TOOLBOX COLLECTION

VOLUME 2: ACTIVE LEARNING

Editor
Brad Garner

VOLUME TWO: ACTIVE LEARNING

CONTENTS

NATIONAL RESOURCE CENTER
FIRST-YEAR EXPERIENCE® AND STUDENTS IN TRANSITION
UNIVERSITY OF SOUTH CAROLINA

INTRODUCTION

Join us on a virtual field trip. Imagine you have just entered the hallway of an academic building on a college campus of your choosing, anywhere in the world. Now imagine you are walking down that hallway while classes are in session. Stop and listen. What do you hear as you walk past the classrooms?

The most prevalent sound is very likely the voice of a faculty member delivering a lecture or monologue. Although there may be brief interludes of conversation and dialogue around the topic, the professor's voice is almost universally observed as the foremost sound emanating from those classrooms.

Let's continue on with the second part of this virtual field trip. Now, as you continue down the hall, observe the students seated in these classrooms. What do you see in their eyes? What does their body language tell you? Do their facial expressions give any indication of their level of involvement and engagement in the learning process? Quite often, students exhibit passivity and resignation that may reflect a variety of feelings: fatigue, boredom, disinterest, and/or capitulation to their required physical presence (but conceivably optional mental engagement).

Spence (2001) described a retrospective version of the virtual field trip you just completed:

> For just a moment, assume that time travel is possible. Plop a medieval peasant in a modern dairy farm and he would recognize nothing but the cows. A physician of the 13th century would run screaming from a modern operating room. Galileo could only gape and mutter touring NASA's Johnson Space Center. Columbus would quake with terror in a nuclear sub. But a 15th century teacher from the University of Paris would feel right at home in a Berkeley classroom. (p. 13)

These scenarios invoke thoughts about a current controversy and discussion in higher education: What are the best ways to facilitate student learning?

Many opinions, and a considerable amount of rhetoric, have been put forth as possible responses to this question. On a more personal level, consider the worst-case scenario of teaching at the college level. There you are, standing in front of a classroom and looking into the eyes of your students. As you glance at your notes, then at

> ❝ **Some people talk in their sleep. Lectures talk while other people sleep.**
>
> **-Albert Camus,**
> *French philosopher (1913 – 1960)*

your watch, you realize that another 20 minutes remain in the class period. Simultaneously, you survey the classroom. There you see what you most dread—blank stares, drooping eyes, heads that appear too heavy to support their own weight, uncontrollable doodling, window/door gazing, and compulsive clock watching. It is a helpless feeling. You continue to talk knowing that your words and wonderfully clever thoughts are drifting off into the atmosphere, never to connect with the hearts and minds of your students. What you are observing and experiencing are the classic symptoms of *lecture-induced mind paralysis*.

This syndrome is commonly observed among college students around the world—a sad predicament. On the bright side, take heart, as extensive research has revealed a cure. According to a classic article by Chickering and Gamson (1987) that still rings true:

> Learning is not a spectator sport. Students do not learn much by sitting in classes listening to teachers, memorizing prepackaged assignments, and spitting out answers. They must talk about what they are learning, write about it, relate it to past experiences, and apply it to their daily lives. (4)

The goal, then, should be to engage students with the content being taught through a variety of interactive strategies, with a focus on deeper understanding, exchanges of ideas, collaboration, application, and problem solving. In this volume of *The Toolbox Collection*, we will review techniques that fall under the rubric of active learning and are designed to meet all of these expectations.

From *The First-Year Seminar: Designing, Implementing, and Assessing Courses to Support Student Learning and Success* (pp. 65-66), by B. Garner, 2012, Columbia, SC: University of South Carolina, National Resource Center for The First-Year Experience and Students in Transition. Adapted with permission.

ORGANIZING TEACHING TO PROMOTE LEARNING

In higher education, we often invoke several mantras to indicate our intent to challenge our students to lofty levels of thought, analysis, and creativity. It is not unusual to hear faculty conversations peppered with terms such as *critical thinking, higher order learning,* and the ever-popular references to Bloom's taxonomy. These claims, well intentioned as they may be, warrant additional investigation and assessment. Some reflective questions each of us can ask ourselves in regard to our classroom practices include:

» When thinking about the desired outcomes for student learning, what and how much am I really expecting from my students?

» Does the course content require students to think critically and apply the knowledge and information they are acquiring?

» Does my lesson design provide opportunities for students to wrestle with newly learned information, process content, engage in problem solving, and communicate with one another on topical issues?

» Are there tools I can provide my students to assist with their comprehension and understanding of course concepts?

Let's examine these questions from the perspective of some easy-to-use strategies that can be applied to the content of any discipline. The goal of these techniques is to provide a template students can use to organize their thinking about the topics presented over the journey of a semester.

THE BOOKSHELF STRATEGY

To ensure that class presentations give students an opportunity to process their new learning and engage in critical thinking, the *bookshelf strategy* provides an approach for thinking about lesson design (Smith, Sheppard, Johnson, & Johnson, 2005):

» As a starting point, visualize a collection of assorted texts arranged on a bookshelf.

» Volume 1 of those texts, and the beginning of our classroom teaching session, is an *advance organizer*. This activity (e.g., an outline of key topics, partial copy of PowerPoint slides, or introductory video clip) sets the tone for the class and introduces the topics of the day.

» Volume 2 is a 10- to12-minute lecture, video, or demonstration focused on the learning outcomes for the day.

» Volume 3 is a 3- to 5-minute learning activity specifically designed to help students process this information through guided discussion in small groups or with a learning partner.

» Subsequent volumes on the bookshelf interchange periods of lecture/video/demonstration and guided discussion.

» The final volume is a cohesion builder (e.g., application activity, simulation, or problem-based learning activity) designed to help students bring together the key points of the day's class and summarize newly acquired knowledge, skills, and dispositions.

EASY WAYS TO HELP STUDENTS ORGANIZE THEIR LEARNING

Is a picture really worth a thousand words? Are there learners in your classrooms who connect with course-related content more effectively through verbal or visual cues? Yes and yes! Let's look briefly at three strategies for helping students learn.

Graphic Organizers. A strategy for helping students remember important concepts and organize their thinking about varied, interrelated concepts is to create graphic organizers (or provide an opportunity for students to create them in the company of their classmates). Do a quick Google search for "graphic organizers" to find a collection of strategies that set the stage for instruction by advising learners of the topics, content, and focus of a class presentation. Figure 1 includes samples of graphic organizers that can be used to illustrate and organize student thinking and understanding around the connection between steps in a process. Figure 2 offers scaffolding to understand the factors contributing to a principle or idea and the relationship between those factors. Finally, Figure 3 provides a strategy for mapping different perspectives on social or political issues.

