Logistics of Active Learning

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Introduction

Active learning has been shown to be an effective way to teach in most disciplines, but the logistics of developing a course using active learning principles or moving a course from standard teaching methods to active learning strategies can seem overwhelming. To help you smoothly implement active learning strategies, this chapter focuses on the logistics of active learning at all stages of a course, from course development to postsemester reflection, and also addresses content coverage, classroom setting, class time, syllabi, and establishing groups. The chapter concludes with advice about implementing small changes during the semester and finding resources on campus to help with moving toward active learning.

Content Coverage

Course Development

One of the most frequent concerns for those who have not previously used active learning strategies is the amount of class time these strategies consume. Face-to-face class time is a precious commodity; for many reasons, such as accreditation or licensure requirements, some content absolutely must be taught during the semester. However, adding active learning strategies does not mean decreasing content coverage. It does mean thinking about how to cover content in a different way. Strategically looking at what content must be taught during class and what students can be trusted to learn on their own is a starting point for including more active learning in the classroom.

During Class

Adopting a flipped classroom model will help you meet content coverage requirements. In a flipped classroom, students are exposed to content prior to attending class and then use their knowledge during in-class active learning activities. Not only does this increase engagement during class, but it also increases content retention because students see the content more than once and use the content in multiple ways. Having students using the content in multiple ways makes the flipped classroom model a good strategy for reaching diverse learners.

You can use various methods to move a course to a flipped classroom model. Lectures can be a good place to start, especially if they take up the bulk of your face-to-face classroom time. In place of a lecture, assign a reading that addresses the same content. You can also have your students watch voice-over slideshows or prerecorded lectures through the course management software. However, as with all out-of-class coursework, you may be concerned that students will not view the readings or lectures prior to class; this concern can be addressed in several ways.

Hold students accountable for the content during in-class active learning assignments by emphasizing how the material will be used during class. This will increase the likelihood that students will complete the readings and watch the lectures. The in-class active learning activities become assessments for content covered prior to class time. You should establish the importance of completing readings and watching lectures early in the course, so students understand their importance as well as how not completing or watching them will hurt their grades. You can assign reading or lecture quizzes within the course management system. Automatically graded quizzes will help you hold students accountable without creating more work for yourself. For in-class quizzes, using a polling software, like Poll Everywhere, will allow you to review answers in real time and automatically collect grades.

Implementing active learning strategies for content is not always just moving in-class lectures to recorded lectures or voice-over slideshows. Active learning activities that have students become the "expert," such as think-pair-share and jigsaws, both discussed in more detail later in this chapter, force students to engage actively with the content and their peers.

After Class/Postsemester

Reflecting on the effectiveness of each activity used during a class session or throughout the semester can help you determine changes that need to be made for both upcoming classes and future iterations of the course. Analyzing student feedback about specific active learning strategies will help you gauge student perceptions of the activities. However, be careful about jumping to conclusions about the activities themselves: Activities that fail to go as planned or that are not met with student enthusiasm may simply be improperly aligned with the course content.

Classroom Setting

Many classrooms are not set up for active learning activities, but that does not mean that there is not a way to adapt a classroom to facilitate active learning; some classroom setups will require more out-of-the-box thinking than others. Classroom size, seating arrangements, and available technology are all space issues that must be addressed when designing active learning activities.

Course Development and Preclass

It may be difficult to think about the space you will be using during the development of your course because you do not know where you will be teaching, and the location of your class can

change every semester. What you can do is be prepared for any setting that you might be faced with and think about how your activity could be adapted to various possibilities.

Classroom size is one variable that should be considered during the course development phase. If your classroom is large, how will you manage the activity? If you have a small classroom, how can an activity be adapted to minimize the need to move around the room? Minimizing space requirements is especially important when you are instructing many students in a relatively small classroom. Another important consideration is seating arrangements. Although a classroom with movable furniture is the best scenario for many active learning activities, most activities can be adapted to any type of classroom. If the class has stadium seating with fixed seats, students might have to move into groups along the walls or at the front of the classroom. If desks cannot be moved, then chairs can be. You might also choose to incorporate activities that do not have any special seating requirements.

