For example, Gita Sathianathan (Chemistry) passes a lead brick and a plastic brick of the same dimensions around the classroom during the first part of her lecture and then asks students for a comparison to introduce the concept of density. Peter Maserick (Mathematics) uses a Java applet showing triangles that make up a hexagon. He asks students to tell him the value of pi to two, three, four, five, etc. decimal places. As he enters each response, the hexagon increasingly resembles a real circle” (“Large Class FAQ: Active Learning Elements,” 2007).

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<td>o Use videos (YouTube, Vimeo, TED, etc) about relevant content if it provides better or alternative description</td>
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<td>o Doc cams can be used for objects that can be safely set beneath the camera</td>
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<td>o Serious games can be used/adapted to course objectives by teacher prep, leading questions, and purposeful play</td>
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<tr>
<td>o Help provide context, take on new role, and possibly see content in action</td>
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- “Bob Melton (Aerospace Engineering) contributes another activity: "Once or twice a week I ask students to divide up into pairs and give them a question to answer. This is usually in the last 10 minutes of class. Sometimes I ask the pairs to write a one-minute paper together, stating a key idea that they’ve learned that day; then they also have to pose a question for me. (I quickly review the exercise at the beginning of the next class and answer a few of these questions.) I assess their written responses using a rough scale of 1-3, but these scores do not count toward their final grades. I check the correlation between these scores and their test scores—it’s usually rather high—and tell them this as a means of encouraging their participation in these exercises." (‘Large Class FAQ: Active Learning Elements,’ 2007).

  - Technology option: Use Hotseat (or another mobile app) to collect the students’ key ideas and questions during the lecture and possibly have students ‘vote’ on them. Check Hotseat and use the last 5 minutes of class for the most common questions.

- “Several faculty members mentioned using the bookends procedure to provide a structure for these turn-to-your-neighbor student conversations (see Figure 3.1). The bookends procedure usually begins with an engagement activity—a question or task that both sparks the students’ curiosity and helps the instructor discover what they already know about the material. A simple and commonly used engagement activity is, “List at least three insights you gained from the reading assignment and at least one question.” The middle part is a series of back-and-forth transitions between the instructor talking and students working individually and then in pairs or threes. The final bookend activity is a guided reflection on the class using questions such as, “What were the most important concepts today?” or “What was the muddiest point?” or “Explain the following concept in your own words.” A few instructors combined the bookends procedure with permanent, fixed membership groups in order to create more cohesiveness and to deepen the level of conversation” (Smith, 2000, pp. 26–27)

  - Technology option: Use Hotseat (or another mobile app) to collect the students’ discussions and any questions.

![Figure 3.1. Informal Cooperative Learning and the Lecture](image-url)
Active Learning in the Large Class

Activities for Small Groups

- Technology options for groups: Blackboard can be set up for groups to have their own space and tool sets. This can give groups the freedom to use the tools they want to for collaboration (though they might have to be introduced to the tools to understand their possibilities)
  - Group discussion boards can be used to have asynchronous discussion, share links and attachments
  - Group wikis can be used to develop “team” writing
  - Groups can create their own home page, share files, etc.

- **Pro and con grid: Time requirements:** 15-20 minutes
  ("Varying your teaching activities: nine alternatives to lecturing,” n.d.)
  - Special features: This technique helps students develop analytical and evaluative skills, and encourages them to go beyond initial reactions to complex issues. It can be used in any discipline: students can evaluate the pros and cons of a procedure, technique, conclusion, action of a fictional character, political decision, etc.
  - Procedure
    - Divide students into small groups.
    - Specify how many pros and cons you’d like each individual or group to develop.
    - Allow five to ten minutes for discussion or silent thought.
    - Ask for input: write pros on one side of the board and cons on the other side.
    - Combine pros and cons that are very similar, and count the number of times they recur to show their perceived importance.
  - Function in the class: Consider using the pros and cons as the basis for a debate, or for a discussion/lecture structured around the evaluation of course material.

