Pressures and constant distractions are a significant part of the lives of American students of all ages. For college students, learning how to balance school, jobs, and relationships is stressful; social networks and cell phones constantly interrupt the current focus of attention. Academic performance suffers when feelings and distractions filter out lecture content and impede studying. Recent reports of increases in young adult depression, anxiety, attention deficit disorders, and social problems are compelling college teachers to explore methods for guiding students to better understand their minds and how they think.

Grounded in Buddhist teachings, the art of mindfulness is beginning to take root in Western culture. Mindfulness can be described as calm awareness of the present moment and cultivating positive feelings such as compassion and patience. Mindfulness techniques can reduce stress and focus attention on the current task. Since successful teaching requires an environment conducive to learning, it is useful to employ techniques to calm students, improve their capacity to resolve conflicts, and teach them more about how their minds function.

The Hawn Foundation (www.hawnfoundation.org) is spearheading an effort to create awareness of these benefits and is developing resources for elementary schools to implement mindful teaching techniques throughout their curricula and throughout the student’s day. This program, called MindUP®, teaches children strategies for dealing with stress, disappointment, and conflict. MindUP has four central goals: (1) foster mindful, focused awareness without judgment; (2) increase positive human qualities such as empathy, perspective taking, and kindness; (3) increase optimism and well-being; and (4) foster a cohesive, caring classroom climate that enhances learning. We propose the application of certain MindUP techniques in the college classroom.

According to a recent survey of research (referenced at the end of the article) about the benefits of mindful meditation in higher education, mindful meditation has shown positive results as a way to handle academic stress, depression, and drug addiction and to regulate high blood pressure. One study documented improved GPAs with a group of college students who received meditation instruction and practice compared to a control group.

We use the word “meditation” in a secular manner, as a way to calm the mind in “relaxed attention,” increasing awareness and presence. Distracting thoughts are acknowledged but not given mental energy; they are allowed to pass without invoking new thoughts or associations. This training includes techniques that allow students to improve their own emotional health and ability to learn.

Here are some of the strategies we’ve used in our college-level classrooms to provide calm and attentive learning environments:

1) Breathing exercises, and a bell or tone to introduce meditation or breathing.

Invite students to sit quietly upright, eyes closed, remaining still and gently focusing on their breath, each inhale and exhale, for one to three minutes. Some students may feel self-conscious but will join in after some of their classmates do. Before exams, lead students in stretching and breathing exercises at their seats to increase their performance. You can use breathing strategies to manage the classroom when students interrupt teaching, struggle with assignments, or have conflicts with other students.
Learning: Five Key Principles

A review of the research on active learning compiled for physiology faculty contains five “key findings” that author Joel Michael maintains ought “to be incorporated [into] our thinking as we make decisions about teaching physiology [I would say, name your discipline] at any educational level.” (p. 160) Here’s the list, along with a brief discussion of each.

1. Learning involves the active construction of meaning by the learner. This well-established principle involves the fact that students link new information with information that they already know. New and old information are assembled into mental models. If the old information is faulty, that compromises the learning of new information. “Learning can be thought about as a process of conceptual change in which faulty or incomplete models are repaired.” (p. 161)

2. Learning facts and learning to do something are two different processes. This explains why students can know a set of facts and still be unable to apply those facts to solve a problem. If students are to successfully use knowledge, they must have opportunities to practice and obtain feedback. A variety of other instructional advice follows from this principle, including the fact that students who are learning to solve problems need to know more than whether the answer is right or wrong. The sequence of problems from easy to hard is also important. Students should only move to harder problems as they improve.

3. Some things that are learned are specific to the domain or context in which they are learned, whereas other things are more readily transferred to other domains. What’s at issue here is knowledge transfer and whether students can take what they know about one subject or topic and transfer that knowledge to another subject or topic. Students often have great trouble with this. There are still a number of research controversies in this area, but there is growing recognition that transfer involves skills that students need to be taught.

4. Individuals are likely to learn more when they learn with others. Many faculty are very independent learners and so struggle a bit with accepting this principle. However, it is based on “impressive results” in different disciplines “that support the power of getting students to work together to learn.” (p. 162)

5. Meaningful learning is facilitated by articulating explanations, whether to one’s self, peers, or teachers. Students learn to speak the languages of disciplines when they practice speaking those languages. That’s part of what this principle involves, but it is also true that articulating an answer, an idea, or a level of understanding aids in learning.

