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## Using Active Learning in the Classroom

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*Beverly Cameron, Visiting Instructional Developer with the Office of Instructional Development and Technology during October/November 1997, is a 3M Teaching Fellow—a national award given to Canadian faculty who are not only outstanding teachers, but who have also made important contributions to the improvement of university teaching and learning. This issue of FOCUS provides information for faculty who are interested in active learning techniques which provide “opportunities for students to meaningfully talk and listen, write, read and reflect on the content, ideas, issues, and concerns of an academic subject” (Myers & Jones, 1993, p. xi). Herein are six practical suggestions for active learning in the classroom that vary in the amount of time and effort required from students and the instructor.*

### Active Learning Defined

To start, what is active learning? Basically, active learning requires students to *participate* in the learning process. It requires students to *use* content knowledge, not just acquire it.

Active learning is student-centered, as opposed to the teacher-centered lecture. It gives greater control of the learning process to students. With active learning, the class becomes a flexible learning environment keyed to the learning speed of the students

### Combining Active Learning with Lectures

Active learning techniques can be combined with lectures to give students opportunities to become actively involved in the learning process while still giving the instructor time to cover content. For example, students can read course content in the text, reflect in classroom group discussions on the implications or applications of the content, and then listen to a lecture by the instructor that links the readings and students' reflections to related or opposing theories. This combination of learning and teaching techniques is one example

of how course content can be 'covered' without relying on lectures which basically repeat what students can read for themselves in the text.

Active learning exercises don't have to take up the entire class period. What is important is that there are ample active learning possibilities so that students can be active participants in the learning process.

Nevertheless, introducing active learning techniques can introduce uncertainty for both students and the instructor. Thus, it is best to introduce active learning techniques slowly and start with those that involve the least risk or change from a lecture format, and then proceed to course-altering techniques if the instructor chooses

## **Least Risky Techniques**

### **Question/Feedback Box**

Students are asked to write questions they have concerning the lecture material, readings, or assignments and deposit them (usually unsigned) in a box that the instructor brings to the classroom or attaches to his/her office door. This gives students who might be shy about asking questions in class or coming to the instructor's office a chance to have their concerns addressed.

✓ *It is very important that the instructor answer, respond to, or at least summarize in class all the questions received or students will stop asking questions and providing feedback.*

### **Think/Pair/Share**

The instructor asks a question or poses a problem and requests that students think about it for a minute. Then students are asked to turn to the person next to them and share their thoughts. Think/pair/share gives students time for reflection and an opportunity to share their thoughts with a classmate. At the end of a few minutes, several pairs of students can be asked to share their thoughts with the entire class. This technique:

- allows students to clarify unclear points with a classmate
- provides the instructor with feedback on the students' understanding of a topic

- gives students time to consolidate their learning
- provides an opportunity for analytical thinking
- allows an opportunity for lecture material to be applied to a problem or situation that is relevant to students
- encourages shy students to share their ideas
- fosters a positive class environment through the exchange of ideas

## **Adding a Bit More Risk**

More risky, but interesting, active learning techniques include:

### **Game Show Exercise**

If a course requires students to memorize terms, names, or definitions an incentive can be provided by dividing the class into two teams and asking them to generate questions from readings that require a one or two word answer (e.g., somewhat like the TV show *Jeopardy*). Individual members of Team #1 then draw and answer questions prepared by Team #2 and vice versa. If the first individual cannot answer the question, the team as a whole attempts to answer. Team points are given for each correct answer, with more points being given for a correct individual response than for a correct team response.

✓ *Teams should write a large number of questions because both teams may write identical questions, and once a question has been asked it can't be reused.*

### **Role Plays**

Assign students roles that require them to argue or defend positions which illustrate political, environmental, economic, historical, religious, ethnic, gender, age, cultural, or other differences. Students are asked to research and make at least a temporary intellectual commitment to the roles they are assigned. Students are evaluated on the thoroughness of their presentation and defense of the assigned position. Although they may resist being assigned a position that is quite different from one they currently hold, role play exercises often lead to more learning when students have to defend an unfamiliar or unpopular position.

✓ *Be sure to stipulate the evaluation criteria for the role play exercise to avoid defense solely by assertion*

### **Making Course-Altering Changes with Active Learning**

The following techniques can be used with other teaching methods or as the dominant teaching method for an entire course. When the latter is the case, the instructor may want to establish permanent student groups for assignments or projects that take many hours or weeks to complete. Less formal groups can be used for assignments that require less work.

