Blog 69

It's not about your teaching but about their learning:

Increasing student engagement through the jigsaw classroom

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"Student engagement refers to the degree of attention, curiosity, interest, optimism, and passion that students show when they are learning or being taught, which extends to the level of motivation they have to learn and progress in their education. Generally speaking, the concept of "student engagement" is predicated on the belief that learning improves when students are inquisitive, interested, or inspired, and that learning tends to suffer when students are bored, dispassionate, disaffected, or otherwise "disengaged." Stronger student engagement or improved student engagement are common instructional objectives expressed by educators." "
[1]

Student engagement is a critical aspect of quality post-secondary education. Generally, faculty members believe, and research confirms, that student engagement helps achieve one key goal of postsecondary education, i.e., the deveopment of critical thinking skills [2]. There is further evidence that student engagement also facilitates learning outcomes, and no less importantly, contributes to students and instructors having a more pleasurable time together.

One active learning technique that appears to contribute to active learning is the "Jigsaw Classroom." The jigsaw classroom is an approach in which learners are organized into "jigsaw" groups, each member with a different, yet complementary, task. Learners prepare to perform these tasks both individually (at home) and within "expert" groups (in the classroom), and later return to their "home teams" to peer teach to members of their "jigsaw" groups. After the teaching circle within jigsaw teams is completed, students reflect on and assess their collective understanding.

While the actual implementation of this approach may vary from instructor to instructor, in my own case I have found that the technique succeeds best when all activities are guided through carefully designed sets of questions that vary from module to module, and learners are evaluated both for their individual and collective work.

The jigsaw classroom was developed mainly with the goal of fostering cooperation rather than competition among learners [3]. The guiding premise is that the success of each student not only facilitates but is actually critical to the success of all students. Indeed, the technique was developed by a group of social psychologists concerned with understanding the "malaise" pervasive in educational institutions in the United States, malaise which culminated in the 1990s in the tragic Columbine school shooting, continued over other mass shootings, and is most likely still with us. These professionals attributed this malaise to the overtly competitive environment of educational establishments that led to students feeling frustrated, neglected or outright excluded. Instructors within this environment, willingly or not, created "winners" and "losers" — the first to be admired or envied, the losers to be put down or left behind.

While researchers did not doubt that the behaviors displayed by the protagonists at Columbine and elsewhere indicated severe psychological perturbations, they also concluded that signaling individual students as "bad apples", or medicalizing their malaise as "psychopathology", failed to acknowledge problems within the educational system and the broader society. The book "Nobody Left to Hate", by Elliott Aronson, one within this group of researchers, compellingly summarizes the personal and professional journey that led to the development of the jigsaw classroom [4].[i]

Since 2015, the year I spent at York as a Fulbright Visiting Professor, taking a break from a very research intensive position, with minimal teaching responsibilities and no undergraduate teaching, I had the opportunity to put this technique into practice in a new course on the politics of global health policy. While I had already tried it briefly as a novice instructor in sociology in 2005, and experienced its potential, back then I did not have either the number of students or the institutional support to apply it systematically. I did have both as I developed my new course at York, which resulted in a very successful experience: I collected anecdotal evidence, from

students and faculty, that students felt very engaged and in charge of their learning, to a significant degree thanks to jigsaw.

As I returned to York in the fall of 2016 on a teaching intensive position with the Faculty of Health, School of Health Policy and Management/Global Health Program, I implemented the technique once again, over three terms, in two undergraduate, 2nd and 4th year courses. I then collected yet more significant anecdotal evidence indicating great enthusiasm for the jigsaw approach, which has encouraged me to continue using it and learning from it, through my students', and my own, experience.

Because the evidence for the success of jigsaw I have collected up to now is anecdotal, this past summer I applied and received funding from the Innovation in Teaching Award, sponsored by the Faculty of Health at York, to systematically document and evaluate the jigsaw classroom, with the assistance of an enthusiastic research team of my own undergraduate students.