Like any set of principles, these are general statements that, in this case, cover large, complex research areas. They are a useful means of getting a broad perspective. Decisions about instructional practices can certainly be based upon them. However, one should not read the principles and assume an in-depth understanding of the complicated phenomenon called learning.

Editor’s note: What we call active learning involves a messy, disorganized research domain. As this author points out, there is not one definitive study that proves the efficacy of active learning, but there is instead a “multiplicity of sources of evidence” that makes an argument for active learning “compelling.” (p. 165)

This is the second review I’ve discovered of the research on active learning. I still refer people to the Prince review we highlighted several years back and will now add the Michael review to my recommendations.


March 2011

Engaging Students in Argument

By Greg Gildersleeve, Johnson County Community College, KS
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The elderly shop owner opposes a corporation that wants to build a plant in her town. She’s afraid that its products, similar to the ones she manufactures, will drive her out of business. At 70, it’s too late in her life to start over and, even though the corporation says it will hire locally, she doubts it will hire someone her age. Besides, after a lifetime of running her own business, she doesn’t want to work for someone else. How can she convince her fellow townsmen to rally against the corporation?

The above scenario was real, except that the shop owner wasn’t really 70; she was in her 20s. Nor was she a shop owner; she was a student in my composition class. And the corporation wasn’t really planning to build a plant in her town; in fact, neither the corporation nor the town existed. So, what was real? Issues that raise concerns and fears, and the necessity for using argument to persuade others.

Argument goes hand in hand with critical-thinking skills. While textbooks provide instructions and models, I have found that few methods engage students of running her own business, she doesn’t want to work for someone else. How can she convince her fellow townsmen to rally against the corporation?

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Argument goes hand in hand with critical-thinking skills. While textbooks provide instructions and models, I have found that few methods engage students so fully in the process of arguing and counterarguing as a face-to-face role-play scenario. Here’s how it works in my class. This model can be adapted for use with many different kinds of content and structured variously, as well.

I divide my class into three groups and present them with the following scenario:

FRAMcorp is coming to town. This multinational conglomerate makes headlines for its innovative technological products but has drawn criticism for causing pollution, increasing traffic in rural areas, and driving local competitors out of business. FRAMcorp wants to establish a plant that will employ about 500 people in the town of Homeland Square.

Restaurants and retail stores will also surely follow, increasing employment opportunities. However, some citizens, fearing the plant’s disruption of their way of life, have formed the Homeland Square Neighborhood Association (HSNA) to make their concerns public. In a show of good-will, FRAMcorp agrees to debate the HSNA and leave the fate of the plant in the hands of Homeland Square’s townspeople. If they veto the plant, it will be built elsewhere.

- Group 1 represents FRAMcorp.
- Group 2 represents the HSNA.
- Group 3 represents the townspeople.

Groups 1 and 2 spend several minutes discussing among themselves how best to present their cases to the voters. The two groups then face each other and debate the issue for at least 20 minutes. Group 3 is free to ask questions of either side. To make their task more challenging—as well as to give them practice arguing and counterarguing—I tell the townspeople they must reach consensus.

I observe and take notes, which I sometimes use to guide a follow-up discussion. If the debate lags or if particular students do not appear to be engaged, they can be drawn in by being assigned individual roles (e.g., “You are FRAMcorp’s director of public relations; if the citizens veto the plant, you may lose your job.”)

At the onset of the exercise, students usually ask a vital question: What products does FRAMcorp make? I let the students answer this question themselves. Leaving “holes” in the scenario forces students to engage their imaginations. It also emphasizes the importance of doing research: Without fully understanding the opposition, Groups 1 and 2 often make assumptions about the other that do not hold up under scrutiny. The HSNA, for example, often assumes that the pollution will involve toxic waste—a claim easily denied by the corporation if the type of product hasn’t been clearly established.

As the debate proceeds, students find themselves drawn into their particular groups and championing their causes. They often brainstorm their own sub-scenarios. One student, for example, took on the role of a farmer who feared that toxic waste would damage his land. The student mentioned earlier spontaneously identified herself as a 70-year-old shop owner whose business could be threatened. Students representing FRAMcorp went to great lengths to tout the advantages of the plant: more jobs, local hiring, minimal training, even “going green.”