#### **Guided Design**

Guided Design involves active learning and sustained participation in small groups (Wales, Nardi & Sanger, 1986, 1987). It involves a series of tools and a strategy for their successful use. Students are explicitly led through steps to solve problems and reach logical decisions. The process is an active one requiring student participation and involvement at each step. Students are responsible for learning the course content outside the classroom, and lectures are usually limited to explanations of the Guided Design process. Problems, often real world situations, are solved during scheduled class times. Small group work occurs in the presence of the instructor who provides feedback and encouragement as students proceed through each step of the solution process. Guided Design is usually implemented in groups of four to six students, thus fostering the development of communication and interpersonal skills.

The basic Guided Design problem solving steps are:

- defining the situation
- stating the problem and the exact goal to be achieved
- generating ideas that might be used to reach the goal, and then selecting the one judged to be best
- defining the new situation that might result if the selected idea is implemented
- preparing a detailed plan to reach the goal based on the best idea generated
- implementing the plan.

- evaluate and learn from the success or failure of the process and plan (Wales, Nardi & Singer, 1986, p. 32-33).

Since a course involves a series of problem solving exercises, students have repeated opportunities to evaluate and hone their skills while receiving feedback from the instructor

✓ *The Guided Design method of small group problem solving can totally or partly replace traditional lectures.*

#### **Mini-lectures and Effective Thinking Practice**

The instructor lectures for ten or fifteen minutes and then poses a problem for small groups of students to work on for five or more minutes. After the students finish, the instructor discusses the problem with the class, and then the process repeats itself. Depending on student's prior knowledge, the instructor may want to use the lecture segments to introduce theories and models that relate to the exercises.

✓ *To be most effective, the instructor should suggest an effective thinking or problem solving process that groups can use in addressing the problem(s).*

This process could be the Guided Design problem solving process (above), or any other explicit effective thinking process that the instructor thinks is appropriate for the course material and the type of problems posed. Once students have worked on the problem, one or more groups can be asked to explain their thinking process and any conclusions they have reached. The instructor can expand on group comments or model the effective thinking approach for the class.

The merit of this technique is that it gives students many opportunities to actively use the course material while following explicit effective thinking techniques. The students also see the thinking process modeled by the instructor and receive immediate feedback on their own efforts.

#### **Adapting Courses for Active Learning**

The "least risky" active learning techniques can be used as occasional breaks in a lecture

class without making other changes to the course. However, if the "more risky" or "course-altering changes" are used, or if the "least risky" techniques become a regular part of the course, other changes must be made.

- The instructor will need to communicate expectations for student participation in the learning process.
- Tests and other evaluation instruments must be designed to reflect the thinking skills active learning requires.
- Ways to assess individual and group accountability must be established.

- Student groups need to be formed.
- Furniture will need to be moved or adjusted so students can easily talk and listen to each other.

Introducing active learning techniques takes extra effort from instructors who have only lectured, but most who make the effort feel it is more than worth it. The pleasure of watching students get involved in the learning process is a reward in itself, and most instructors find that teaching with active learning techniques gets them more energized and excited about their role as teachers.

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*The Office of Instructional Development and Technology's Resource Centre contains print and video materials on active learning and other topics in higher education. To borrow these materials, give us a call or visit our office in the Killam Library.*



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# Essays on Teaching Excellence



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TOWARD THE BEST IN THE ACADEMY

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## Relating Student Experience to Courses and the Curriculum

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Asking students to relate their personal experiences to the curriculum can actually enhance learning and further the outcomes of a liberal education rather than squander precious instructional time as many instructors often assume. A liberal education influences behavior less by direct application to experience than by instilling a habit of routinely reflecting critically on our experience within the broader frames of reference acquired through such an education. If this is the case, then instructors need to provide students occasions to reflect on their own experiences through the lenses of their disciplines during classroom and study time.

Further, what we know about learning points to the initial state of learners—their prior knowledge and experience with the course material at hand—as the starting point of instruction. Effective instruction builds upon this experience deliberately because functionally individuals will interpret and incorporate new ideas through their existing frames of reference. And according to Kolb's well-known learning model (1984), individuals form abstract concepts and generalizations by reflecting on experience. These concepts then become working principles, the implications of which individuals test in experience and subsequently modify after further experience and reflection. Good instruction guides students consciously through this process.

Following are specific suggestions on how instructors can integrate personal experiences and course material to promote student learning.

### Planning

Integrating students' personal experiences and course material begins in the planning stage as instructors articulate their goals and objectives for the course. Along with those related to course content, analytical skills, research methodologies and the like, critical reflection on personal experience through the discipline becomes another explicit goal of instruction and a

desired student outcome. In designing the course, the instructor will select a variety of methods—some of which we describe below—to further this outcome.

Instructors also need to help students see the possible connections between their experience and the course material. Conceptualizing the course in terms of broad-based themes that run through an array of phenomena (including students' experiences and the course material) may help students see these connections. It will also provide them wider frames of reference for subsequent reflection.