As I think of ways to share this information and experience with my colleagues, I am in the course of developing a workshop with the support of the Teaching Commons. I invite readers to sign up for this upcoming workshop on November 13. Registration details here: http://teachingcommons.yorku.ca/event/active-learning-workshop-the-jigsaw-classroom/?instance_id=1870

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3. Kalra, R., J.N. Modi, and R. Vyas, *Involving postgraduate's students in undergraduate small group teaching promotes active learning in both.* International Journal of Applied and Basic Medical Research, 2015. **5**(Suppl 1): p. S14-S17.
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[i] Readers can learn more about the jigsaw classroom @ https://www.jigsaw.org/

Active Learning

Active learning is generally defined as any instructional method that engages students in the learning process. In short, active learning requires students to do meaningful learning activities and think about what they are doing. While this definition could include traditional activities such as homework, in practice, active learning refers to activities that are introduced into the classroom. The core elements of active learning are student activity and engagement in the learning process. Active learning is often contrasted to the traditional lecture where students passively receive information from the instructor.

In the traditional approach to college teaching, most class time is spent with the professor lecturing and the students watching and listening. The students work individually on assignments, and cooperation is limited.

Such teacher-centered instructional methods have repeatedly been found inferior to instruction that involves **active learning**, in which students solve problems, answer questions, formulate questions of their own, discuss, explain, debate, or brainstorm during class.

Example "active" activities include: class discussion, small group discussion, debate, posing questions to the class, think-pair-share activities, short written exercises and polling the class (Bonwell and Eison, 1991).

A **class discussion** may be held in person or in an online environment. It is best that these discussions be centered on an open-ended (occasionally controversial) topic (e.g. one that has no right or wrong answer).

A **small group discussion** is a similar activity between individual, groups, or teams of individuals. A presidential debate is a common debate format. But these also may center around controversial or political topic.

A **think-pair-share** activity is when learners take a minute to ponder the previous lesson, later to discuss it with one or more of their peers, finally to share it with the class a part of a formal discussion.

A **short written exercise** that is often used is the "one minute paper." In this exercise students are asked to summarize the day's discussion in a short paper to be turned in before the end of class. This is a good way to review materials.

The following short article has been repeatedly cited in the resources I have reviewed (note the citation above) and may be helpful in identifying those things you already do in the classroom that are typical of active learning. Additionally, the essay may provide some helpful hints on increasing active learning in your courses.

Active Learning: Creating Excitement in the Classroom

by Charles C. Bonwell and James A. Eison

Research consistently has shown that traditional lecture methods, in which professors talk and students listen, dominate college and university classrooms. It is therefore important to know the nature of active learning, the empirical research on its use, the common obstacles and barriers that give rise to faculty members' resistance to interactive instructional techniques, and how faculty, faculty developers, administrators, and educational researchers can make real the promise of active learning.

WHAT IS ACTIVE LEARNING AND WHY IS IT IMPORTANT?

Surprisingly, educators' use of the term "active learning" has relied more on intuitive understanding than   a common definition. Consequently, many faculty assert that all learning is inherently active and that   students are therefore actively involved while listening to formal presentations in the classroom. Analysis   of the research literature (Chickering and Gamson 1987), however, suggests that students must do more than just listen: They must read, write, discuss, or be engaged in solving problems. Most important, to be actively involved, students must engage in such higher-order thinking tasks as analysis, synthesis, and evaluation. Within this context, it is proposed that strategies promoting active learning be defined as instructional activities involving students in doing things and thinking about what they are doing.

Use of these techniques in the classroom is vital because of their powerful impact upon students' learning. For example, several studies have shown that students prefer strategies promoting active learning to traditional lectures. Other research studies evaluating students' achievement have demonstrated that many strategies promoting active learning are comparable to lectures in promoting the mastery of content but superior to lectures in promoting the development of students' skills in thinking and writing. Further, some cognitive research has shown that a significant number of individuals have learning styles best served by pedagogical techniques other than lecturing. Therefore, a thoughtful and scholarly approach to skillful teaching requires that faculty become knowledgeable about the many ways strategies promoting active learning have been successfully used across the disciplines. Further, each faculty member should engage in self-reflection, exploring his or her personal willingness to experiment with alternative approaches to instruction.