- **Technology option:** Divide up groups and assign the task as normal. Set up a Google doc with a table and share it through a link in BB or written on the board. Have groups fill out the Google doc with their pros and cons. Display the doc on the instructor’s station for discussion and debate. The Google doc allows for fine tuning of statements if wording becomes an issue in the debate. The doc is also savable/can be viewed later if the students desire

- **Role-play Time requirements:** 20-30 minutes
  ("Varying your teaching activities: nine alternatives to lecturing,” n.d.)
  - Special features: Role-plays can be used to allow students to experiment with different styles of interaction, practice new communication techniques or explore complex issues. They are generally used in classes dealing with social issues (social sciences, management sciences, etc.) or communication strategies (interviewing techniques, conflict management, etc.). If possible, participate in a role-play yourself before trying one in class. Essentially, a role-play is a form of interactive case study where the experience of participating in the role-play is the basis for further discussion.
  - Procedure
    - Get scenarios and characters for role-plays from news stories, history books, generic business situations, or by writing them yourself from scratch.
    - Explain why you are using a role-play to cover course material.
    - Describe the background context or setting to the role-play.
    - Give roles to “players”: hand them a card with a brief description of the character they’re playing, their point of view, characteristics, etc.
    - For groups with more students than possible roles, you can either assign “observer” tasks to non-players (e.g., taking notes on a particular player), or assign identical
Active Learning in the Large Class

roles to subgroups of students (e.g., one student can play a city council member, and a sub-group of four or five students can play a homeowners’ coalition).

- Ask for volunteers for certain roles or observers: you may use this as one way to allot bonus points to students.
- Allow a few minutes for students to prepare for their roles.
- After 10-15 minutes, end the role-play.

- Function in the class: Debrief and discuss the role-play. Use players’ perceptions and observers’ notes to lead into discussion of course material. Pay special attention to conflicts, ambiguities, etc.

- Technology option: Use videos (YouTube, etc), if possible, to offer context and examples about how participants should approach role. Perhaps have the role play recorded and edited for group viewing.

World Café Method (“World Café Method,” n.d.)

- Drawing on seven integrated design principles, the World Café methodology is a simple, effective, and flexible format for hosting large group dialogue. World Café can be modified to meet a wide variety of needs. Specifics of context, numbers, purpose, location, and other circumstances are factored into each event’s unique invitation, design, and question choice, but the following five components comprise the basic model:

  1. Setting: Create a "special" environment, most often modelled after a café, i.e. small round tables covered with a checkered tablecloth, butcher block paper, colored pens, a vase of flowers, and optional "talking stick" item. There should be four chairs at each table.
  2. Welcome and Introduction: The host begins with a warm welcome and an introduction to the World Café process, setting the context, sharing the Cafe Etiquette, and putting participants at ease.
  3. Small Group Rounds: The process begins with the first of three or more twenty minute rounds of conversation for the small group seated around a table. At the end of the twenty minutes, each member of the group moves to a different new table. They may or may not choose to leave one person as the "table host" for the next round, who welcomes the next group and briefly fills them in on what happened in the previous round.
  4. Questions: each round is prefaced with a question designed for the specific context and desired purpose of the session. The same questions can be used for more than one round, or they can be built upon each other to focus the conversation or guide its direction.
  5. Harvest: After the small groups (and/or in between rounds, as desired) individuals are invited to share insights or other results from their conversations with the rest of the large group. These results are reflected visually in a variety of ways, most often using graphic recorders in the front of the room.

- Christophe Bas (Electrical Engineering) breaks his students into small groups for a first-day quiz that tests their understanding of key concepts from the prerequisite course as well as common mistakes made by students in the previous semester. Then he asks groups to volunteer answers, which the rest of the class must defend (even if they disagree). Eventually, the correct answers emerge, but the point of the exercise is to break the ice and get students talking. (“Large class FAQ: Student involvement/participation,” 2007)