Make these tools available to your students as a means for "connecting the dots." They can fill in the information created and shared during a classroom teaching session.
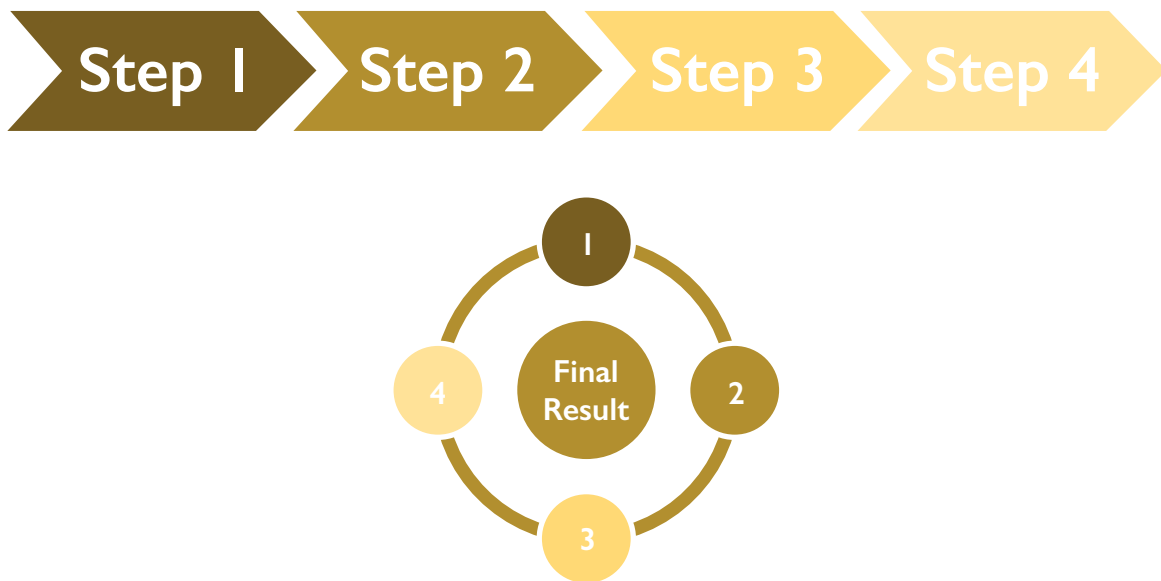

Figure 1. Graphic organizer allows students to fill in the steps in a process as they are presented and discussed in class.
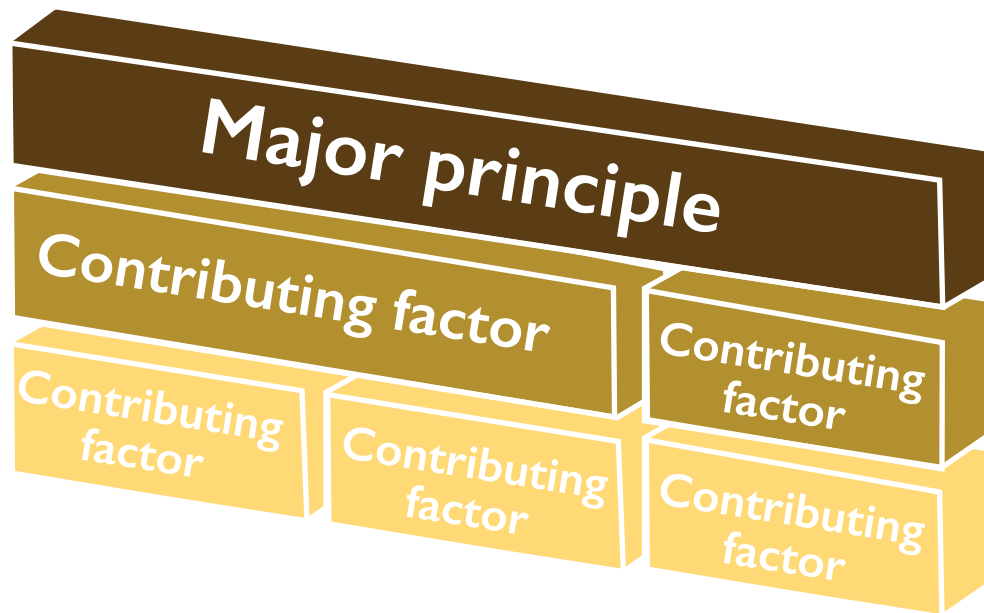
Figure 2. Given the major principles being presented and discussed in class, students can collaborate to identify the variety of contributing factors.
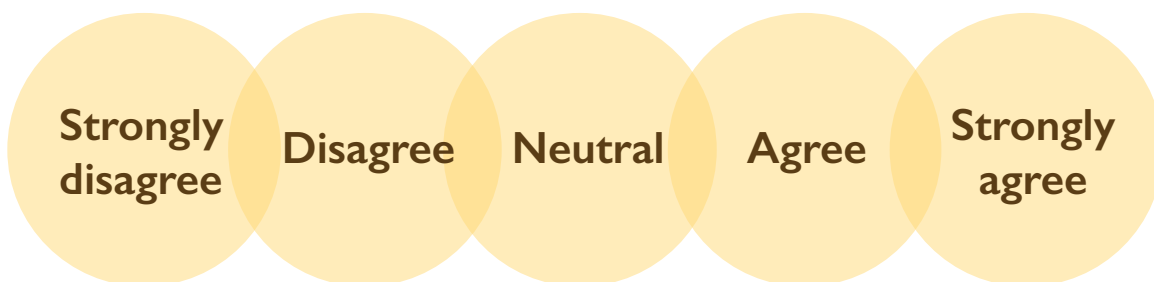
Figure 3. Students can identify reasons why groups of individuals may align the way they do on certain social or political issues.

Scaffolding. Based on the early work of David Ausabel in the 1960s, a body of research has revealed that students' learning increases dramatically when they are provided with a scaffold or framework that defines the nature of the learning experience. Advance organizers might include

» a provocative question;

» a jointly developed *K-W-L chart* (i.e., what we know [K], what we want to learn [W], what we have learned [L]);

» a video clip, news article, picture, song, or quotation; or

» any inviting, thought/energy-provoking introduction that hooks the learner and encourages them to learn more about the topic of discussion.

Acronyms. It is quite common to require students to memorize and recall various (seemingly important) bodies of information. Frequently, lists of information are remembered for the purpose of test taking and then forgotten. If these bits of information are important enough to learn in the first place, they should be significant enough to recall and use later in other contexts and circumstances. An acrostic is a poem or series of lines in which certain letters, usually the first in each line, form a name, motto, or message when read in sequence (e.g., Great Lakes = HOMES; the colors in a rainbow = ROY G. BIV). These acrostics helped you retain this information. Give your students the opportunity to collaboratively create their own acrostics as organizational and learning aids.

> **We are a species that must try to impose and find systems —systems of thought, ways of organizing and categorizing reality.**
>
> **-Jonah Goldberg,**
> *syndicated columnist*

This article was originally published in February 2006.

STARTING AND FINISHING WELL: OPENERS AND CLOSERS

Faculty have a tendency to begin and end classroom sessions in rather unceremonious ways (e.g., "Let's move on to Chapter 7," "Today we are going to talk about … ", "We'll pick this up on Monday … "). Although these types of introductions (openers) and conclusions (closers) do serve a functional purpose and send a message to students as to the status of the classroom experience, engaging and purposeful openers and closers can also be powerful learning opportunities. A thoughtful opener invites students to preview and engage with the topics, questions, and controversies that will form the focus of the session's learning experiences. A well-planned closer helps students summarize and synthesize the most important takeaways and talking points.