HOW CAN ACTIVE LEARNING BE INCORPORATED IN THE CLASSROOM?

The modification of traditional lectures (Penner 1984) is one way to incorporate active learning in the classroom. Research has demonstrated, for example, that if a faculty member allows students to consolidate their notes by pausing three times for two minutes each during a lecture, students will learn significantly more information (Ruhl, Hughes, and Schloss 1987). Two other simple yet effective ways to involve students during a lecture are to insert brief demonstrations or short, ungraded writing exercises followed by class discussion. Certain alternatives to the lecture format further increase student level of engagement: (1) the feedback lecture, which consists of two minilectures separated by a small-group study session built around a study guide, and (2) the guided lecture, in which students listen to a 20- to 30-minute presentation without taking notes, followed by their writing for five minutes what they remember and spending the remainder of the class period in small groups clarifying and elaborating the material.

Discussion in class is one of the most common strategies promoting active learning_with good reason. If the objectives of a course are to promote long-term retention of information, to

motivate students toward further learning, to allow students to apply information in new settings, or to develop students' thinking skills, then discussion is preferable to lecture (McKeachie et al. 1986). Research has suggested,   however, that to achieve these goals faculty must be knowledgeable of alternative techniques and strategies for questioning and discussion (Hyman 1980) and must create a supportive intellectual and   emotional environment that encourages students to take risks (Lowman 1984).

Several additional strategies promoting active learning have been similarly shown to influence favorably students' attitudes and achievement. Visual-based instruction, for example, can provide a helpful focal point for other interactive techniques. In-class writing across the disciplines is another productive way to involve students in doing things and thinking about the things they are doing. Two popular instructional strategies based on problem-solving model include the case study method of instruction and Guided Design. Other active learning pedagogies worthy of instructors' use include cooperative learning, debates, drama, role playing and simulation, and peer teaching. In short, the published literature on alternatives to traditional classroom presentations provides a rich menu of different approaches faculty can readily add to their repertoire of instructional skills.

WHAT ARE THE BARRIERS?

To address adequately why most faculty have not embraced recent calls for educational reform, it is necessary first to identify and understand common barriers to instructional change, including the powerful influence of educational tradition; faculty self-perceptions and self-definition of roles; the discomfort and anxiety that change creates; and the limited incentives for faculty to change.

But certain specific obstacles are associated with the use of active learning including limited class time; a possible increase in preparation time; the potential difficulty of using active learning in large classes; and a lack of needed materials, equipment, or resources.

Perhaps the single greatest barrier of all, however, is the fact that faculty members' efforts to employ active learning involve risk--the risks that students will not participate, use higher-order thinking, or learn   sufficient content, that faculty members will feel a loss of control, lack necessary skills, or be criticized for   teaching in unorthodox ways. Each obstacle or barrier and type of risk, however, can be successfully   overcome through careful, thoughtful planning.

WHAT CONCLUSIONS SHOULD BE DRAWN AND RECOMMENDATIONS MADE?

The reform of instructional practice in higher education must begin with faculty members' efforts. An excellent first step is to select strategies promoting active learning that one can feel comfortable with. Such low-risk strategies are typically of short duration, structured and planned, focused on subject matter   that is neither too abstract nor too controversial, and familiar to both the faculty member and the   students.

Faculty developers can help stimulate and support faculty members' efforts to change by highlighting the   instructional importance of active learning in the newsletters and publications they distribute. Further, the use of active learning should become both the subject matter of faculty development workshops and the instructional method used to facilitate such programs. And it is important that faculty developers recognize the need to provide follow-up to, and support for, faculty members' efforts to change.

Academic administrators can help these initiatives by recognizing and rewarding excellent teaching

in general and the adoption of instructional innovations in particular. Comprehensive programs to demonstrate this type of administrative commitment (Cochran 1989) should address institutional employment policies and practices, the allocation of adequate resources for instructional development,   and the development of strategic administrative action plans.