- The Mock Jury – “There are many areas where biology intersects the law: DNA fingerprinting, carcinogens, reproductive issues, to name a few. To get ready for such an activity, I’ll tell the class to form themselves into six-person juries. This is easiest done with three students in one row, and three in front of them. They’ll have to bunch up to do this, so unless the class is packed, there will be a little space between the juries. I then give them the “scientific” part of the presentation, a summary of the facts of the case, the prosecution and defense arguments, then turn it over to the
“juries.” This activity usually requires more than a minute; depending on the case, they can come to some kind of closure in three to five minutes. I explain to them that juries must come to a unanimous conclusion, or else be hung. I also tell them that they have to keep their voices down, or there’ll be chaos. Once the case goes to the “juries,” I’ll walk the aisles, eavesdropping and asking the occasional question. They get a couple of time alerts, then I tell them they have one minute to come to a conclusion. I’ll then ask the “foreperson” of the jury to stand, and I’ll go around the room asking for verdicts. If I’ve done a good job, the guilty verdicts will just about match the not-guilty, or in a civil case, the plaintiffs will win about as often as the defendants. This presents an ideal opportunity to then ask what additional information might have caused the juries to come to verdicts that were more similar.” (Heppner, 2007, p. 94)

- Millionaire game – have students try out for a chance to be one of 4 or 5 to play “Who wants to be an A student?” Details on how can be found in Heppner, 2007, p. 96.

- Formalized turn to your neighbor – “Calvin Kalman, professor of physics at Concordia University, Montreal, deepens this procedure in his calculus-based physics course with one hundred students by involving them in extensive individual journal-writing assignments (Calvin Kalman, personal interview with the author, Oct. 1998; Kalman and Kalman, 1996). Students write about material before the class, produce a critique based on the concepts they have come to understand after the week’s classes, and develop an overview of the course with the assistance of two student reviewers at the end of the semester. Students are assigned to collaborative groups of three or four and are given a specific role—reporter, scribe, timekeeper, or critic—that is rotated. They write individually and then work together to arrive at a decision with a rationale in their groups. Kalman samples the groups’ decisions, compares and contrasts what they come up with, and works to create consensus and understanding with the whole class” (Smith, 2000, p. 26).

- “Steve Richardson... formerly professor of geology at Iowa State University, ...randomly assigned the 240 to 250 students to permanent groups of about 6 and provided them with a group folder in which he placed the syllabus and other handouts. During a typical class period he provided each group with a box of minerals and a set of photos or showed a video clip or set of slides. He asked the groups to “handle” the materials and perform a set of prescribed tasks or respond to a set of questions. He reports that the five- to fifteen minute exercises made a great difference in his classes. He used twelve minute individual quizzes and then provided five minutes for a group answer, and like many of the faculty members we interviewed, underscored the importance of an absolute grading scale. As a result of these activities, attendance rose to over 90 percent and the dropout rate declined to less than 2 percent” (Smith, 2000, p. 29).

- “Seibt assigns students to permanent groups of four and she refers to the groups as “away teams” or journal groups. The groups meet during class and also schedule a weekly two-hour meeting outside of class. Each member of each team performs one of four roles—text researcher, life researcher, editor, and critic—that are rotated. The text researcher looks up definitions, compares definitions, searches for articles or Web sites, writes up the results, and e-mails them to the other group members. The life researcher interviews people, summarizes the results, and e-mails them to the rest of the group. The editor takes notes during group meetings and writes up the week’s entries in the group’s journal. The critic becomes active after receiving the data from the text researcher and the life researcher, summarizing the group’s responses in the journal. Each week the groups submit their journals to the TA via e-mail and receive e-mail comments from the TA in response” (Smith, 2000, p. 31).
Active Learning in the Large Class

- **Jigsaw** - For use when you have a variety of discussion topics such as readings. If, for example you have a variety of reading assignments, assign one reading to a group, another reading to another group – these groups are their ‘expert’ group. Have them discuss the topic. Then, have students from each of the expert groups join into ‘jigsaw’ groups to discuss how the articles fit together. (Based on “Jigsaw Strategy,” 2007)

- Other strategies you may want to investigate: problem-based learning, case-based learning and inquiry-based learning

**Group Report-Back Methods**

When you ask small groups of students to work together, how can you get them to report back to the large group without taking a lot of time and boring many? Here are some ideas...