SETTING THE STAGE

In teaching, it is important to communicate that you have planned and are prepared for the learning experience that lies ahead. Consider three ways to set the stage for the learning experiences that will be offered in class:

» **Music Please:** Playing music can create a certain mood and level of energy for those walking into a room. In addition, the choice of music (e.g., period of a piece, lyrics, melody and rhythm, style) can highlight a time in history; emphasize social commentary; reference customs, traditions or cultures; or simply set a desired tone for learning (e.g., quiet and reflective, high-energy). Consider making a musical playlist (using your computer, an MP3 player, or even a CD) that complements your syllabus topics or is designed to set the tone for the day's class, and have music playing when your students arrive. As a twist on this idea, ask your students to volunteer for the task of creating a playlist for classes throughout the semester.

» **The Question Is:** As a way to fully capitalize on class time, post an engaging and challenging question on a PowerPoint slide at the beginning of each class. Create an expectation that students are to discuss or respond to the presented question or topic, either through conversation or in writing, within minutes of arriving. Solicit these responses, or refer back to these questions, during class discussions.

» **Glad You Are Here:** Quite often, students and faculty hurry into and out of the classroom. As a way to build an additional connection with your students, be at the door and greet them as they arrive. Better yet, call them by name as they enter.

OPENERS

A well-crafted opener to a classroom learning session can serve several purposes: (a) creating a frame of reference for discussion and exploration, (b) helping learners organize and interpret new information, and (c) linking new information to previously gained knowledge (Blakey & Spence, 1990; Dirkes, 1985).

Ausubel (1960), in his studies on verbal learning, coined the term *advance organizers* to describe intentionally designed learning prompts. These elements help students understand what is ahead in the instructional

process and how to frame this information in relation to what they already know and understand. Additionally, advance organizers provide a means to motivate students and elevate their anticipation about the process of learning. Examples of advance organizers that can serve as openers include

» a news clip that relates to the topic of conversation for the day;

» surprising statistics from research studies;

» quotes from people who are significant in their discipline (and/or the culture of students);

» a provocative scenario that involves ethical decision making;

» a current song with lyrics that relate to the learning topic;

» a montage of graphic images embedded in PowerPoint; and

» a visual guide (i.e., graphic organizer) to the topics that will be discussed and explored in the form of an outline, key talking points, or flow chart.

CLOSERS

As the time comes to close a class, you want your students to take their new learning beyond the bounds of the classroom. An effective closer can encourage this by providing students a concrete way to summarize and synthesize what they have learned. The following closers offer specific prompts and guides to help students tie together the concepts, principles, and facts that have been presented:

» Have students write a 60-second paragraph (i.e., a brief written response) to a question about the topic of the day.

» Ask students to work in pairs and interview one another about what they have learned.

» Provide students an intentional summary of the day's main talking points.

» Invite students to submit a journal entry on their responses to each day's learning activities.

» Have students process, in small groups or pairs, an applied scenario related to the topic.

Start strong and finish well!

> **Learning begins with the need for some motivation, an intention to learn. The learner must then concentrate attention on the important aspects of what is to be learned and differentiate them from noise in the environment.**
>
> **-Svinicki, Hagen, & Meyer (1996, p. 273)**

This article was originally published in April 2011.

ENHANCING STUDENT PARTICIPATION IN THE CLASSROOM

Encouraging all students to actively participate in the classroom is a desirable and worthwhile goal for any course. Most faculty have observed (or, perhaps, have been) the student who tries to answer every question and has an opinion on everything or the student who remains habitually silent, trying to fade into the background. There is a middle ground, however, and these examples help illustrate the point that full-class participation can be challenging given the differences that exist among students. To achieve this outcome, faculty must create multiple options for students to share and contribute—inviting them to engage in their own unique ways and at their individual comfort levels.

The literature on active learning promotes the idea of a classroom where students and faculty engage in lively dialogue that is intentionally focused on exploring course content. Learning can be deepened by hearing the thoughts, ideas, and feelings of others with an opportunity to agree, disagree, and clarify points of concern. It is through this interaction that we can enhance the understanding of instructional content.

Critical to this process is all students being afforded varied opportunities to participate. Fassinger (1995) suggested that faculty and students share responsibility for promoting a participatory climate in the classroom. For faculty members, part of setting the stage for a high level of shared responsibility and participation involves

- » resisting the temptation to see the time allotted as an opportunity to simply deliver content through lecture;
- » planning intentional class time when students engage in dialogue;
- » acknowledging and summarizing student contributions to the process; and

> "
> **The notion of looking on at life has always been hateful to me. What am I if I am not a participant? In order to be, I must participate.**
>
> **-Antoine de Saint-Exupéry,**
> *French writer/poet (1900 – 1944)*

» modeling the use of thoughtful questions (i.e., inviting multiple perspectives) and civil disagreement (i.e., ways of agreeably disagreeing).

For students, their role centers on how they perceive "the classroom as a group" and the "degree to which students support one another" (Fassinger, 1995, p. 29). Faculty can further help students in this process by emphasizing activities that boost their confidence (e.g., small-group discussions and seating arrangements, class preparation assignments, using student facilitators) and encouraging them "to see themselves as part of a community, not merely as isolated individuals learning with the assistance of an instructor" (p. 30).

CREATING A PARTICIPATORY CLASSROOM ENVIRONMENT

A participatory classroom requires tools and practice. Some strategies may work better than others depending on the class, and instructors will need to experiment to find the best set of tools for the situation. The following teaching suggestions can help faculty make the classroom a more engaging and supportive environment to encourage students to share and contribute to their learning.

» **Institute time for reflection before processing.** Often, the more verbal students tend to dominate classroom discussions. To create a pathway for full class participation, instructors can impose a 60-second time of reflection for students to make written notes outlining their individual responses to a presented question or scenario. At the end of reflection time, the instructor can initiate a conversation about the written responses. Though this strategy does not guarantee all students will engage in the verbal conversation, it does help ensure that every student has participated in the process of responding to course content.

» **Incorporate free polling tools**. A variety of free electronic polling websites (e.g., https://kahoot.com/) provide students an opportunity to share their perspectives and opinions simply by using their phones to text their responses to presented questions. The anonymous, live results can be projected onto a screen for the entire class to see. Since all students contribute to the results (i.e., full class participation), there is greater opportunity to encourage more students to engage in follow-up conversation.

» **Use multiple grouping formats for classroom discussions**. Students who may not share with the entire class are often more willing to engage in dialogue and exchange ideas with a partner or small group. Instructors can take advantage of this by using varied groupings (e.g., pairs, dyads, triads) to increase opportunities for every student to participate in a content-related conversation.