Equally important is the need for more rigorous research to provide a scientific foundation to guide future practices in the classroom. Currently, most published articles on active learning have been descriptive accounts rather than empirical investigations, many are out of date, either chronologically or methodologically, and a large number of important conceptual issues have never been explored. New qualitative and quantitative research should examine strategies that enhance students' learning from   presentations; explore the impact of previously overlooked, yet educationally significant, characteristics of   students, such as gender, different learning styles, or stage of intellectual development; and be disseminated in journals widely read by faculty.

In retrospect, it appears that previous classroom initiatives and written materials about active learning have all too often been isolated and fragmented. The resulting pedagogical efforts have therefore lacked   coherence, and the goal of interactive classrooms has remained unfulfilled. Through the coordinated efforts of individual faculty, faculty developers, academic administrators, and educational researchers,   however, higher education in the coming decade CAN make real the promise of active learning!

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psychological test, declined. Students of different races were even playing together at recess.

Now, Dr. Aronson believes that his cooperative learning method, called the jigsaw classroom, can help prevent school violence. As Dr. Aronson sees it, the jigsaw classroom has an edge over several of the preventive measures that have been put into place, like zero-tolerance policies, because it gets to the root of the problem: the cliquish environment in many schools in which unpopular students are ostracized.

Dr. Aronson describes how the jigsaw classroom can be part of a larger plan in his latest book, "Nobody Left to Hate: Teaching Compassion After Columbine," as well as on his Web site (www.jigsaw.org). He estimates that 15 percent to 18 percent of American schools have used the jigsaw classroom, and he continues to get letters from teachers interested in trying it. One came just days before the shooting at Santana High School in suburban San Diego from an administrator of a nearby middle school.

Soon after the shooting at Santana, Dr. Aronson elaborated on his ideas in a telephone interview from his home in Santa Cruz, where he is professor emeritus at the University of California. "There's no bigger, stronger clique than race," he said. "And we overcame that."

Q. You are critical of some policies instituted to curb school violence, such as zero-tolerance policies and posting the Ten Commandments at school. Why?

A. There's nothing wrong with posting the Ten Commandments. There's everything wrong with it if you think it's the solution to the problem.

I don't want to come out and say I'm against zero-tolerance, but that strategy is not without serious problems. There are an awful lot of kids who make idle threats because they are frustrated and unhappy. The question is, How do you separate the kids who really mean it from the kids who don't? None of these strategies gets to the root cause of the problem of school violence, which is the poisonous atmosphere in junior high schools and high schools.

Q. What do you mean when you speak of a poisonous atmosphere in schools?

A. It's the cliquish atmosphere of rejection and humiliation that makes a very significant minority of students, I would say 30 percent to 40 percent of them, very, very unhappy. If kids at the top of the pyramid start calling a kid a nerd, then the kids in the second tier of cliques tease him because that's one way of identifying with the powerful group. Next thing you know, everybody's teasing him. Everybody in school knows what group everybody belongs to. They know whom they can get away with taunting.

Most of the kids who are taunted suffer in silence. Some of them seriously contemplate taking their own lives. A handful -- and it's going to be more than a handful in the next few years -- lash out at their fellow students almost randomly.

Q. In "Nobody Left to Hate," you cite research on men and boys convicted of murder that shows that most had suffered a tremendous sense of shame brought on by rejection and humiliation. How long does it take for repeated rejection and humiliation to have an effect on the person who's the target?

A. That depends on how severe it is. It can happen overnight if the rejection is coupled by humiliation and bullying, especially if it takes place in front of other people whom you'd like to like you. There's a saying that nobody likes a bully, but I think the more likely statement is that nobody likes the person being bullied. Having been bullied is like having a contagious disease in that other students lose status if they hang out with you, so they move away.

Q. Many adults think that forming cliques is a natural part of being a teenager. Is it?

A. I think that there is a tendency to have separate groups and to exclude others. By itself, that wouldn't be such a bad thing. But if the exclusion takes the form of taunting and humiliation, you're beginning to sow the seeds of violence.