Many times, students resort to tactics that are both humorous and unintentionally revealing. One student in the HSNA kept interrupting the corporation when they tried to answer questions. In another class, a student representing FRAMcorp told the locals who feared losing their jobs, “Too bad for you!” On the surface, such exchanges reflect students having fun with the game. On a deeper level, they reveal hidden attitudes and prejudices (e.g., all corporations are greedy; all small-town residents are hicks) and echo real-life exchanges that get politicians and CEOs in trouble (oil executives, anyone?).

The outcome is not as important as the process of arguing and counterarguing. By projecting themselves into imaginary roles, students often emerge from the exercise with a deeper appreciation of the pros and cons of controversial issues. They understand the fears, both realistic and unrealistic, of people caught in such controversies, and they gain firsthand experience in developing strategies to address those fears. Perhaps most important, they personalize controversial issues rather than merely reading about them in textbooks.
Saffron and Gold: The Value of High-Quality Information and Library Instruction to Teaching Professors

By Rachael Stark, Le Cordon Bleu College of Culinary Arts, Boston rstark@boston.chefs.edu or refdesk@dantonio.net

“I gotta write a page on saffron and it’s gotta be in Chef Rob’s box in two hours!” Culinary student Rosa flies into the library, curly hair escaping from her white skull cap and tomato stains on her chef coat.

Rosa, Kathleen, and Tran gather around a computer, notebooks and knife kits on the floor. Rosa: “Hey, this stuff is 180 dollars an ounce.” Click. Click. Kathleen: “Here’s an article. But I don’t see any author. What do we put in ‘works cited’ if there’s no author?” Click. Tran: “It says here saffron is made of gold. Um, hang on. Maybe it says it costs as much as gold. But it kinda looked gold when Chef showed it to us in the kitchen last night. So maybe it is gold. Whatever. Can we copy this and paste it into our paper?”

I walk across the library to where Rosa is clicking on a list of 700,000 hits. “Good morning. Welcome to the library. Are you finding everything you need?” I begin. “What are you working on? Can you tell me a little bit more about your assignment?” I gently begin the process of query and instruction that will, I hope, lead to well-constructed research questions answered with reliable information.

Chef Instructor Rob is talking with a fellow instructor. “This batch of papers is so much better than last term, and they were still cutting and pasting whole paragraphs from blogs written by high-school students. But this term I had the librarian talk to them. It really made a difference.”

Here’s how it happened. Term two, day two. I’m in the library talking to 30 brand-new culinary students, all in chef whites. “OK guys, listen up. Good morning. Welcome to the library. I am the librarian. My job is to make your job easier. A big part of that is helping you find reliable information.

“When you are looking at any piece of information, ask questions about it. It doesn’t matter if it’s a website, database, book, magazine, or conversation. Always ask, where does this information come from? Who made the information? Why did they make it? What was the purpose? If you’re reading ‘Susie’s Blog,’ ask yourself, who is Susie and why should I believe her? And always, always ask yourself, who is paying for this information? What are they trying to sell me or talk me into? If you can’t answer those questions about a piece of information, you probably shouldn’t use it in a college paper. That’s a valuable life lesson. Remember it. Don’t make big decisions based on information if you don’t know where it came from.”

Kevin leans back in his chair. “My English professor says we can’t use the Internet for papers. What are we supposed to do?” I answer, “It’s probably not that you can’t use the Internet at all. It’s that she wants you to use reliable information—know where it comes from. You need to make smart decisions about whether you should trust the person or the company that created a piece of information.

“The library has lots of information resources that can help you write papers and research employers. We have books and magazines and databases that the school pays to purchase—but you get to use them for free. People are paid to write, research, and organize the information. Generally, this translates into information that is reliable and true. If it’s not, people won’t keep buying it. But free websites are not always like that.

“If you grab the first website that comes up on a search, it might be great, full of the information that you need for your paper. But if you don’t know where it comes from, you can’t be sure. Before you use information, ask questions. Use your judgment. If you can answer the basics—where does it come from, who wrote it, why did they write it, what are they trying to sell, and who paid for it—knock yourself out; use it. But if you can’t, you may need to look for more reliable information.

“OK guys, we’ve got an hour. Everybody cue up a Web browser and a word processing document. Chef Rob’s second assignment is to pick a style of cooking you really love and research chefs who cook in that style. Two pages, due Wednesday. I recommend looking at the websites of the restaurants where the chefs cook and also looking them up in newspaper databases. You can find out what they say about themselves and also what other people say about them. I’ll come around and talk with each of you.”