- **Buzz groups** - After the group work, rather than reporting back to the whole group, combine small groups into medium sized to discuss and combine ideas. This can be extended by progressively doubling the group size. These larger groups can report back to the whole group in a plenary session. McKeachie walks up the aisle saying “Odd, Even, odd, even” then has the Odd rows turn around and group with the people behind them (*McKeachie’s Teaching Tips.*, 2013, p. 44)

- **Limited reporting** - “have a limited number of groups do a brief report-back to the class but have all groups turn in a list that is then compiled and distributed” (Tait, 2011).

- **Gallery Walk** Ask your students to walk around the room and read/look at the posters. Hand out a sheet with some questions such as
  - “What are some of the similarities you see across the different posters, especially in terms of the question,
  - What are some of the differences?
  - What are some of the surprising ideas on the different posters?
  - Did you learn anything new?
  - What are some of the changes you would make to your group’s poster now that you have seen the other posters? Why?” (Price, n.d.)

- **Rotating stations** - “Small groups record their deliberations on newsprint sheets and hang these on the wall - a blank sheet hangs next to each group’s posting. Staying in their small groups, each group visits the posting next to theirs - as a group they post their reactions to the posting on the blank sheets. Group’s rotate until they arrive at their own posting. They review all the previous groups’ comments” (Brookfield, 2012a)

- **Timed report** - Use a timer with an alarm to de-personalize the time keeping and ensure consistency. If you do that, try to set it up to sound a warning with a minute to go as well as the final bell.

- **Round Robin Report** - “Take just one new topic from each group and go round them a few times until everything has been said” (Atherton, 2011).
• Carousel Walk - Post a number of different questions around the room on easel paper. “Participants are divided into small groups and assigned a starting point to begin the brainstorming process. After a few minutes of brainstorming as a small group, they move on to the next question and repeat the brainstorming process. This continues until all groups have had the opportunity to brainstorm around each question.” Participants can then go around more quickly viewing each other’s responses (http://www.broward.k12.fl.us/hrd/actionresearchstudies/toolbox/Brainstorming.pdf)

**Full class discussions**

• “When you include large group discussion in your lecture during the first day of class, you set a precedent for future discussions. Learn how to facilitate productive discussions by using positive reinforcement and establishing a non-threatening environment. Also, discover how to overcome the physical challenges of large class discussions” (Brooke, 2011b)

• Use a brainstorming activity – directions and suggestions - “Facilitating Effective Discussions,” n.d.

• When asking a question, give students a few minutes to think about their answer, perhaps writing them down, before asking for responses. This gives students a chance to think and prepare their thoughts and opens the discussion to include those who are more deliberate in their thinking (McKeachie’s Teaching Tips., 2013)

• Ask a controversial question for group debate. Give students 5 minutes to discuss within their group. Set a time limit for the debate. Some options:
  o Ask parts of the room to take different sides
  o Ask people on different sides to move to an area of the room
  o Ask a section of the room to be undecided and ask probing questions

• Hatful of Quotes- Type out 5-6 provocative quotes from assigned reading on a 3x5 card (each quote will be on several cards). Put these in a hat & have participants choose a card at random. Participants take turns (at their choosing) to respond to these quotes - or to earlier comments on these quotes (Brookfield, 2012a)

• Nominating questions - Small groups come up with 1-2 questions they want to discuss further. Groups post questions on posters or black/white board. Students individually put a check against 2 questions they would like to discuss more. Whole class discussion is structured around questions with most votes (Brookfield, 2012b)

**Encouraging participation**

• Provide a web-based series of questions that students answer before class or use HotSeat during class.
  • Instructors can use students’ responses to format or customize your lecture.
  • Students can use the exercises to review any prerequisite knowledge – so questions could be about the reading or assignments that are completed before class or questions could be as simple as ‘what do you not understand?’

• Use HotSeat to ask students questions during class and gather their answers. These can be ‘voted’ on by classmates and then the instructor can use these answers to guide the lecture.