Technology availability in the classroom is something you should consider during course development. Some active learning strategies require each student to have access to a computer; others only require low-tech tools, such as whiteboards, sticky notes, and markers. If you plan to use high-tech tools for your active learning activities, the course development phase is a good time to determine which tools you hope to have. You may be able to request classrooms with that type of technology or to use one of the active learning classrooms on campus.

You will definitely want to view your classroom once you have been assigned a location. You probably will not be able to change anything about the classroom to which you are assigned, so you must adapt your course to the space you are given. If you assess the classroom early in the course development process, you will have time to make any necessary adjustments to your active learning strategies. When you visit the classroom, you should visualize your activities and their space requirements to address issues that may arise. Keep in mind class size, seating arrangements, and available technology.

During Class/Postsemester

Once your class begins, you may find that even more adjustments are necessary. Remember that implementing active learning in your course is an iterative process. You may find that the setup of the classroom does not work well for one type of activity, and adjust your assignments to use one that better fits the class setup.

Reflecting on the seating arrangements should not only occur after each class but also when reflecting upon your active learning strategies. What type of activities worked best for the space you had to work with? What activities might be better suited for another space? What activities need to be adjusted to accommodate the space you had?

Time

As you design an active learning course, you will need to account for time constraints imposed by the university's class schedule. Accounting for these constraints will help you as you develop the course, manage in-class activities, and plan future iterations of the course.

Course Development

Class meeting times at UNC Charlotte are generally scheduled for 50, 75, or 165 minutes. Each meeting schedule has its benefits and challenges. Early in the planning of your course, consider which one of those class lengths might work best for your course and your active learning goals. To help determine this, consider the following questions.

What are your course objectives? In a heavily content-based course, breaking the information down into smaller chunks might be more beneficial to students. In a course that is more skill-based, a longer class meeting time would better lend itself to multistep, problem-based learning activities.

How large is your class? Consider how the number of students affects how much actual "learning time" you have available. When assessing possible activities, think about the amount of time it takes to get the class settled and ready as well as the time required to get the activity going. In general, larger sections will require more time for both.

At what level of student is your course aimed? This is similar to the first question but takes into account the expected experience of students likely to be enrolled in the course and how they might respond to activity-based learning. This is also related to attention span. Shorter bursts of active learning activities work better when students tend to have shorter attention spans, as opposed to the longer, multi-step, independent learning activities.

What time of day does your class meet? The temperament of your students may be related to the time of day that your class meets as well as the class length. While a 165-minute evening course is often most convenient for students who work full-time while completing their degrees, they are likely to be tired. Consider the timing of the activities during class time and how that impacts their engagement in class.

Some of the above questions may appear to assume that you have control over your course schedule, and we acknowledge that is not always the case. A course that is ideally scheduled for 75-minute meetings twice per week may need to be scheduled for a 165-minute meeting on a Tuesday night due to departmental needs or classroom availability. Despite these challenges, focusing on active learning activities to enhance the class time you find yourself in can go a long way in overcoming these challenges.

Preclass

While you have likely considered and selected your activities in the course development phase, you may need to reassess and adjust activities after you have had an opportunity to gauge your class's personality. When beginning to implement activities, you might find that your students take longer than you originally intended. Please note that this does not necessarily mean that your activity did not work; your class may just take more time to start or may have become deeply engaged in the activity. Other changes to consider are how you introduce the activity and the time it takes students to respond.

During Class

Be flexible. While you do not want your class to dictate how things go, you do want to allow for and encourage positive responses. If students are engaged in an activity, allow the activity to

continue past the time allotted for it and eliminate or shorten another activity to accommodate the class schedule. Conversely, if the activity is not taking as long as you thought it would, try to gauge whether or not you can add to the activity to enhance the learning and engagement.

After Class/Postsemester

Assessment of timing after class does not need to be formal. You may find it beneficial to keep some written notes for longer-term planning, but much of your assessment and adjustment will be during the semester between class meeting times. One thing to note is that the success of activities is often based on instructor confidence and the personality of the class. Not every activity will work every semester for every class. If you teach multiple sections, you may find that the activities working in one section do not work in others. Consider how the class meeting time may have affected how well the activity worked for particular sections. You may find yourself making adjustments in timing based on the individual section personalities.