» **Ask the class to share what they have heard**. After students engage in talking with a partner or a small group, it is helpful to harvest information from these conversations to obtain a wider sample of insights and thoughts. However, when students are asked to "step into the spotlight" and reveal their thoughts to the entire class, an awkward silence often results. To deflect attention away from the individual, instructors can reframe their initiating-discussion question by asking, "Could you share with the class something interesting or thought-provoking that you heard from your partner?"

» **Provide processing opportunities outside, but connected to, the classroom**. A unique way to create in-class participation is by using out-of-class opportunities to foster conversations about course content. Campus learning management systems (e.g., Blackboard, Moodle) can work to engage students in discussion forums. This online venue allows everyone to share their thoughts and ideas and can enhance a sense of community in the classroom.

» **Include one-minute writing assignments.** A tried-and-true strategy for getting everyone involved is a required one-minute writing experience at the end of each session. Students provide a written

response to a prompt related to the key learning objective for that class. This exercise not only involves all students but also provides the instructor with feedback on the type of learning that occurred during that session—and is a quick and easy way to take attendance!

» **Use the "cold call" sparingly and with caution.** There can be times when silence fills the classroom and students do not volunteer their thoughts or respond to questions, or when one or two students take over discussions. In these situations, it may be useful to make a cold call—asking a specific student to respond, typically not someone with his or hand raised to answer. It is important to make the cold call an invitation to participate and not a "gotcha" moment for the individual student. Although this type of prompt may be necessary from time to time, especially for those reticent students who need an explicit invitation to enter the conversation, it should be used sparingly in favor of other approaches described above that promote sharing and dialogue in smaller, less threatening groupings.

This article was originally published in May 2015.

BLANK STARES AND SEALED LIPS

You are standing in front of your 2:15 p.m. class. The students sitting before you seem to be listening … but you just can't be sure. And then it happens. You ask a question with the hope of eliciting some intense discussion on the topic of the day's class.

The response: blank stares and sealed lips. For a moment, you wonder if your students heard the question, whether you inadvertently spoke in a foreign language, or if the question you posed even merits a response. Have you ever been there? We all have! Is it me? Is it the topic? Is it the time of day? We may never know. What we can know, however, are some alternative strategies to reinvent the situation and invite our students to be active participants in the learning experience.

When considering this dilemma, the first place to begin our discussion is to examine the very nature of the questions we ask in the classroom. One effective way to look at our own questioning technique is to assess questions based on the six levels of Bloom's taxonomy. The following examples illustrate the varied levels of questions that can be posed in the classroom based on the cognitive process you hope to engage.

Remembering
» Sample questions beginning with words such as "What is … ?", "Who is … ?", "Where did … ?", and "When did … ?".

Understanding
» "What is the main idea of … ?"

» "How would you compare … ?"

» "What can you say about … ?"

» "State in your own words … "

Applying
» "How would you organize _____ to show … ?"

» "What examples can you find to show that … ?"

» "What other ways would you plan to … ?"

Analyzing
» "How is _____ related to _____ ?"

» "How would you classify … ?"

» "What is the relationship between … ?"

Evaluating
» "What is your opinion of … ?"

» "How would you prioritize that … ?"

» "How would you justify … ?"

Creating

» ''Can you formulate a theory for … ?''

» ''Can you invent … ?''

» ''Can you think of an original way to … ?''

An additional ingredient in good questioning is the ability to provide a follow-up question that encourages students to dig deeper and further clarify their thinking on the topic. The text *Philosophy in the Classroom* (Lipman, Sharp, & Oscayan, 1980) offers a series of follow-ups for that purpose:

» What reasons do you have for saying that?

» Why do you agree (or disagree) on that point?

» How are you defining the term that you just used?

» What do you mean by that expression?

» Is what you are saying consistent with what you said before?

» Can you clarify that remark?

» When you said that, just what is implied by your remarks?

» What follows from what you just said?

» Is it possible you and he are contradicting each other?

» Are you sure you're not contradicting yourself?

» What alternatives are there to such a formulation? (p. 93)

Remember: Good, thoughtful questions have the potential of prompting deep, insightful responses.

STRATEGIES TO PROMPT A RESPONSE

Here are some classroom-tested ideas to try when you find yourself confronted with blank stares and sealed lips:

Wait Time. If a question is important enough to ask, it merits the time necessary to wait for a response. Granted, the silence is sometimes uncomfortable. But think of it this way: The waiting is probably more uncomfortable for students than for the teacher. In time, students will learn that if you are going to ask a question, you are also going to wait until someone provides a response.

60/60/30/30. One way to prompt conversation is to create novel circumstances where students can engage in dialogue with a classmate. 60/60/30/30 is a great way to provide a means for review,

> **"**
>
> **A prudent question is one half of wisdom.**
>
> **-Sir Francis Bacon,**
> *1st Viscount St. Alban/*
> *philosopher/statesman*
> *(1561 – 1626)*

discussion, and recall of important concepts. This strategy starts with each student partnering with a classmate, taking turns talking about a specific topic. The protocol follows:

» When the clock starts, Team Member 1 starts talking about the topic at hand, continuing this monologue for 60 seconds.

» At the end of the first minute, Team Member 2 begins to talk, not repeating any of the information shared by their partner. Team Member 2 continues for one minute.

» Then it is Team Member 1's turn again, this time for 30 seconds of uninterrupted talking.

» And finally, Team Member 2 gets a final chance to talk for the allocated 30 seconds.

This activity is surprisingly energizing, and students are usually amazed at how much they have learned and can remember (Garmston & Wellman, 1999).

Give Me Five. There are times that we ask questions and get a quick and superficial response. One way to encourage students to dig deeper into the question is to challenge them to provide a specific number of additional responses. You could say, "That is a great answer! Let's think of five other reasons why … ." As the students give their responses, verbally count down to zero.

Designated Hitter. In this activity, students are placed into groups and given a list of discussion questions. As they discuss each question or topic, they are also asked to identify the individual in their group who will synthesize and share their team's responses with the larger group.

Reflect and Respond. On occasion, there is a tendency to interpret silence as an indication that students simply are not thinking and do not want to answer. Quite often, however, they need a few minutes to reflect on the question so they can formulate an answer they are willing to share with the rest of the group.

For this reason, it is often wise to provide designated reflection time before asking students to go public with their response. So, for example, the teacher might say, "Take 60 seconds and think about this question. Write down a few thoughts that come to mind." Then, at the end of 60 seconds, the question can be posed for a large group response. Most often, the reflection time leads to several responses from the group.

This article was originally published in October 2004 as "Blank Stares and Sealed Lips: Strategies to Prompt a Response."

FACILITATING STUDENT INTERACTIONS

A good starting point for our discussion of facilitating classroom interaction is the ever-present, all-important question: How do people learn best? Obviously, to a large extent, the answer is individualized and based on the gifts, talents, and motivations of the learner. From a somewhat different perspective, however, some categories of teaching techniques are more likely to result in learning than others.

Think for a minute about the level at which you personally retain new knowledge or information. Very likely, you will remember materials that you both read and discussed or taught better than material you simply read. Given that initial assumption, take a few minutes to reflect on how you typically teach. Is there a significant emphasis on remembering the content of your lectures? Are your students required to read and digest large amounts of text-based materials?