• Pose a problem and ask students to think-pair-share, then one group member to post on HotSeat
• “Find easy ways to acknowledge/reward those who participate in class. For example, pass coded index cards to those who ask or answer a question; the student signs and turns in the card to get credit. Some participants post participation questions to their course Web site before class and give bonus points to those who answer correctly in lecture” (“Large Class FAQ: Active Learning Elements,” 2007)

• “Participation points: I tell the class at the beginning of the semester that I'm going to collect participation points, and if they end up one or two points below a grade-line at the end of the semester, these points can put them over. I give points for any kind of participation, such as asking a question out loud in front of the whole class or answering a question that I ask. I want to get them talking. In a class of 170 students, there's a certain reluctance to speak up in front of so many people. It's surprisingly easy to keep track of who said what. If they speak out in class, they come down at the end of the period and give me a little piece of paper with their name on it. I simply take these papers back to my office and put a red dot by each name on my grade sheet. This method also helps me get to know who's who, which means the next time they raise their hands, I can call on them by name. That makes a big difference in the general feeling of a large class” (“Large class FAQ: Student involvement/participation,” 2007)

• "Gotcha!": I tell the class at the beginning of the semester that I'm going to make a mistake each day, and whoever detects the mistake first and shouts "Gotcha!" gets a candy bar. This technique works well. In fact, I always carry a spare candy bar because sometimes students will catch me making an unintentional mistake in addition to the one I've planned. I especially like to use "Gotcha" when I've warned them about a common mistake. For example, we talk about solving problems and the necessity of balancing the equation in order to get the right answer. But it's very easy for students to work with an equation and not check first to see whether it's balanced. So I present a problem and then start to solve it without first balancing the equation. Some students will pick up on it, and the students who don't kick themselves because it's so obvious” (“Large class FAQ: Student involvement/participation,” 2007)

• “The Candy Bar Quiz: The idea is to show them part of a question and let them get ready to think about the answer. Then show them the final part of the question. The first student to shout "I've got it" and correctly explain the answer to the class gets a candy bar. I use this strategy to show them the quick and dirty way to get an answer as opposed to grinding through some long complicated calculation. Because the candy bar quiz can be figured out in your head, it encourages students to think conceptually instead of relying on formulas” (“Large class FAQ: Student involvement/participation,” 2007)

• Call for a vote. Ask for a show of hands: "How many of you believe this?" Then select someone from each side to justify his or her response. These polls get everyone involved, despite the fact that the majority never get to speak to the entire class” (“Large class FAQ: Student involvement/participation,” 2007)

• “Ask for volunteers to make short presentations and lead the discussion for a change” (“Large class FAQ: Student involvement/participation,” 2007)

• “Participation is easier in large classes if you have a "target" section for each lecture that gives its feedback in written comments to a representative who synthesizes them for the class to hear” (“Large class FAQ: Student involvement/participation,” 2007)
Encouraging questions

- “Responses such as ‘I’m glad you asked that’ or ‘That’s a good question’ will encourage students to continue asking questions” (“Large Classes: A Teaching Guide: Personalizing the Large Class,” 2012).

- “If appropriate, you might bring a question raised during office hours or after class into the classroom and mention the student’s name, for example, ‘Ann asked me an interesting question about . . . ’” (“Large Classes: A Teaching Guide: Personalizing the Large Class,” 2012).

- “Nonverbal responses such as smiling or nodding can also indicate your support of student questions” (“Large Classes: A Teaching Guide: Personalizing the Large Class,” 2012).

- “When asking students questions, it is important to allow enough time--at least five to ten seconds--for them to consider their response” (“Large Classes: A Teaching Guide: Personalizing the Large Class,” 2012).

- “A question-answer box set up in the classroom or lab or outside the professor's office allows students to raise questions outside of the classroom. Students can sign their questions or submit them anonymously. The professor responds to the questions during class... (You may have to seed the process by putting a question in yourself and commenting on it as [if] a student had submitted it.)” (“Large Classes: A Teaching Guide: Personalizing the Large Class,” 2012).

- “Another way to personalize feedback is to invite students of a particular subgroup, e.g., ‘Let’s hear from someone who lives on campus or someone majoring in science’” (“Large Classes: A Teaching Guide: Personalizing the Large Class,” 2012).

- “In courses in which problem-solving is important, such as those in math or science, you might ask students to write any problems they have had difficulty solving on the board before class begins (and perhaps before you arrive). At the beginning of class, the instructor solves the problem” (“Large Classes: A Teaching Guide: Personalizing the Large Class,” 2012).