For long-term planning, keeping track of the impact of timing on your active learning strategies and your course success can help to make a case for changing the timing of your class meeting. You may find that a course taught for years in the 165-minute, once-per-week format actually works much better in a 75-minute, twice-per-week format.

Syllabus

A course syllabus serves a variety of purposes. It is often thought of as a technical document that lists and briefly describes academic policies and provides a schedule of topics that will be covered during the semester. The syllabus is provided to students at the beginning of the semester, generally as a Word or PDF file posted to the learning management system (LMS). Students are told that they are expected to read and be familiar with the content of the syllabus, but after that, the syllabus tends to fade into the background. As such, it is easy to see how the syllabus has come to epitomize passive learning. However, because the syllabus sets the tone at the beginning of the course, it is a key component of active learning strategies.

Course Development

The majority of the course syllabus is put together during the planning stages of the course. There are a few things to consider when getting started. First, be familiar with requirements for syllabus content. Colleges and academic units generally have minimum requirements for syllabi. These requirements usually dictate which university policies and resources must be included on the syllabus, along with recommendations for others to include. Colleges and other academic units may also have specific requirements for college-level policies or other information that must be included in all syllabi. Legal Affairs has developed a resource that includes suggested language for policies and notices that can be accessed from the legal affairs website. While the language is not required, it may be helpful to students to see similar language across syllabi.

After the policy/resource requirements are addressed, consider the course-related content

that either needs to be included or may be helpful to include. Most commonly, this includes an outline of course topics, descriptions of course assignments, course- or instructor-specific policies, and a class schedule. Additional course components to consider include plain language descriptions of course goals, objectives, and hints for doing well in the course.

By the time you have included all required components, the syllabus will have become a long, burdensome document that few people want to read. As such, the challenge becomes how to make it into an active learning experience for your students. Here are some suggestions. These suggestions can be taken individually or in conjunction with each other, depending on your comfort level with integrating active learning.

Consider the overall structure and order of your syllabus. While colleges and academic units have requirements for syllabi, they generally do not require the content be presented in a particular order. Students are more likely to be engaged with the syllabus if it focuses on the course-specific content toward the front.

Use a syllabus quiz. A syllabus quiz can be as simple as a handful of multiple-choice questions that cover the main points of the syllabus. But the effect that it has is much more powerful; a syllabus quiz requires students to read the syllabus. Integrating a syllabus quiz into the LMS requires students to log in to and interact with the LMS early on in the semester and gives students an opportunity to "practice." Giving a syllabus quiz in class can help students understand your expectations for out-of-class readings and assignments. An in-class quiz can be done individually or in groups and can be provided through technology, like Poll Everywhere or Kahoot!, that decreases your grading workload. In terms of keeping students engaged with the syllabus throughout the semester, questions from the syllabus quiz can reappear at multiple points of the semester, such as at the midterm exam.

Embed the syllabus into Canvas or another LMS. Using an electronic version of the syllabus can turn it into an interactive introduction and guide to the course. Leveraging a system such as Canvas allows you to set up pages with hyperlinks, images, and audio and video files. In Canvas, the syllabus can be set up as a module that must be completed prior to other course material, such as the syllabus quiz, being accessed. Something to consider with embedding the syllabus into Canvas is that Canvas does not have an option to print, so no file version exists. This may have implications if you are required to keep a shareable file version of the syllabus. After setting up the syllabus in Canvas, it is possible to copy and paste the pages into a Word document as a backup or alternate file version. It is tedious to do the first time, but relatively easy to update as you go along.

Preclass/During Class

After the syllabus has been developed, you will need to think about how you want to approach introducing the syllabus to your students. The first day of class is often considered to be "Syllabus Day" in which the instructor spends the class period going through the syllabus. Though reviewing the major points of the syllabus during class time is always good practice, the first day of class may not always be the best day, particularly if your course tends to have a great deal of initial turnover. You may find that the second week of class is a better time to

review the syllabus or that consistent references to the syllabus throughout the first few weeks of the semester work just as well. Questions related to the syllabus may also be used as bonus questions on exams or other tests.