Data available on this subject do not contradict or eliminate the value of using a lecture format or requiring students to read their textbooks in order to learn important course content. What these data do reveal, however, is that we can greatly enhance the amount of information that our students retain by systematically providing classroom experiences that allow students to

» discuss learning with others,

» engage in activities and learning experiences that allow them to personally interact with course content, and

» teach one another.

STRATEGIES TO PROMOTE STUDENT INTERACTIONS

A study by Anderson and Carta-Falsa (2002) investigated the factors that promote personalized classroom interactions. Students and teachers alike expressed a desire for classroom learning environments that promote openness, support, a level of comfort, safety, lack of threat, and an interpersonal climate. Students expressed a preference for classrooms in which they could work together, share information, and interact with one another. According to this research, students and teachers alike are willing to take learning and teaching risks in these types of classrooms. There are multiple ways to encourage student interactions in the classroom. Descriptions of more than a dozen follow.

RULE OF TEN AND TWO

Garmston and Wellman (2002) also introduced the *rule of ten and two*: For every 10 minutes of information presented in the classroom (e.g., lecture, video, demonstration), learning occurs most effectively when the teacher provides students with two minutes of processing time in the form of discussion, activities, or sharing.

CREATING GROUPS

It is customary for students to enter class on the first day, find a seat, then sit in that same location for the remainder of the semester. This practice necessarily limits their interaction to other students who have chosen seats in their general proximity. To mix things up, and to make the entire first-year experience one in which students are

continually expanding their comfort zone, consider the following ways to facilitate formation of dyads (pairs) and groups as a means of boosting cooperative group work:

» **Round-the-clock learning partners** (Garmston & Wellman, 2002)—At the beginning of the semester, students are given a line drawing of a clock indicating times between 1:00 and 12:00. They are asked to make appointments with 12 classmates corresponding with each hour on the clock (i.e., a 1:00 partner, a 2:00 partner). As they arrive for class in subsequent weeks, they are asked to sit with a designated partner (e.g., "Today, sit with your 1:00 learning partner").

» **Seasonal learning partners** (Garmston & Wellman, 2002)—In smaller classes, the same strategy applies with one minor modification. Students receive a paper with the four seasons of the year. They make appointments with four other people corresponding with the seasons of the year (e.g., "Today, sit with your summer learning partner").

» **A "sweet way" to create groups**—As students arrive for class, they are asked to choose their favorite candy bar from a large bowl of miniatures (e.g., Snickers, Butterfinger, Milky Way). When class begins, students are then asked to create groups of four, with the condition that each group include members representing four different candy bar varieties. Alternatively, you could suggest that students form groups of four with people who share their taste in candy bars (i.e., same choices). Let the groups begin!

» **Count off**—A common way to divide a class into small groups is to ask the students to "count off" by fours, fives, sixes, etc.

» **What's the deal?**—Playing cards from a deck are randomly distributed to students, who then form groups based on the card they have been dealt (e.g., fours together, queens together). You can manage group sizes by determining the number of cards for any given designation (i.e., twos, threes, fours) dealt out to the students.

Mixing up the ways that students are broken up into groups adds excitement and uncertainty to the learning process. Have fun with your students by creating new and different ways to form groups. P.S.: There are no wrong ways to do this.

> **Cooperative learning, role-plays, discussion processes, and debates seemed to change the traditional interface of students and faculty and led to outcomes that could not be achieved in more traditionally taught courses.**
>
> **-Anderson & Carta-Falsa**
> *(2002, p. 135)*

MINUTE FINGERS

When students participate in group activities, it is often difficult for faculty members to accurately estimate the amount of classroom time appropriate for completing assigned tasks. Some groups finish before others, and in other situations, we simply underestimate or overestimate the amount of time it will take for a group to organize themselves and work together toward a common goal.

When the allotted time expires and you notice that some of the groups have finished while others are still working, use the *minute fingers* technique. Ask each group still working to discuss how many additional minutes they will need (from 1-5) and then designate one person as their spokesperson. That person should raise their hand, indicating with their fingers how many additional minutes are needed. Survey the groups and announce an average that meets the additional time needs of the entire class (Garmston & Wellman, 1999).

ROTATING SMALL GROUPS

Quite often, after working in dyads or small groups, students are reluctant to report their results to the whole class. In their book *Discussion as a Way of Teaching*, Brookfield and Preskill (2005) described the *Rotating Small Group Stations* strategy. Students rotate in small groups through a number of dialogue stations created in the room. At each station, the small group ponders a question or issue, records their response on newsprint paper, then moves to the next station. The groups that follow at each station can then respond to what the earlier groups thought and wrote.

PAIR AND SHARE

Students are first asked to reflect on a question or issue by themselves. They then are paired with another student to share. Then, two pairs of partners come together and form a group of four for the purpose of sharing. Two groups of four can then come together and form a group of eight. This allows for dialogue with a larger audience and the melding of ideas and concepts generated in the smaller group formats.

FICKLE FINGER OF FATE

When students work in groups, there is often a need to designate specific individuals to fulfill varied roles. One way to facilitate this is bringing the *fickle finger of fate* into play. After students are placed in groups, ask them to raise their right hand with the index finger extended. On the count of three, direct them to point to the person in their group whom they feel would be the best possible recorder for the group's discussion. The chosen person inherits the role of recorder. To add a positive spin to being designated as the recorder, that individual gets to choose a person in their group to serve as their spokesperson.

PICTURE THIS—OR SING IT

As a way to capitalize on the multiple intelligences in your classroom, assign students to small groups and ask them to capture the major aspects of a concept or body of information in varied formats, including a

- » poster;
- » rap, poem, or song;
- » brief drama;
- » TV commercial;
- » news interview;
- » on-the-street interview;
- » human sculpture; or
- » picture without words.

THUMBS UP/THUMBS DOWN

As a quick, impromptu means of surveying what members of the class think about a given topic, try *thumbs up/thumbs down*. For example, say to students: "If you agree, give a thumbs up; if you disagree, give a thumbs down. If you feel very strongly, wiggle your thumb as you vote or use both hands." This quick assessment of student perceptions and opinions can serve as the foundation for deeper discussions (e.g., "I see that many of you voted thumbs down. What were some of your reasons for choosing that option?").

STAND IN RESPONSE

Ask students to express their thoughts on topics that may involve controversy or differences of opinion with the stipulation: "If you agree with this position, please stand now." These strategies help students who may never verbally volunteer in class to express their opinions and be part of the instructional process.

GROUP RESPONSE CARDS

This strategy combines small-group consensus building and the opportunity to gain a sense of the total group's response to issues of discussion. Each group of 3-5 students is given a series of response cards (e.g., agree, disagree, not sure). The instructor then presents a scenario or problem situation for the class to consider and discuss in their small groups. At the instructor's signal, groups are asked to display the card signifying their response to the scenario. This way, the instructor can survey the responses and ask groups with certain responses (e.g., agree) to explain their thinking.