Q. How can your jigsaw method help improve the social atmosphere in middle schools and high schools?

A. The jigsaw classroom is a way to help kids learn from experience that kids

who are different from them might have something to offer that's interesting and useful. Someone can tell you over and over that the short fat kid with pimples is really sweet. But there's no substitute for being in a small group with that kid and seeing that he's warm, funny and clever.

Q. Did you see less teasing and bullying in the schools where you used your jigsaw method?

A. There were striking behavioral findings. One of my graduate students went to the roof of some of the Austin schools and took photographs of the students at recess. After six weeks, there was more interracial mixing at the jigsaw schools than at the other schools.

In addition, teachers who didn't know that anything special was going on, such as the music teacher, would tell the classroom teachers that they saw a whole different atmosphere, an atmosphere of friendliness, empathy and inclusion, rather than a tense atmosphere.

Q. How long did these benefits last?

A. We didn't follow any single group of students for more than a year. But I've gotten letters and phone calls from teachers telling me that even though they weren't using jigsaw, kids in their classrooms who were in jigsaw five years earlier were still showing more empathy and compassion than other students.

Q. How much of the school day should be devoted to the jigsaw classroom to get the social benefits?

A. We tested that and we found that with as little as one hour a day, students showed all the benefits, such as decreases in prejudice and in liking school more. If kids spend just one hour a day working in groups, they develop empathy for people they would otherwise have had nothing to do with because of their appearance. So, when teachers say that it's difficult to teach arithmetic with jigsaw, I say, teach only social studies or some other subject that you think works better with jigsaw.

Q. Clearly, cooperative learning alone isn't going to solve the problem of hostile cliquish behavior in school, or of school violence. What else should schools do?

A. They can specifically try to teach kids how to resolve conflicts amicably and institute a policy against bullying.

There's a very successful program in Norway instituted by a social psychologist named Dan Olweus. In this program, teachers are trained to recognize and deal with bullying, cooperative learning is used, principals ensure that lunchrooms and playgrounds are adequately supervised, and counselors conduct intensive therapy with bullies and their parents. The program has reduced bullying by about 50 percent.

Q. Several states are considering legislation that would require each public school district to have an anti-bullying policy. Is this a good step in the right direction?

A. It's outrageous that there needs to be legislation for such a thing. Clearly, schools should be trying to prevent bullying. My fear is that the legislation is likely to be reactive rather than proactive -- that is, that there will be mechanisms in place to punish bullies rather than to prevent bullying.

Q. In your book you also recommend that schools conduct "friendship coaching" for unpopular students. How does this work?

A. There's a small group of children in each school who are unpopular because they lack social intelligence -- they're extremely shy, they don't know how to start conversations, their interactions with others are awkward of inappropriate.

One psychologist, Steven Asher of Duke, designed a series of six friendship coaching sessions in which unpopular students in the third and fourth grades were taught to act in ways typical of more popular students. A year after the coaching sessions, the students had moved up to the middle of their class popularity ranking.

Q. How could "friendship coaching" be put in place in the real world of a school? I can imagine some parents objecting to their children being singled out.

A. I'm not an educator, so I'm not sure what's the best way to do this.

One way would be to set up a club on public speaking or sensitivity training and

open it to all students. But the teachers might encourage the unpopular kids to join. Every teacher knows within a month who these kids are.

Q. Could teachers help improve the social atmosphere at school if they intervened when they heard students taunting someone in the hallway?

A. Absolutely. A lot of parents say that the administration and the teachers at their children's schools turn a blind eye to verbal assaults. They will intervene if there's a fistfight, but not if there's taunting. I think it's a good idea for them to intervene. It helps for all the kids to know that the school is coming out against taunting.

Q. What can parents do to help reduce taunting and exclusion among students?

A. Parents can teach their kids about the positive aspects of diversity, whether it's racial, ethnic or the kinds of clothes people wear or whether they're short, tall, fat, thin. Attitudes about that stuff begin in the home.

Q. How much of an effect can we expect schools and parents to have on reducing hostile behavior at school?

A. I think they can have an enormous effect, not necessarily in eliminating cliques, but in making them less aggressive, less humiliating, less exclusionary. I think schools and parents can certainly soften the edges of cliques and make the school a less hostile environment.