Student feedback

Purposes of short feedback:

- These can be anonymous and give you feedback on how clearly the concepts came across
- These can be used to begin discussion for the next class
- If names are on the papers, they can be used for attendance or as an assignment

Short-feedback methods:

- “One-sentence summary - students answer the questions “Who does what to whom, when, where, how, and why?” (WDWVWWH) about a given topic and then creates a single informative, grammatical, and long summary sentence” (Angelo & Cross, 2012).
- One-minute paper– prompt the students with a question such as “what were the two most important concepts today?” “Summarize our discussion today”, etc. (Brookfield, n.d.)
- Muddiest point – ask students to write down the one point they are unclear on (Brookfield, n.d.)
- Questions – ask students to write down 1 or 2 questions about the topic (Brookfield, n.d.)
- Answers – ask students to answer 1-2 questions that you ask (Brookfield, n.d.)
- Learning Audit – Ask the following 3 questions:
  - What can you do now that you couldn’t do this time last week?
  - What do you know now that you didn’t know this time last week?
**Active Learning in the Large Class**

- What could you teach someone to know or do that you couldn't teach them this time last week? (Brookfield, n.d.)
- Handout a Classroom Critical Incident Questionnaire – these ask students to anonymously identify their level of engagement (Brookfield, n.d.)

**Longer feedback methods**
- SGID (Small Group Instructional Diagnosis – for more valid and honest feedback - (“Small Group Instructional Diagnosis (SGID),” n.d.)

**Other alternatives to the lecture**
- Role play (5 minutes) – give a case study to several students and ask them to prepare to role play these for the next class. Ask for volunteers. Select students you feel will not mind acting in front of everyone.
- Ask for volunteers to walk thru examples that you would normally do yourself – give a few points for the volunteers to encourage them

**Large Classes: Limiting the Chaos**

The following section is from (“Large Classes: Limiting the Chaos,” n.d.)

Here are some tips on how to set a positive classroom atmosphere and limit disruptions from the first day of class:

- **Signal the beginning of the class clearly and consistently.** To limit disruptions, you need to set the proper quiet atmosphere before you begin your class. In a clear, loud voice, say “Good morning!” or “We’re going to start now!” and use the same cue throughout the term to gain students’ attention. Do not start lecturing while students are talking.

- **Communicate your ground rules for the course on the first day.** Discuss your expectations for the students in the first lecture. Tell them your policies on classroom disruptions such as talking in class or arriving late. Provide a brief rationale for your rules, focusing more on students showing respect for other students.

- **Alternatively, spend the first class having the students collaboratively develop the ground rules for the course.** Encourage them to envision a classroom environment that will be most conducive to their learning. Ask them, too, to think through behaviours that might undermine their classmates’ learning, and how those behaviours should be addressed or managed by the instructor or by the rest of the class. Try to get them to see the ground rules as a social contract whose aim is to support their mutual learning.

- **Put the ground rules in your course outline.** Since the outline is a contract you make with the class, it is an appropriate place to put your expectations for the course. It also gives you an impartial document to return to should you need a way to reinforce your rules.

- **Give students a non-disruptive outlet for expressing their concerns.** Consider placing an “exit” box at the back of the room for students’ questions, ideas, suggestions, and concerns, and respond to them on a regular basis. An anonymous online drop box or survey can be used in the same way to gather students’ questions, ideas, suggestions, and concerns.

- **Consider giving a professionalism grade.** In smaller classes, it may be possible to grade students on their level of professionalism – are they on time, prepared for class, respectful of other students, etc.?

If students are disrupting your class, here are some possible ways to handle them:

- **Ask the students if they have a question.** Sometimes talking during class is legitimate; students have missed a key definition or number and need clarification from someone sitting nearby.

- **Move closer to the disruptive students.** Your proximity may signal to them that they are interrupting the class.
Active Learning in the Large Class

- **Make a general statement to the class about the disruption.** If you do not feel comfortable singling people out, you can indicate to the class in general that the disruption level is too high and remind them of the ground rules you set on day one.

