Our purpose in teaching is to create a sense of responsibility for learning and agency in students that leads to students’ self-confidence and the ability for lifelong learning in their chosen field and beyond. We do this through effective design and implementation of courses by actively engaging students in the thinking of our disciplines, whether online and at a distance, in a blended format, or in fully face-to-face courses.

Engage Students in the Classroom: Active Learning

"Active learning" describes a broad category of practices that place students at the center of classroom activities. Students learn best when they are doing something that requires an investment and a commitment of participation, rather than listening to a lecture or watching a video. Being active often means interacting with other learners. Cooperative, Collaborative and Team-Based Learning are some examples of strategies used for Active Learning.

To create this kind of classroom environment requires some planning. For one, the instructor has to communicate consistently clear expectations that the classroom will not merely be used simply for the instructor’s lecture, but will be the place where students demonstrate their learning through their own actions. To be successful as a strategy, this needs to start on Day One, and continue throughout the course. Second, if students are to develop the confidence they need to be challenged in this way, they will need to come prepared. The instructor will therefore need to use strategies and techniques to ensure that students do the preparatory

It is what we know already that often prevents us from learning.
Claude Bernard
work necessary for their success. Third, the evaluation of student learning will need to be tied to students’ demonstrated skill in applying course content in new situations, rather than in mere memorization and accurate recall of information recorded from lecture and readings. Most students will pursue what counts toward their marks, and discount what does not.

**Golden rules for creating an active learning classroom**

The in-class learning activities need structure but should not be canned steps. Students need to act for themselves in using their new knowledge. Asking students to make judgments and decisions is an effective way to exercise the freedom of self-determination, but within a context that you have structured to be relevant.

The in-class activities can and should include a variety of formats: problem-solving, analyses and diagnoses based on situations or data sets, quizzes, and “let’s see what you can do” challenges. These learning activities force students to retrieve, apply, and/or extend the material learned outside of class.

Consistent instructor expectations for student preparedness are essential to make class meetings productive and engaging for students. Students need to demonstrate their preparedness on a regular basis, in the form of online tasks due before class, reading quizzes (online or at the beginning of class), or other assessment activities.

A significant portion of a student’s mark for the course needs to be tied to classroom activities related to applying and using course content.

**Creating Dialogue in the Classroom**

*Dr. Stephen Rader, (Chemistry) and Dr. Tracy Summerville (Political Science), UNBC*

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One of the most important goals – and greatest challenges – of educators is to create a learning environment in which the students participate actively in their education by becoming engaged with the course material. An effective way to promote active participation is through dialogue in the classroom. Unfortunately, many students, trained by years of passive education and cowed by the fear of making mistakes, are extremely reluctant to enter into dialogue in the classroom. So, how do you get students to begin to actively engage in substantive dialogue? We argue that the essential pre-requisite for classroom dialogue is an atmosphere of trust.
Types of Dialogue

**Question and Answer (Q and A)**
Q and A sessions are undoubtedly the most common way in which we expect to create dialogue in the classroom. Instructors can invite students to ask questions at any time during the lecture or set aside a specific time for questions. The choice to allow students to interrupt during lectures, however, will help in building an active learning environment because students can engage with the instructor throughout the lecture. It is also important to remember that the instructor can ask questions of the students too.

**Think / Pair / Share**
Think / pair / share is a technique that allows students to interact with a peer to work out a problem or question that the instructor has assigned. Students are asked to work with a partner in order that the students can actively work through problems. Think / pair / share works in large classroom settings because students can simply turn to their neighbour to begin this exercise. However, large classes also have their drawbacks because it is often difficult to ensure that students are actually discussing the problem and not last night’s party.

**Small Group Discussions**
Small group discussions also work to create interaction between peers. Again, this may be an opportunity to get students to work through a single problem or for the instructor to design different problems for each group. The instructor may have each group share their findings with the whole class at the end of the discussion.

**Informal Debates**
Informal debates may begin in a classroom quite unexpectedly. They should be encouraged and the instructor should take the time to discuss the debate, outlining the different positions including flaws in reasoning, incorrect assumptions or facts. Make sure the students understand that free flowing debate is not tangential to lecture material. Some students assume that the only —voice that matters is that of the instructor. Take the time to point out how students may have used ideas / concepts from the course to argue a point.