YOU'RE A POET AND DON'T KNOW IT: CINQUAINS

A great and often unexpected way to help students process and summarize newly acquired knowledge and skills is to encourage them to write poetry. One quick and easy type of poetry students typically enjoy is the *cinquain*, a five-line poem written in a number of formats.

One type of cinquain is written as follows:

- » Line 1: A title of one word or one subject.
- » Line 2: Two words about the subject.
- » Line 3: Three verbs that signify action.
- » Line 4: Four words telling about your feelings for line one (words or phrase).
- » Line 5: A synonym for line one.

As an example, consider the topic of pizza and a poem that emerges about this important topic:

> Pizza
> Cheesy, gooey
> Grab, chomp, savor
> Greasy pleasure and enjoyment
> Ecstasy

Writing cinquain poetry can provide a great change-of-pace classroom activity. At the end of a lecture or section of course content, break the class up into small groups and assign each group one keyword or concept from which to develop a cinquain poem. Have the groups work together and then share the results of their creative thinking.

POST-IT NOTE VOTING

You can probably remember students who sat through an entire semester in your class and never expressed an opinion or made a comment. It's not that they didn't have opinions, thoughts, or feelings; it's probably just a matter

of not feeling comfortable expressing those emotions and ideas in front of their classmates. One way to involve all your students is through *Post-it note voting*. Here are the steps:

1. Create an imaginary continuum on the blackboard/whiteboard at the front of the room with extremes such as "strongly agree" and "strongly disagree."

2. Give your students Post-it notes of various colors.

3. Pose a question from your course or discipline that relates to current events in the world and requires a thoughtful or value-based response. For example, you might say

    » The minimum wage should be raised to $15 per hour, or

    » College tuition should be free for all individuals who wish to pursue a degree.

4. Ask students to post their responses along the continuum, using different-colored Post-it notes for each question.

5. Follow-up discussions can be conducted in small groups about the trends and frequencies of various answers and the varied reasons students had for taking a strongly affirmative or negative position.

MY NEW BFF

As mentioned earlier in this chapter, upon entering a new room (e.g., classroom, meeting room, conference), most students, like most people, select a seat and automatically return to the same seat every time they visit that location. Because of this autopilot behavior, students spend class discussion time talking with the same collection of individuals seated around them. To break up this monotony and encourage a more diverse mix of dialogue and opinion, ask students to stand, look around the room, and identify someone whom they have not worked or spoken extensively with over the course of the semester. After finding their new BFF (i.e., Best Friend Forever in current parlance), one student from the pair moves to the other's seating location; the students then introduce themselves and shake hands. From that point of introduction and connection, you can give these newly made teams of BFFs a variety of topics to discuss and discover.

GONE IN 60 SECONDS

Think for a moment about the changes that can occur in the lives of your students as they move through a semester: new insights and learning, new relationships, and the clarification of life goals. Given these potential transformations, it is always helpful to provide opportunities for structured reflection. The *Gone in 60 Seconds* strategy allows students to quickly reflect and share about their learning experience and can be adapted for a variety of purposes.

Students are randomly paired with one another (e.g., consider the BFF strategy presented earlier) and stand facing their partners. A series of questions or prompts are flashed on a classroom screen at 60-second intervals. Students have one minute to consider each statement and share their responses with one another. Interval times can be adjusted accordingly if a question or prompt generates a higher level of conversation. Examples of prompts used during a final session of a first-year seminar include:

» My biggest surprise during my first semester in college was …

» My biggest success and my greatest disappointment were …

» Three things I have learned about myself are …

» One thing I will do differently next semester is …

This article was originally published in November 2003 as "Facilitating Classroom Interactions."

STRATEGIES FOR COOPERATIVE LEARNING

O ver the past few years, education has experienced a rapid growth in the development of active-learning strategies and techniques. This set of learning tools draws heavily on research illustrating and supporting the principle that students learn more effectively, and retain information more efficiently, when given opportunities to discuss, debate, sort out, examine, evaluate, and apply the content knowledge they are gaining through classroom lectures and assigned reading. Spencer Kagan, author of *Cooperative Learning* (1994) and a key force in the development of the cooperative learning paradigm, suggests several key components to consider in designing and implementing this type of instructional experience, including the following:

» the creation of working teams;

» an environment that promotes cooperation among participating students;

» the faculty member's ability to manage multiple groups as they work separately on common tasks;

» the facilitation of appropriate social skills (e.g., communication, conflict resolution, listening);

» positive interdependence among individual group members;

» individual accountability for involvement in the process;

» equal participation;

» simultaneous interaction; and

» maximized efforts to create positive and productive outcomes.

Following are two powerful strategies for facilitating cooperative learning in your classroom.

JIGSAW

A jigsaw puzzle is a collection of many separate yet connected pieces of information. When assembled in the correct order and orientation, these pieces create a larger picture that is more complete than any of the component parts can depict on their own. This is a wonderful example of how cooperative learning capitalizes on the collective brainpower of team members with a resulting product that is better than any one of the team members could have imagined. "Does this magical, wonderful, collaborative product always emerge from cooperative learning?" you may ask. Not always. But as team members begin to learn and practice the skills necessary to be part of a team with a common goal, the odds of this occurring increase exponentially.

In the *jigsaw* strategy (Aronson, n.d.; Jigsaw Classroom, n.d.), individual group members become experts in one aspect of the problem the group is charged with addressing or resolving. Here is an example of how this might work in your classroom:

» Imagine you are teaching a class that is considering the various options to resolve a pressing societal problem: reducing the prevalence of teen pregnancy. You divide the class into five groups of five members each.

» You then advise the class that several subgroups in the community have expressed varied perspectives on the causes of teen pregnancy and the interventions that would be most appropriate to reduce

its prevalence. These groups include parents, school personnel, clergy, reproductive rights groups, a right-to-life advocate, and teens.

» Eric, Heather, Todd, Antonio, and Shandra are assigned to work together as a group. They are designated as Team 1. Each student is then assigned (at the discretion of the group) to investigate the interests, concerns, and recommendations of one of the identified special interest groups (e.g., parents, teens).

» To do this, each group member will join with students from other subgroups (i.e., Teams 2, 3, 4, and 5) who are likewise investigating similar interests. So, for example, Eric is assigned to explore the concerns of parents. In that capacity, he meets with members of the other four class groups who also have an interest in the perspectives and opinions of parents on this topic.

» After the subgroups connected with each of the specialty topics meet and discuss their area of interest, team members then return to their home group (i.e., Teams 1, 2, 3, 4, and 5) and share the information they have gained. Group members then discuss and share information from these varied perspectives and construct their own course of action through consensus building.

» The jigsaw comes together as the pieces of information are shared, analyzed, and assembled.

GRAFFITI

Graffiti is a strategy for encouraging groups of students to share their ideas in response to a problem or scenario and also respond to the ideas generated by other student groups within the class (Abrami, 1995). This technique is easily implemented in the college classroom. As an example, consider a classroom where students are exploring ethical challenges faced by first-year students (e.g., plagiarism). Here are the steps for initiating a graffiti-based discussion on this topic:

» The class is divided into groups, each with five students.