- **Use an active learning activity.** Try a think-pair-share where you have students turn to the person next to them to discuss a problem or question. This will break up the flow of the class and help to re-capture students’ attention. It will also give you an opportunity to approach the disruptive students and discuss your concern with them.

- **Ask those who consistently disrupt the class to see you after class.** This will give you an opportunity to air your concerns outside of class and indicate your displeasure with the students’ behaviour without embarrassing them in front of the class.

- **Ask the disruptive students to leave.** If you feel there is no other recourse, you are within your rights to ask students to leave the room. You may also choose to leave.

- **Designate a specific part of the classroom for laptop users.** Many students prefer to take class notes using a laptop, but the keyboard tapping can distract other students. Creating a "laptop zone" at the back of the classroom and a "non laptop zone" at the front can help allay this problem.

Other general tips to help large classes run smoothly include:

- **Start and end classes on time.** This helps to create an atmosphere of respect for students’ time and yours.

- **Avoid giving cues that class is ending.** If you say “One more point and then we can go,” it is likely that students will start packing their bags before you are finished. Moreover, to help prevent students from packing up and leaving early, make it a habit to spend the last two or three minutes of the class re-iterating the three most important points or ideas of that day’s class.

- **Move around the classroom.** Try to keep students involved and attentive by moving throughout the classroom.

- **Look and sound confident.** Arrive at class prepared and handle yourself professionally at all times to indicate that you are in charge.

- **Make sure everyone can hear.** Learn to project your voice effectively, encourage students to speak up loudly, and if necessary repeat student questions and responses for those who may not have heard.

- **Admit when you can’t answer a question, offer to find the answer, and then report back next class.** Avoid getting bogged down in material about which you are unsure.

**Sample Conduct Statement for Course Outlines:**

<table>
<thead>
<tr>
<th>A Word about Conduct in Large Classes</th>
</tr>
</thead>
<tbody>
<tr>
<td>This is a large class but you are not a small part of it! To make our time together as valuable as possible, we both have to work hard at it. The following basic principles may give us some guidelines:</td>
</tr>
<tr>
<td>1. Every student has the right to learn as well as the responsibility not to deprive others of their right to learn.</td>
</tr>
<tr>
<td>2. Every student is accountable for his or her own actions.</td>
</tr>
</tbody>
</table>

In order for you to get the most out of this class, please consider the following:

- Attend all scheduled classes and arrive on time. Late arrivals and early departures are very disruptive and violate the first basic principle.

- Please do not schedule other activities during this class time. I will try to make class as interesting and informative as possible, but I can’t learn the material for you.

- Please let me know immediately if you have a problem that is preventing you from performing satisfactorily in this class.

I am looking forward to working with you this term.

(“Large Classes: Limiting the Chaos,” n.d.)
**Activities Outside of Class**

- Assign students to study group

- Provide an email address so students can send you questions, but be sure to give them an estimated response time “I do not read email over the weekend” or “I will reply within 24 hours” etc.

- Build a Blackboard course to hold your syllabus, assignment descriptions, handouts, announcements, important dates, grades and announcements. This can also be used to encourage discussions.

- Create some different assignments: “Assign group or individual field research--e.g., “Find an on-campus example of a kind of tree / architectural style/etc.” Make it fun for students, and help them find resources readily at hand” (“Large Class FAQ: Active Learning Elements,” 2007)

**What else should I know?**

- A series of ideas about working with large classes - (Herr, 1989)
- Classroom assessment techniques (commonly called 50 CATS) (Angelo & Cross, 2012)
- Discussion as a way of teaching – 46 ideas for using discussions (Brookfield, 2012a)
- Appendix includes active learning strategies for enhancing the lecture – including Activities to include in the first ten minutes of a lecture, activities for the middle 30-45 minutes of class, and activities to include in the last ten minutes of a lecture (Bonwell, n.d.)

**HELP ME**

If you have additional suggestions, changes, comments, etc., please send them to me: patreid@purdue.edu. (And thanks to Chris Mong for identifying technology uses for supporting these activities!)


Active Learning in the Large Class


Active Learning in the Large Class

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