On the last day of the term, Chef Rob comes into the library. “Thanks for working with my students. It really helped. I didn’t have to yell at them for using junk sources. Last term, when I was grading papers, I got so mad I swore at my cat. None of that this term. I’ll be bringing my class to the library every term from now on!”
Use of clickers (or personal response systems, as they are officially known) continues to grow. They offer students a way to participate in large courses. They give faculty immediate feedback as to the level of understanding on a particular topic, concept, or issue. They add interest and variety to lectures. No wonder they have become so popular.

Clickers can be used in a variety of ways, but some common formats have emerged. For example, frequently, the question appears, students answer via their clickers, and the class responses are displayed. At that point, a discussion of the question and responses occurs, often between students sitting near each other. Students are then given a second opportunity to answer the question, after which the instructor shares the correct answer.

A group of biology faculty wondered if initially showing the class responses had any influence on student answers the second time they responded to the clicker question. To find out, they used a series of clicker questions in eight sections of an introductory biology course enrolling more than 600 students. In the control situation, students answered either a multiple-choice question or a true/false one, saw how the rest of the class responded, discussed the various options with their peers, and then re-answered the question. In the experimental situation, students answered the same two kinds of questions, but did not see how the class responded before they discussed the various answer options with their peers and then answered for a second time.

What happened? If students saw the bar graph indicating the class response to the question, they were 30 percent more likely to change from a less common response to the most common one. This trend was larger when the questions were true/false (38 percent changed to the common answer) than when the questions were multiple choice (28 percent changed to the common answer). The method used in the study allowed the researchers to determine that showing the bar graph biased the students. They changed their answers because they saw the class response, not because they were persuaded by the discussions held with their peers.

Bottom line based on these results: If you want students to talk about a question and their answers with peers and you want that discussion to influence whether or not students change their answers, do not show the class response before that peer discussion occurs.


Using Clickers Effectively: A Research-Based Tip

Teaching Mindfulness

FROM PAGE 1

2) A “joy” or “gratitude” stone passed around class.

The instructor starts first and invites each student to hold the stone and say something he or she is grateful for, and then the student hands the stone to the next student. Hopefully, students will learn to be grateful for family and friends rather than material objects. Eventually, we can extend this practice to serving the community at large, which is a tenet of the MindUP program and part of the mission of many colleges.

3) Creative visualization techniques and compassion generation.

The instructor can include beautiful images and calming musical interludes into lectures to delight students’ minds and create alert attentiveness. Invite students to imagine being successful in school, relationships, and careers. Especially important to visual learners, imagery can be used to augment many different classroom lessons.

Despite the many documented benefits of a regimen of mindfulness, it is rarely taught in an academic setting. Self-reflection, compassion, and a long-term view may become critical skills for the future development of mankind. As Goldie Hawn so clearly points out, “We need to rethink our approach to classroom education by integrating neuroscience with the latest social and emotional learning techniques. A peaceful, happy child is the first step toward a peaceful world.”

Honoring and Challenging Students’ Beliefs

By Natasha Flowers, Indiana University-Purdue University Indianapolis
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Students walk into college classrooms with values and beliefs that are non-negotiable. They do not see themselves as broken vessels, blank slates, or empty cups ready for filling. Many students whom I have encountered accept that they may not know everything, but they still seek affirmation that their experiences and beliefs are valid. In any course, there is room for students to doubt and dismiss ideas that contradict what they hold most dear. As educators, we must consider their starting points in order for our dialogues with them to be more authentic.

When they begin reading the content and discussing it in class, it is important to have some framework that describes how the course will honor and challenge their beliefs. This framework can also benefit the design of in-class activities and graded assignments. Over time, I have begun explicitly emphasizing the need to balance and integrate these three components: 1) personal experiences, beliefs, and values; 2) others’ experiences and values; and 3) the expertise of scholars and practitioners. Using a triangle as the visual, I propose that each component has its own point and is equally valuable. Throughout the semester, this framework anchors our discussions.

“You are not broken.”

After semesters of hearing students use derogatory remarks or question the integrity of an entire group of people, it’s tempting to consider them ignorant and lose respect for them. But if we communicate these impressions, students feel belittled or pressured to regurgitate what they think we want them to think. These results are not productive if the goal is to deepen understanding and self-reflection. While students are learning new material, small- and whole-group activities can encourage thoughtful examination of the content through their own personal experiences and their own value systems.

“That person’s shoes are hard to walk in.”