**Formal Debates**
Formal debates are a good tool to get students engaged in both careful research and presentation techniques. The competitive nature of debate can often spark student interest. The instructor needs to set out the debate rules, to expect that research is done beforehand preferably demonstrated through an assignment given to the instructor before the debate. One technique for ensuring that students take the debate seriously is to ask that students dress appropriately on debate day.
**Presentations**

Individual and group presentations are good tools to teach the important skill of oral communication. For some students presentations are a joy; for others presentations are wrought with anxiety and fear. There are two vital parts of a presentation, first there must be clear, well researched content and second, they must be organized and clear. It is important to help students understand that presentations cannot be all—bells and whistles! without substance. Instructors may want to ask the students to design the grading rubric for the presentations. Students are likely to put the emphasis on the content when they are asked—what makes a good presentation? A presentation may have lots of bells of whistles but if the content is lost or unclear the audience will feel that they have not learned anything.

**Oral examinations**

Oral examinations can be a very effective way of determining whether or not the students can articulate ideas they have learned in the course. It becomes very clear that a student has done the course readings when you are having a one-on-one discussion with them about the course. When the exam is designed as an open ended interview session with a number of critical questions along the way, the instructor can often gauge what aspects of the course had the most impact on the student. Two notes of caution: first, it is necessary to have a grading rubric template that is completed at the end of each exam otherwise it is very difficult to remember individual student responses; second, it is necessary to mix up the questions so that students do not share the exam questions. This also means that the instructor has to be very clear about what the students should be getting out of the course (i.e. what is examinable) so that there is no basis for students to say that they got—hard questions whereas others got—easy ones.


**Reliable Formats of Engagement for the Active Learning Classroom**

The Active Learning Classroom is driven by students doing their own thinking in situations you have designed, so you (the resident expert) can respond and offer feedback. For many faculty members, the hardest challenge is to design the kind of activity that 1) is engaging and inherently interesting and 2) demonstrates the targeted thinking, so it becomes visible to the faculty member (and to the students, themselves).

One effective strategy for creating intrinsically interesting tasks is to require students to make autonomous choices and decisions within a restricted framework, rather than generate free responses to open-ended questions. This is the same technique used by game designers to make game scenarios so exciting and engaging. Restricted autonomous decisions emphasize the student’s clear commitment to a way of thinking, which implicates him/her more directly in
the challenge. This in turn causes the feedback to be interesting, **even if the student is working within a topic where he/she has no real interest.** By making his own, clear choice, the student has now invested in the challenge, which makes the outcome relevant at a personal level. Now the student is motivated to learn whether his/her decision is sound, which makes the discussion about the decision particularly engaging.

Tasks that are open-format (make a list; brainstorm reasons; generate a solution; “discuss;” etc.) all have their place at times, but they can also lead to lazy thinking if you are trying to promote focused, analytical discussions in class. For one, the responses to an open-format question can be so far afield as to not be highly useful in a general debrief of student thinking. Second, open-format tasks tend to allow certain kinds of students to dominate the conversation, because they are less timid to generate and share their perspective, even if it is not particularly insightful. Also, it’s too easy for less confident, less assertive or less quick-thinking students to defer to the “best” student’s answer. Closed-format questions tend to level the playing field, as slower students are usually quicker to choose than to generate an answer.

**Debriefing**

The benefit of these restrictive format tasks is that an instructor’s follow-up question to students, “**WHY?**” is now clearly focused and deeply analytical. “Why did you score this paragraph a 7 and not a 3?” Why did you choose that rock, and not the others? Why did you put this object in that category, rather than this other category? “Why” when it follows a student’s own, autonomous decision implicates the student directly, making the answer something that matters, because it is personal and immediate to his own thinking.

**Inquiry Based Learning**

Inquiry Based Learning places the responsibility for learning on the students, and encourages them to arrive at an understanding of concepts by themselves.

Some Inquiry-intensive practices include:

**Design Thinking**

Design Thinking supports and structures the creative process of generating ideas and bringing them into reality through concrete actions and products. Commonly used to frame student work in art, but adaptable to many other disciplines, Design Thinking guides students through five phases of thinking and activity: Discovery, Interpretation, Ideation, Experimentation, and Evolution.

**Problem-Based Learning**

Problem-Based Learning confronts students with messy, complex problems encountered in the real world as a stimulus for learning. Problems are raised with students before have been taught
By actively engaging with the problem first, learners develop skills around defining problems, identifying what information they need, and finding, evaluating and using information. Learners are able to connect their thought processes in class to solving problems in the real world.

**Case or Scenario-Based Learning**

Case or Scenario-Based Learning engages students in analysis of specific scenarios that resemble or are real-world examples. This method is learner-centered with intense interaction between participants as they build their knowledge and work together as a group to examine the case. The instructor’s role is that of a facilitator while the students collaboratively analyze and address problems and resolve questions that have no single right answer.

**Meta-questions**

Meta-questions are framing questions designed to structure student work during a whole term within an enveloping investigation. Activities are developed and resources are chosen for supporting students’ consideration of this Big Question. Daily discussions and various assignments repeatedly return to the framing inquiry, and at the end of the term students are asked to produce a comprehensive response to the Meta-question.