After Class/Postsemester

The syllabus is not going to be a course component that you will be reviewing after each class meeting. More likely, the syllabus might be adjusted when major changes, such as schedule adjustments, are made. Be sure to notify students of any changes made and, if helpful, why the changes were made.

Most syllabus changes will be made after the semester while you prepare for the next iteration of the course. Between semesters, you might consider what was effective and what was not. Feedback can be derived from the syllabus quiz scores as well as the types of questions that students asked throughout the semester.

Establishing Groups

Group work has long been a cornerstone of active learning. We know it is an integral part of student development and can see its value in our courses, but integrating group work into course design can be difficult, especially if you have taught the course without it before. Below are some options for using groups.

Course Development

As you consider how to integrate groups into your course, one of the first things to consider is how you want to use the groups. Groups in active learning can be used as part of a graded group project (or series of projects), or to enhance class meeting time, or a combination of both. Part of this planning includes determining the relationship between grading and group work. If you choose to use groups just for class meetings, you may choose not to have any part of the grade based on these activities or perhaps just a small part. If the groups are part of a formal project, then consider a proportion of the course grade that adequately corresponds to the amount of the course workload represented by the group project. You may also take into consideration whether each group member gets the same grade or if the contribution each group member made affects their assignment grade.

Once you have decided the role of groups in your course, you must decide how you will form them. The two basic options for structuring groups are formal groups and informal groups. Formal groups are those in which the groups are established early on in the semester and students stay in those groups throughout the semester, generally culminating in a project or other outcome. Students can be assigned to groups by the instructor or can be permitted to choose their own.

By assigning students to groups, you will get to determine the makeup of the groups and create diversity. Diversity among groups can be based on traditional demographic characteristics as well as skills or other personality traits. The downside to assigning groups is that students

do not always respond well to being told whom to work with, which can increase the workload for the instructor as you will have to help students navigate the group process. Allot time for these issues, but know that it is not always possible to anticipate every possible issue.

While allowing students to choose their own groups may reduce the potential for conflict, conflict-free groups may not always be in students' best interests because they do not reflect the workplaces your students may be entering into. The disadvantage of students choosing their own groups becomes apparent in courses where students within the same major take several courses together. They know each other well and tend to choose to work together in groups as they are familiar with each other's strengths and weaknesses. Though it is important that the students learn to recognize skills within themselves and in others, conflict-free groups limit the opportunity for students to be challenged and develop new interpersonal skills and conflict-management skills

Informal groups are those formed ad hoc during class time to complete activities. These groups help increase in-class student interaction. Likewise, having the students complete tasks in groups and report back to the class automatically decreases class time spent on passive learning.

Preclass

Once you have established how you intend to use groups in your course, both in terms of class activity and group formation, you must consider how you will implement the groups in your course.

Group size depends on the task or assignment. Consider the roles necessary to complete the assignment and how many students may be required to fill those roles. Determine if the workload can be distributed equally to ensure that you can provide each student with enough work and a beneficial learning experience. Depending on the assignment, you may define the roles for students or they can choose the roles they prefer.

Assign groups using a variety of methods. Groups can be assigned randomly using Canvas or other methods. If you choose to assign groups purposefully, you will need to collect data about the students in your course to ensure your assignment goals are met. Common ways are described below. They can be used alone or in combination.

Have each student complete a survey of your design. Create your own survey instrument in which you collect data on the characteristics you wish to know. This can be a paper survey, or a survey created and administered in the LMS. Use an established system such as CATME (https://info.catme.org/). CATME can be used throughout the group project, not just to put together the groups. You might also use personality surveys such as the Myers–Briggs Type Indicator to assess personality types and create groups based on personality types. These are helpful for establishing groups in which students play to their strengths or groups in which students are challenged to develop a new skill. Use course-related data such as academic performance to that point. While this may create some unevenness within a group (e.g. a group member not carrying their own weight), it may help prevent creating entire groups of "superstars" and those of less motivated students.