» Around the classroom, the instructor has posted sheets of newsprint, creating four separate learning stations (i.e., one on each wall).

» At each station, an ethical dilemma scenario has also been posted for student review, consideration, and response.

> ## Blank walls are a shared canvas and we're all artists.
>
> **-Carla H. Krueger,** *author*

» Each group of students is given a different colored marker as a way of distinguishing the comments made during the process.

» Group 1 begins at Station 1 (and so on for the other groups, based upon their number).

» Members of each group review the scenario at their station and provide a written response/solution on the newsprint paper.

» After 5-10 minutes, the groups rotate in a clockwise fashion (e.g., Group 1 rotates to Station 2, Group 2 rotates to Station 3, etc.).

» The groups read the presented scenario, along with previously posted responses, and provide more suggestions or a complete modification of previously posted comments.

» After each group has reviewed and responded to each scenario, the groups return to their home stations to reflect on the suggested responses to their assigned dilemma. They process these suggestions and formulate a composite response that they then share with the entire group.

What is the benefit of the jigsaw classroom? First and foremost, it is a remarkably efficient way to learn the material. But even more important, the jigsaw process encourages listening, engagement, and empathy by giving each member of the group an essential part to play in the academic activity. Group members must work together as a team to accomplish a common goal; each person depends on all the others. No one student can succeed completely unless everyone works well together as a team. This 'cooperation by design' facilitates interaction among all students in the class, leading them to value each other as contributors to their common task.

-Elliot Aronson,
original developer of the jigsaw classroom

This article was originally published in October 2005.

MAXIMIZING TEACHING AND LEARNING IN LARGE GROUPS

What constitutes a large class in higher education is often confusing and elusive. Colleges and universities advertise their average class size as a marketing tool and to indicate that students will receive more personalized learning experiences in smaller classes. Average class sizes can be misleading, however, as they can disguise the number of large classes that actually exist on a college campus. As another form of confounding evidence, if we asked university faculty to define the parameters of a large class, the responses would vary based on their own experiences as learners and the size and culture of the setting in which they teach. In spite of these limitations, and for this discussion, it is proposed that:

» There is a direct relationship between the overall size of the college/university and the standard for a large class (i.e., the larger an institution's overall enrollment, the more likely it is to offer large classes, particularly in general studies).

» Based on the construct of supply and demand, the largest classes on most campuses are either in general education courses or gateway courses to academic disciplines (and often identified by students as "the class they don't want to take").

» Perceptions of large classes may be guided by the learning and teaching experiences of individual faculty (i.e., classes they participated in as a student or faculty member) and their overall satisfaction with those experiences.

» As indicated by Pascarella and Terenzini (2005), larger class sizes may adversely impact student learning.

Regardless of the actual number of students enrolled in a large class, faculty need to adjust their pedagogy to increase student engagement with course content and with one another. Before we discuss teaching strategies that can enhance learning in large groups, take a moment to reflect on the size of classes that you teach. To clarify your own personal context, answer the following questions:

» For me, a large class is one that contains _____ or more students.

» The greatest challenges in teaching a large group include _____.

Based on your responses to these questions, you can pick and choose from the following strategies for teaching a large group of students and the degree to which they respond to your individual teaching needs, your students, and your personality.

PLAN THE TIME

There is nothing more frustrating, embarrassing, and challenging than to stand in front of a large group of students and run out of anything meaningful to share. The elephant in that classroom is the fact that students are also fully aware that the teacher is awkwardly treading water and waiting for class to end (just like they are). Over-planning of available teaching time is a virtue. Always be thinking about ways you can maximize each teaching moment—and do it in advance!

SET THE STAGE

Create a mental frame that will assist your students in preparing for the topic of discussion. This can be done using advance organizers (e.g., a provocative question, an outline, a news clip, a story) that help participants begin to think in a focused manner about what lies ahead (Smith, Sheppard, Johnson, & Johnson, 2005).

USE AVAILABLE SPACE EFFECTIVELY

A student enters a room and begins to observe and assess the best place to sit. That decision can be based on a variety of personal preferences, but through some process, a choice is made. What happens next, and on subsequent trips to that same room, is an undeniable part of the human DNA: the tendency to find a comfortable location in a room and return to that spot every time. Because of this, students tend to spend class discussion time with the same collection of learning neighbors. During your class, provide opportunities for students to stand, sit, and interact in varied parts of the classroom. Create learning opportunities that require everyone to get out of their seats, move around the room, and talk with a variety of fellow learners.

BECOME A MOVING TARGET

The front of the classroom is generally considered the focal point for teaching. For those sitting near the back of the room, this fact provides a sense of security and great comfort. One way to establish contact with your students, build physical proximity, and gain a better connection with them is to become a moving target. Move to the sides of the room, the rear of the room, or take a seat in the audience. Be everywhere!

CREATE TALK TIME

Even in very large classroom settings (as you define them), it is possible to create opportunities for engaging in conversation and processing around the topic of the day. Two-minute drills (i.e., directed conversations that students have with their neighbors or an assigned partner) do wonders to energize the learning environment and give students a chance to talk about and process the content at hand.

EXPECT THE UNEXPECTED

You may be the most amazing teacher to ever stand before a group of students. In spite of your excellent skills, though, it is incredibly difficult for anyone to maintain a high level of attention and involvement with any group for 40 hours of classroom instruction over the course of a semester. Only your sensibilities will limit this endeavor: Wear a costume, speak in different voices, use props, use offbeat video clips—be the teacher who is full of surprises!

HOLD STUDENTS ACCOUNTABLE

Being in a large group should not diminish the level that learners are responsible for participating in their own learning. Gray and Madson (2007) propose a variety of techniques for holding students accountable for what happens in the classroom, such as daily quizzes, one-minute essays, calling on a student every two to three minutes, and using electronic personal response systems. Remind students that they are more than passive observers.

CREATE A VISUAL ROSTER

Many electronic classroom management systems (e.g., Blackboard, Canvas) provide tools for creating yearbook-style class rosters that include student pictures. This resource will greatly facilitate your ability to learn students' names—and to call students by them!

MEET AND GREET

A distinct disadvantage of large classes is the challenge of building relationships and personalizing the instructional process. To build bridges and establish personal contact with your students, invite them to introduce themselves

when they see you on campus or in the community. This action brings amazing results and gives your students a warm invitation to identify themselves as a member of your class.

MAXIMIZE POWERPOINT

Avoid the common trap of loading up your PowerPoint slides with bullet points (aka the lecture killer) and vast amounts of information. Although bulleted lists are a good choice at times, change the pace with a clever or unexpected picture or a cartoon that provides a jumping-off point for the next topic of conversation. Use PowerPoint as an agenda—not as a script.

FINISH WITH FLAIR

The way you choose to end a class session has great significance. Think about ways to close each class in a manner that dramatically summarizes the key talking points: a video clip, a David Letterman-style Top 10 list, a provocative quote, or a story that captures the key points of the class in a narrative format.