As children, most of us learned about the misplaced curiosity of Goldilocks in her pursuit of a different experience. Her exploration of bear culture is actually a glimpse into how to disrespect what and who we are trying to get to know. However, when we ask students to walk in another person’s shoes as part of developing their awareness of others, we must remember how uncomfortable that can be, especially if someone else’s experience does not afford the comforts that our own lives offer (ergo, the piping-hot porridge and a rock-hard bed).

In class, having students make a T-chart that lists the ways in which they operate and how they would describe the exact opposite may help them see how they perceive others. For example, one of my students shared that she was highly motivated and highly organized and described the opposite person as detached and lazy. What a telling assignment! Last, having students read a memoir or semiautobiographical work that represents diverse cultural experiences will emphasize thoughtfulness and respect for commonalities and diversity within and across communities.

“Scholars and practitioners have values too.”

Each semester, students buy books and download articles with the expectation that some expert will enlighten them. Nonetheless, any professional course can further honor and challenge students’ beliefs and values with a reminder that scholars and practitioners are people too. I assign articles and chapters that explore the positions the authors have taken, their identities, and their experiences as researchers and professionals in the field. These perspectives are key when asking students to believe the words of the experts. Students’ knowledge of the experts’ personal connections or roles as outsiders is just as important as the results of any study.

Balancing three sharp points.

In order to emphasize the importance of balance, it is critical to have a frank conversation about what the imbalance may look like. If students are focused solely on their own perspectives, they risk having or nurturing an egocentric and ethnocentric perspective. How can their research and practice benefit anyone if they do not value others’ ways of knowing or doing? Second, the narrow focus on other people’s perspectives may initially increase interest in diversity, but students must understand the danger of not seeing possible ways in which they may connect with others. Last, it is possible for students to value the expertise of the scholars and practitioners at the expense of dismissing the real-life experiences of themselves and others. While in college, it is important to have students see how their journeys may contribute to their fields even before they have obtained their degrees.

This appears to be an easy formula, but the trick is in the careful monitoring of your own and your students’ use of each major perspective in papers and discussions. This formula allows me to consider my own biases and values as well as my expectations of undergraduates in professional programs.
Active-Learning Ideas for Large Classes: Simple to Complex

The article that proposes these ideas is written for faculty who teach large-enrollment biology courses. But large courses share many similarities, not the least of which being any number of strategies that work well with a variety of content. Even so, most strategies need to be adapted so that they fit well with the instructor’s style, the learning needs of the students, and the configuration of course content. The authors of the following list of strategies write that they attempted to “focus ... on strategies and activities that typically do not require ... a radical reframing of current standard practice, and are therefore more readily accessible to most science educators.” (p. 263) They discuss each strategy in much more detail than space here allows, and they include many references describing experiences with and alterations of these seven strategies.

Questions—These are questions that students discuss. Short periods of discussion occur after every 10 to 20 minutes of lecture, or they can be used to open and close a class session. Students may write ideas about answers, they may talk about answers with those sitting next to them, and they may explain answers to each other. As valuable as it is for students to articulate content-related ideas and information, there is a caveat with this approach. “Good outcomes require good questions, and framing good questions is hard.” (p. 263) Closed questions (ones with one- or two-word right answers) have their place, but they are not very effective at promoting student interaction and reflection. Questions and discussion can be used in large classes and can contribute to student learning.

Technology for “on-the-spot feedback”—Clickers engage students with the content and provide instructors with valuable feedback. They are particularly well-suited for large courses, but there are caveats. Another article in this issue discusses one of those caveats. These authors point out that the cognitive benefits of clickers are also a function of the quality of questions students are responding to. The goal is to develop those questions that move students in the direction of higher-order thinking.

Student presentations and projects—This article references another article in which 10 to 15 students researched and prepared reports on a “disease of the week.” They prepared materials for fellow students, and findings were also presented in class. Some instructors have used a poster-session model, where a different subset of students prepares and presents a poster to classmates each week. Presentations and projects can also be prepared by groups of students. They can be presented online and review of them assigned as homework.

Learning-cycle instruction models—Here’s a common example of a learning-cycle model: 1) engagement that draws students in with a video clip, provocative question, or other short activity; 2) exploration that uses other learning tasks to focus on the concepts and skills necessary to understand the central topic; 3) explanation that provides more examples and opportunities for students to demonstrate their understanding; 4) elaboration that seeks to deepen understanding with applications and implications; and 5) evaluation during which student understanding is assessed. In this model the instructor’s presence is most visible during the explanation step, with students doing much of the work in the other steps, although they do so using instructor-designed tasks and materials.