Group purpose will determine group composition. Prior to utilizing informal groups, evaluate what the task is, how much time it will require, and how groups will report back. Options for putting students into groups during class can be systematic (e.g. counting off and grouping by number), by interest (e.g., ask a poll question and group students based on answer), or based on proximity/convenience (e.g. the people around them). Applying a combination of these options will vary the makeup of the groups and allow students to work with an assortment of class members throughout the semester.

During Class

Both formal and informal groups can be used during class time. The formal project-based groups can be afforded class time to work on projects in an environment where the instructor is there to provide immediate feedback. Maintaining the same groups throughout the semester both for projects and in-class meetings establishes the importance of group development as part of the active learning process. Students become accustomed to sitting together and getting into groups earlier, which can cut down on time spent in class. This is quite useful in large courses that meet for the shorter 50- or 75-minute sessions, where taking 10 minutes to get into groups severely impacts time set aside for learning activities.

However, too much repetition can lead to stagnation in the group experience. Groups may become like-minded or somewhat predictable, which may result in a less than active learning experience as students are less likely to be challenged. Task-based learning becomes less about the process involved in reaching the outcome and more about how quickly they reach a conclusion—the "We are done discussing" syndrome. Providing opportunities for students to interact with different class members often leads to increased engagement with the course and course goals.

Though it may be somewhat time consuming to alternate how informal groups are formed in class time, ensuring that the method for putting together the groups is in line with the group activity often leads to better outcomes. Placing group formation instructions on a PowerPoint slide so students can read them as well as hear you give the instructions will both cut down time requirements and lessen student confusion. Using groups consistently throughout the semester and setting early expectations for group work are crucial. This is particularly helpful in a standard auditorium/lecture hall classroom style where it is not always obvious to students that they can work in groups in this type of physical setting.

Another important consideration for group work during class time is keeping students accountable for their work (i.e. keeping them on task). Students must be expected to report back in some way. Active learning spaces often, at a minimum, have whiteboards on which groups can write their response or other outcome. In a standard classroom space, you may choose to use other means, such as poster-sized Post-It notes, to present responses, worksheets, or other note pages that students submit at the end of the class period. You may also decide to use electronic response systems like Poll Everywhere or Kahoot!. These means have the added benefit of allowing you to grade group participation.

After Class/Postsemester

Depending on how you choose to implement groups in your course, the after-class assessment will come either in the form of a quick assessment or a grade for the activity. A quick assessment of how well the activity worked in the classroom setting might simply involve notes to yourself about any changes you wish to make for the future. The future could be the next class meeting, later on in the semester, or the next semester.

If the grading scheme for the course involves giving grades for group work, then there is work to be done in between classes. Low-stakes, informal group activities during class time can generally be graded quickly, particularly if electronic feedback is used. High-stakes group work will take longer to grade, but this time requirement is likely something you have already considered in developing the assignment. Group assignments have the advantage of fewer actual assignments to grade; rubrics specifically set up for group assignments can set expectations for students and ease some of the grading burden.

An aspect of after-class/postsemester assessment is feedback regarding the individual student contribution to the group (e.g. the accountability factor). Accountability can be established by having students submit a separate assessment of individual contributions using a simple form, either paper or electronic, in which each group member rates and describes the contributions of all group members. Using a system like CATME can help to track and provide feedback. The assessment can come at multiple points: during the project, after the project, and at the end of the semester. The feedback can be integrated into the course/project grade or used for future planning.

Making Small Changes

Active learning is not an all-or-nothing model. Sometimes the best way to implement active learning strategies is to make small changes. Small changes may even be the most effective way to present information content. Small changes can also be a useful way for the instructor to become more comfortable with active learning.

Course Development

Moving an entire course to an active learning model may seem overwhelming. It also may not be feasible to always engage students in active learning activities. Active learning does not mean having to include group-based learning projects that last for multiple sessions or the entire semester. Active learning also does not mean that you have to keep your students active the entire session. Implementing one or more quick active learning strategies can be effective in increasing student engagement with the course material. If you are moving an older course to an active learning model, choose a few small strategies or activities appropriate for the subject matter and try them out. Sometimes small changes are more effective than a complete overhaul.