**Inquiry can also be embedded in other learning frameworks, such as:**

- Undergraduate Research
- Threshold concepts
- Public Sphere Pedagogy
- Engaged Learning (e.g., civic engagement)
- Field work
- Progressive Inquiry
- Project-based learning

**Group Work**

**Cooperative and Collaborative Learning**

These two terms are often used interchangeably, but it’s useful to maintain some distinction. Each approach leverages the social dimension of learning in a slightly different way.

**Cooperative learning** focuses on asking students to interact in highly structured ways to process ideas and information, or practice skills. "Think-Pair-Share" is a classic example of a cooperative learning technique in that it asks students to cooperate temporarily for a specific learning purpose. In cooperative learning the interaction with peers does not normally factor into the evaluation of the student’s individual performance. The limited scope of cooperative
work in the classroom means that it can be incorporated fairly easily into just about any course format or content.

Some Common Examples of Cooperative Learning include:

- Think/Pair/Share
- Cooperative note-taking
- Structured controversies
- Debates
- Jigsaws

**Collaborative Learning**, on the other hand, asks students to work collectively to produce something for which group members share responsibility. For planning purposes, therefore, collaborative learning is more consequential for decisions made at the level of curriculum, course design, and evaluation of learning. Of particular importance, the collaborative approach needs to give students some flexibility and freedom of action, so that groups are able to accommodate the particular needs of group members as they learn to work as a unit.

Important to keep in mind are the logistical and time burdens put on students by collaborative projects that are designed to take place outside of class. Coordinating busy schedules and tracking down student peers takes enormous energy that is not directly relevant to the learning goals of a project. Ensure that students are given some time in class to organize themselves and to touch base at key moments in the course of preparing out-of-class projects.

**Team-Based Learning**

Team-based learning (TBL) is a comprehensive instructional method, invented by organizational behavior professor Larry K. Michaelsen, which puts students into roles of greater autonomy and responsibility for acquiring and using information. Some critical components of TBL are:

1. Teams that are permanent
2. A process to ensure individual student readiness for group work
3. Assignments that require students to work collectively on rigorous application of course content, and
4. Peer evaluation. A central strategy of TBL is to shift the use of class time away from instructors transmitting concepts in class (which can be accomplished more efficiently, individually, outside of class), and towards students working in teams to apply course concepts. The team structure is an essential condition for requiring students to perform at higher cognitive levels.
Lots of people use groups. What’s so special about a “team”?

Groups are collections of individuals who might or might not cooperate. Teams are groups with a shared purpose and sense of collective responsibility. Groups evolve into teams when conditions are right. Members start out as individuals who may or may not function well together, due to hitchhiking members, dominant personalities, and poorly designed assignments. Well-designed tasks plus strategic course design teach group members to listen to one another, value each other’s contributions, learn from mistakes, rein in ineffective behavior, and eventually trust in the team’s ability to outperform any given individual.

What are the principles behind TBL?
TBL emerged out of research in organizational and cognitive psychology. Among the principles that drive the method are the following:

- Students learn best and are more motivated when feedback is frequent and immediate.
- Working in groups creates opportunities for frequent, immediate feedback and reflection among peers.
- Groups need time together to learn to function as a team, hence the use of permanently assigned groups.
- Effectively functioning groups need very little instructor oversight or management. TBL is therefore a more efficient use of an instructor’s time, and can be scaled to classes of any size.

Flipped Learning

What is Flipped Learning?
Students learn key concepts on their own—they read, view, and interact with carefully selected/created online materials before class, and then apply their learning during class time, in increasingly challenging activities. This process inverts the traditional ‘lecture transmission’ model, reserving in-class time for small-group work that engages students in problem solving and applying the knowledge they have acquired on their own. Many activities can be part of a flipped class: debates, clicker questions, demonstrations, simulations, peer feedback, and role playing. An instructor may choose to flip just a few classes a term, where the concepts lend themselves to active learning experiences, or to flip the whole course.
Components and Benefits

- Increases interaction and personalized contact between students and teachers. Students are more engaged in learning.
- Students can spend time processing materials outside of class – they are not tied to the time frame of an in-class lecture. Students take more responsibility for their own learning.
- Flipping increases students' focus on the most important and most difficult concepts of the course.
- Faculty can more easily see where students are struggling and adjust the course to attend to the difficulties students actually have.
- Students who are absent due to illness or extra-curricular activities, don’t get left out (content can be permanently archived for review or remediation)
- Flipping offers more variety, more “hands-on” problem-solving than a traditional class