Planning of this kind is easier, of course, if instructors know the students they teach. As they teach, instructors can explore students' experiences through personal data sheets, class discussion, and individual conferences. They might also keep abreast of student life and culture through campus newspapers, attendance at campus events, general reading, and informal conversations with students. As instructors come to know and understand the students in their classes better, they will be able to draw stronger and more relevant comparisons between students' experience and the curriculum.

### Teaching Strategies

A range of teaching strategies help students integrate their personal experiences and course material. By creating explicit opportunities for students to draw connections between their experience and course materials and then providing them with tools for reflection, instructors can help students internalize a habit of critical reflection. Well-chosen comparisons and analogies draw from students' immediate experience, ring true, and have cognitive utility. They can engender minor epiphanies on which deeper, more analytical understanding can grow. A good questioning strategy can lead students from raw and immediate personal experience to a broader and more sophisticated understanding. Well-designed case studies are an effective way of linking experience and

theory and giving theory immediacy. They can also help students understand their own experience, using the case study as a lens through which to view analogous situations they may encounter later. Journals provide a natural vehicle for reflection on the course material in light of students' experience. Entries can be structured or open-ended, both forms of which force students to engage more personally and directly with the course material and to consider its implications for themselves. Simulations and games draw students towards and into the course material, literally forcing them to experience it. Debriefing such experiences critically provides the analytical tools students will need to reflect upon their own experiences. Finally through experiential learning students engage in an actual work or field experience outside the confines of the classroom but as part of their regular coursework and then reflect upon it in a manner consistent with the discipline at hand.

These teaching strategies vary in the degree to which they incorporate actual student experience. Comparisons and analogies incorporate student experience indirectly by drawing comparisons between the course content and student experience or by asking students to do so. By contrast, in experiential learning students take part actively in an experience as a course requirement that the instructor consciously weaves into the course material. But whether the strategy involves a simulation, a case study, or an actual field activity, the strength of the strategy lies only partially in the nature of the experience itself. Even more important is the guidance and support provided to students for critical reflection on the experience. Using Kolb's model, reflection is the critical link between concrete experience and the formation of abstract concepts and generalization by which we order and regularize experience. As a result, instructors need to plan carefully reflective exercises

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that employ the methods of critical inquiry peculiar to their discipline. Through guided reflection of this sort, students learn how to learn from experience, not simply the particular classroom or field experience, but from any experience.

### Evaluation

If the ability to reflect critically on personal experience through the discipline is a desired outcome of instruction, teachers need to develop ways to evaluate this ability. Well-designed assessment instruments provide opportunities for students to practice new skills and abilities and to enhance their learning. They also permit instructors to assess the effectiveness of instruction and the extent of student learning. Three major guidelines for evaluation described below insure the integrity of course planning and evaluation, increase the likelihood of student success on assignments, and provide consistent and fair assessment criteria:

- \* Tie student assessment to specific course objectives
- \* Provide detailed assignments in writing that clearly specify your expectations.
- \* Clearly specify in writing how the assignment will be evaluated at the time it is assigned.

These general principles apply to virtually all types of evaluation, but they are particularly important for assignments that explicitly require students to relate their experiences to the course material. Such assignments are apt to be nontraditional and hence unfamiliar to students. Unless structured properly, they may invite aimless confessionalism with little reference to critical inquiry in the discipline. As a result students will not have had the learning experience intended by the assignment, and instructors will be at a loss to evaluate completed assignments so different from their implicit expectations.

Following are two specific examples of assignments in which students must relate their own experiences to the course material:

*Literature and Life Project.* An instructor of an introductory course in contemporary literature specifies the following as one of her course goals: to see literature as participating in and dialoguing with a larger cultural system. To evaluate this goal she asks simply that students explore the extent to which the readings have affected them. In her writ-

ten evaluation scheme, she describes carefully assignment options corresponding to conventional grade levels. For example, students electing the "C" option need only identify the impact a work of literature has on them, while those choosing the "A" option must not only identify their responses but analyze and act upon them. She also spells out the time and page requirements for each option.

*Service Learning Project.* In a labor economics course investigating the role of labor in the economy, students work for an organization that helps the unemployed find appropriate jobs. To assess several related knowledge, skills, attitude and values, and service objectives, students submit three assignments associated with this experience: an organizational profile; a journal in which students reflect upon and analyze their experience; and a final paper in which students relate their experiences in the organization to the concepts, models, and theories of labor economics. The instructor distributes evaluation criteria for each assignment.

### Summary

Frequently instructors view the relationship between student experience and the course material as a trade-off. Allowing students to air their personal experiences in class takes away from the time the instructor has to "get through the course material." In fact, purposefully integrating student experience into courses and the curriculum can enhance the effectiveness of instruction. It can help students broaden their frames of reference and reflect critically on their experience, thereby furthering the broader outcomes of a liberal education.

### Suggested Works to Consult

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