During Class

Although there is almost an endless number of small changes that could be made to increase active learning, this section will outline some of the most popular. Use of technology that involves students in the classroom may be one of the easiest ways to engage students. For example, UNC Charlotte provides access to the polling software, Poll Everywhere. Students can use their computers, tablets, or cell phones to record attendance, answer questions, and share ideas. Many applications make it easy for instructors to "gamify" course content. Having students interact with course content in the form of a game is an easy way to increase active learning. Rather than just asking questions and getting responses from a few students, usually those who would be engaged with the content in any format, gamifying your questions encourages everyone to be involved. Kahoot! is one very popular and easy-to-use application to use for gamifying content.

Many K–12 active learning strategies are quick and easy to implement to support content that students read before or during class. In a think-pair-share activity, students think about what they have read and then share their thoughts with a partner. The partners then share their thoughts with the entire class. This activity can be scaffolded by providing students prompts or questions that they should reflect on and discuss with their partner. The same content may be assigned to everyone, or each pair might address a particular section of the reading. A think-pair-share activity not only gives students the chance to reflect and discuss, but it also provides experience in speaking to an audience.

Jigsaws can be particularly good active learning strategies for deep or heavy content. Groups are assigned a particular section of the reading and then work together to determine how to best summarize and share the information in their section with others. One student from each group joins with members from other groups to form a new group in which they each "teach" the rest of the group their section of the content. Another approach would be to have each group prepare a minilesson on their assigned content and share it with the entire class.

There are also small changes that can be made to get students moving in the classroom. Movement increases focus along with engagement and should not take a lot of time. Simply taking frequent breaks during a lecture to have students move across the class and discuss the content with a student they do not usually work with is an effective way to include active learning in your classroom. Having students brainstorm by moving to a whiteboard to write down their ideas or using notecards that students place in categories scattered throughout the classrooms are other ways to provide a stimulating active learning experience.

After Class/Postsemester

Regardless of the strategies, always remember that active learning exists on a continuum. Although some instructors are excited to dive into the deep end of active learning, even just being willing to dip your toes in can help your students. Reflecting upon the strategies you choose to implement can help you to figure out what works in your courses and perhaps move you toward implementing more extensive active learning strategies in the future.

Ask for Help!

Course Development and Preclass

Remember that you are not alone. This book has been compiled by UNC Charlotte faculty from the Active Learning Academy. The academy can help connect you with instructors who have tried these student-centered strategies. Observe your peers doing active learning though the Center for Teaching and Learning's Teachers Observing Peers Program. The course you observe does not have to be in your discipline for you to get ideas about what you can do in your course. You might get an idea for your large enrollment course, nonmajors' course, etc.

If you think you are not that creative, do a quick online search for the active learning idea you have. You might be surprised to find how many ideas are already out there and ready for you to implement. A few tweaks may be all that are necessary so you can have an activity ready to go for your next class.

The textbook publisher's website is another place to look for resources. Scroll through your course textbook to the critical thinking questions at the end of the chapter and transform them into an in-class think-pair-share activity or case study. You can use adaptive learning from your textbook to generate an activity for the material that your class needs to review.

Joining a community of practice like the Active Learning Academy at UNC Charlotte can be beneficial. Attending a professional development conference can help you discover strategies for teaching in your discipline. If you cannot attend a conference, join a professional listserv that will help you connect with other instructors through email.

During Class and After Class

Having help when implementing a new teaching tool is always a good idea. The first time you try something, ask an expert to be present. Having someone there who could answer technical questions allowed me to focus on the specific content. Using teaching assistants, undergraduate preceptors, colleagues, etc. is also recommended.

If you have a summer course or smaller section, you can practice the activity. After the activity, you should collect feedback or a reflection from the participants. Some ideas for prompts are: Thinking about the big picture, what is the most important thing you learned about (insert your topic here) today? What did you get out of the class activities that you would not have gotten out of a lecture?

After class, review the feedback and student reflections. You might get ideas about how to improve the second or third iteration of your activity.

Conclusion

A move to active learning can improve student engagement and learning, but implementing active learning may feel overwhelming. This chapter includes many considerations and ideas to help make the transition easier. The move does not have to be extreme and could include just adding small active learning activities. Any changes are well supported on campus.