MONITOR YOUR OWN PERFORMANCE

Consider the example of stand-up comedians and how they master their craft. The funny, well-timed comedy sets you find so amusing and well orchestrated are the product of a series of trial-and-error rehearsals. A 10-minute set of sidesplitting jokes has been culled from hours and hours of jokes that just weren't funny. As faculty members, we can practice the same discipline. Part of that comes from taking the time and effort to reflectively review each lesson and class with the purpose of keeping what worked for communicating the identified content and deleting what did not.

EIGHT STRATEGIES TO KEEP STUDENTS TUNED IN

The following very simple and effective strategies can be used to pique the interest and attention of your students (adapted from Garmston, 1997):

» **Here is my most important point.** This verbal signal can take students from their inner thoughts (or outer Facebook chats) and reconnect them with the speaker.

» **Periods of silence.** Experts say the most effective public speakers are those who speak slowly and with more and longer pauses (Lucas, 2004). Consider using pauses of two to four seconds as a way of inviting attention.

> " **The literature we reviewed … suggests that we may need to revise, at least to a certain extent, our 1991 conclusion that subject matter knowledge is acquired with equal proficiency in both large and small classes.**
>
> **-Pascarella & Terenzini (2005, p. 94)**

» **Visual paragraph.** Move in silence from one part of the room to another as you begin to introduce a new point or topic of discussion.

» **Megaphone.** Introduce and emphasize an important point by cupping your hands as if speaking into a megaphone.

» **Echo.** Say it again—same phrase, same pacing, same intonation.

» **Numbers.** Try enumerating your points (e.g., "Here are three reasons why that happened … "). This provides an advance organizer for the listener as a means of capturing the points you wish to make.

» **Other physical signals.** Combine numbers with the visual paragraph by moving to a different location in the room to present each point of emphasis.

» **Call and response.** Playfully engage the class by asking students, as a chorus, to repeat back a statement or bullet point of information.

ENERGIZERS

Admittedly silly and ridiculous, these little tedium-breakers often energize the group and add some laughter to the learning experience (a good thing!). Interestingly, college students seem to enjoy these moments of being somewhat unsophisticated. The ideas presented below come from a variety of sources (e.g., http://www.csun.edu/~sb4310/ENERGIZERS.htm), and the list grows every year as creative teachers invent ways to help students celebrate their classroom successes:

» **A "round" of applause.** Students are asked to applaud someone by clapping their hands and simultaneously moving them in a circular motion in front of their bodies.

» **The sitting "O."** The standing ovation is often considered the highest form of praise, but this is even more significant. Students remain in their seats and raise their arms over their heads to form the shape of the letter "O."

» **Let's give this a stamp of approval.** As a way of affirming an insight or moment of clarity, ask students to pound their fist onto their open palm.

» **The wave.** Popular at large stadium venues, this involves a coordinated movement across the class in which students stand, wave their arms above their heads, and then sit down. This could be great fun in a large classroom setting.

» **The micro wave.** For those moments when just a small tribute is required, students wave using only their little fingers.

» **The lobster.** Students applaud, lobster-style, by moving their thumbs against the rest of their fingers. Sound effects are optional.

Engage your students this week by interjecting one or more energizers or silent cheers. The element of surprise often creates the most memorable learning moments. Once these are learned, they become part of the classroom culture.

This article was originally published in September 2009 as "Class Size Matters: A Dozen Ways to Maximize Teaching and Learning in Large Groups."

POSTSCRIPT

As teachers, we each bring different collections of skills, gifts, and talents to the classroom. As we are all different, there is not "one right way" to teach. The most effective teachers can draw on a variety of tools and make choices among those based on class content, class size, course learning outcomes, and needs of the students. This collection favors the use of active-learning strategies. To be sure, these strategies can be employed effectively to enhance student learning in countless circumstances. The level at which they are used or become popular in college classes around the world is not the issue. The issue is always, every day, in every classroom: What can I, as the teacher, do today to help my students learn, grow, and find relevance in what we are discussing and learning?

VOLUME TWO:
ACTIVE LEARNING

REFERENCES

Abrami, P. C. (1995). *Classroom connections: Understanding and using cooperative learning.* Toronto, Canada: Harcourt Brace.

Anderson, L., & Carta-Falsa, J. (2002, Fall). Factors that make faculty and student relationships effective. *College Teaching, 50*(4), 134.

Aronson, E. (n.d.). *Overview of the technique.* Retrieved from www.jigsaw.org/#overview

Ausubel, D. P. (1960). The use of advance organizers in the learning and retention of meaningful verbal material. *Journal of Educational Psychology, 51,* 267-272.

Blakey, E., & Spence, S. (1990). *Developing metacognition.* Syracuse, NY: ERIC Clearinghouse on Information Resources.

Brookfield, S., & Preskill, S. (2005). *Discussion as a way of teaching: Tools and techniques for democratic classrooms* (2nd ed.). San Francisco, CA: John Wiley & Sons.

Chickering, A. W., & Gamson, Z. F. (1987). Seven principles for good practice in undergraduate education. *AAHE Bulletin, 39*(7), 3-7.

Dirkes, M. A. (1985). Metacognition: Students in charge of their thinking. *Roeper Review, 8*(2), 96-100.

Fassinger, P. A. (1995). Professors' and students' perceptions of why students participate in class. *Teaching Sociology, 24,* 25-33.

Garmston, R. (1997). *The presenter's field book: A practical guide.* Norwood, MA: Christopher-Gordon.

Garmston, R. J., & Wellman, B. M. (1999). *The adaptive school: A sourcebook for developing collaborative groups.* Norwood, MA: Christopher-Gordon.

Garmston, R. J., & Wellman, B. M. (2002). *The adaptive school: Developing collaborative groups.* Norwood, MA: Christopher-Gordon.

Gray, T., & Madson, L. (2007). Ten easy ways to engage your students. *College Teaching, 55*(2), 83-87.

Jigsaw Classroom. (n.d.). Retrieved March 15, 2018, from www.jigsaw.org

Kagan, S. (1994). *Cooperative learning.* San Clemente, CA: Kagan Cooperative Learning.

Lipman, M., Sharp, A. M., & Oscayan, F. S. (1980). *Philosophy in the classroom.* Philadelphia, PA: Temple University Press.

Lucas, S. (2004). *The art of public speaking.* Columbus, OH: McGraw-Hill Higher Education.

Pascarella, E. T., & Terenzini, P. T. (2005). *How college affects students: Findings and insights from twenty years of research (Volume II)*. San Francisco, CA: Jossey-Bass.

Smith, K. A., Sheppard, S. D., Johnson, D. W., & Johnson, R. T. (2005). Pedagogies of engagement: Classroom-based practices. *Journal of Engineering Education, 94*(1), 87-101.

Spence, L. D. (2010). The case against teaching. *Change, 33*, 10-19.

Svinicki, M. D., Hagen (Morrone), A. S., & Meyer, D. K. (1996). How research on learning strengthens instruction. In R. Menges & M. Weimer (Eds.), *Teaching on solid ground: Using scholarship to improve practice*. San Francisco, CA: Jossey-Bass.