Peer-led team learning—This strategy uses peers to facilitate learning in small groups and is described in detail in another article in this issue.

Inquiry-based approaches—Here students use simple equipment to do laboratory-type exercises in class. “Despite this necessity for simplicity, students can exercise the intellectual power behind designing aspects of the experiment, predicting outcomes that would lend support to their hypotheses, and analyzing and interpreting their findings.” (p. 265)

Problem-based learning and case studies—These are the kinds of problems that promote learning on a need-to-know basis. They can be formatted in a variety of ways, with students working on the problems in class. At various intervals the instructor might lecture about relevant content or be available to answer questions submitted by the groups.

Biology workshop—This model combines class and lab experiences as students explore a theme that is integrated into the content, activities, and assignments of the course. “Students explore and discover fundamental concepts through asking and answering their own questions.” (p. 266)

Given the continuing presence—indeed increasing prevalence of large courses—those who teach them must explore ways of making them rich learning experiences for students. As this article demonstrates, there are a variety of alternatives, all of which have been tried by instructors who teach large courses.

Peer-Led Team Learning

This strategy involves training students who have successfully completed a course to serve as peer leaders for a small group of students currently enrolled in that same course. The peer leaders meet with their student groups—six to eight students, sometimes fewer—for a weekly session, during which they work on faculty-created problems. The problems involve material presented during the lecture, covered in the text, or assigned as homework. These weekly sessions replace one regularly scheduled course lecture per week.

This model was developed in the early 1990s to improve student success in chemistry courses at the City College of New York. Originally developed with some grant funding and some additional funds for dissemination, the model has been adopted across the country by colleges, including community colleges, and universities, including research universities. The early developers write in an article that highlights the history of the model, “We ultimately lost count of the number of PLTL (Peer-Led Team Learning) implementations, but a conservative estimate is that at least 200 faculty from more than 150 institutions are implementing PLTL, with 2,000 trained leaders conducting workshops [that’s what they call the peer-led sessions] for over 20,000 students per year.” (p. 376)

As for the effectiveness of these peer-led sessions, early on developers chose the simple measure of students’ success, as in the percentage who earned As, Bs, and Cs in the course. Initially at City College, the percentage of As, Bs, and Cs increased from 38 percent to 58 percent. The most impressive part of this work on peer-led workshops is the research that has been conducted regarding its effectiveness. In other issues of this newsletter, I’ve highlighted several of these individual studies—I’ll note those references at the end of this article. They are among multiple studies of this approach, all referenced in this review piece. Because it is highly prescribed, in terms of who the peer leaders are, how they are trained, how often they meet, and what they work on with students, it is amendable to study. And findings across all of these separate studies have been consistent. “In each of these independent studies, the evidence indicated significant improvement in students’ course performance, comparable to our initial reports.” (p. 377)

In these various studies, students in peer-led workshops were compared with students who attended the typical lecture course. In both courses, content, assigned homework, and exams were the same. The findings address several frequently expressed concerns about these more learner-centered approaches. Faculty worry that if they give students time to work in groups, that means less content covered, ergo, less student learning. That turned out not to be the case with exam scores in several of these studies. In a summary of the lessons learned, the developers write, “Lecture can be reduced without compromising content if the time is spent on activities that promote active engagement of students with the subject matter and with each other.” (p. 378)

Faculty also worry about students working together in groups—they won’t really engage with the material, they’ll waste time, the bright students will tell the ones who aren’t all the answers. Various features of this model prevent these kinds of group dysfunctions and show, in fact, how successfully students can and do learn from and with each other.

Although a model like this takes some time and institutional support to implement, the changes that occur are really not all that radical. Much of what happens in a traditional course still occurs in these courses. “Students still use a textbook, attend lectures, are expected to do preparatory homework, and are rewarded for their individual accomplishments. Faculty members continue to be in charge of the goals and standards of their courses; they continue to lecture, albeit often in revised form; they still write and grade exams.” (p. 377)

This article offers an impressive description of an approach that helps students learn material they often find very challenging. It validates learning in collective contexts and shows that students can teach and learn with other students. Even if you don’t teach a science course, this is an article you ought to read. The approach could be used with other kinds of content.


We’d like to know what you think!
Please share your thoughts on this issue in a four-question online survey located at www.surveymonkey.com/s/TTPN.