Astronaut and astrophysicist Pinky Nelson once said, “Education is not rocket science; it’s much harder”. But we do appear to be making some progress towards understanding how people learn. Educators are coming to realize that students generally do not learn well by simply being told what they need to know. It appears, rather, that students learn best in a social environment which promotes an active engagement with the material to be learned. The challenge, of course, is how to create such environments in the classroom for students with a wide range of abilities and interests.

Over the past two decades the physics education community has made considerable inroads towards meeting this challenge. Of particular importance is the work of Eric Mazur (Harvard) and colleagues in developing an in-class Peer Instruction (PI) approach. This approach has now been adopted by colleges and universities across North America in science and other disciplines. The basic approach is outlined schematically by the inserted diagram to the right.

After a period of direct teaching, an instructor poses to the class a conceptually-based question, usually in multiple choice format. Students answer individually by registering a response using an electronic clicker. Without revealing the answer, the instructor invites the students to discuss the question with their neighbours. The students vote a second time, at which time the correct answer is revealed and discussed. Most instructors report that the percentage of correct answers increases after peer discussion and that students, in general, show greater improvement in their conceptual understanding in courses which incorporate this approach.

There has been debate, however, as to why students show an improved performance after peer discussion. Some suggest that active discussion with peers will naturally result in students’ increased conceptual understanding. Others posit that students do not learn from such discussions but rather simply choose answers which are in agreement with those students they perceive to be more knowledgeable. A recent study reported in Science attempts to distinguish between these two alternatives. Smith et al. (2009) tracked the responses to 16 sets of conceptual questions over the course of a semester. (2009) tracked the responses to 16 sets of conceptual questions over the course of a semester.

The remarkable finding is that, of those students who initially answered the first question incorrectly, the majority went on to answer the second isomorphic question correctly. The authors of this study propose that students performed better on the second question because they came to a deeper conceptual understanding as a result of peer discussion.

These results support the value of peer discussion as a means of active learning in the classroom. While the use of electronic clickers facilitates this approach, several other low tech solutions can be implemented, including the use of flash cards, to support student engagement through peer discussion.

References
Community College Survey of Student Engagement

Jan O’Brien, Institutional Research Manager

EVER WONDER how long students spend preparing for your class?

EVER WONDER how engaged students are in their learning?

These questions will be answered by the Community College Survey of Student Engagement, otherwise known as CCSSE (rhymes with Nessie). By May, about 1000 students will have filled out the CCSSE survey.

What will the survey tell us?
We expect that the survey will be a starting point for us as a key performance indicator. The KPIs, developed by a committee and approved in 2008 by the college board of governors, include an indicator for student engagement.

The CCSSE is currently the best tool available to us. It has been used in the US since 2001, and this year over 300 colleges in the US are conducting the CCSSE survey. In Canada, the CCSSE has been used intermittently by a handful of schools, mostly in BC. The university equivalent, the National Survey of Student Engagement (NSSE) is extensively used at universities in both Canada and the US. CCSSE has been extensively reviewed.

When will we have results?
We should have reports back later this fall. Watch for announcements and postings on the Institutional Research website: http://www.okanagan.bc.ca/administration/institutional-research.html

Library Research Skills Survey

Sherri Savage and Jennifer Sigalet, OC Library

What research skills do college professors expect first year students to have?

Finding answers to this question is the primary goal of the proposed Library Research Skills Survey, a collaboration within the Okanagan College Library Department between Jennifer Sigalet, Vernon Campus librarian, and Sherri Savage, a MLIS distance education student at San Jose State University, who is also an auxiliary in the Kelowna Library Circulation Area.

The proposed survey aims to identify the expectations instructors have of first-year college students’ research skills. The proposed method of assessment is a multi-campus survey that will be distributed via email to Okanagan College instructional faculty in university transfer and business courses. The results of the survey will assist the Library in continuing to develop and enhance its information literacy (research skills) programs through best practices as we support students in attaining their learning outcomes and educational goals.

The results will be shared with the Okanagan College community and as well with local teachers and teacher-librarians as the Library continues to develop collaborative bridging opportunities within the school districts.

The proposed survey is expected to be available in mid-March.

Suggested Reading


Research Skills: Bridging the Gap between High School and Post-Secondary (OC LibGuide) http://libguides.okanagan.bc.ca/js-bridging

For more OC Subject Guides please see: http://www.okanagan.bc.ca/administration/students/library/help/guides.html

Library Mission Statement

“The Library promotes student success through the development of critical thinking and independent research skills, and advances teaching and learning by supporting instruction and professional development.”
In the medical world, my son is described as suffering from ADHD, Anxiety Disorder, Learning Disability and Autism (DPP NOS). In my world, my son is described as a bright child with great potential – a hard-to-reach, hard-to-teach child. His great abilities paired with his great inabilities led me down a path of great frustration, and rewarded my unrelenting endurance with new understanding and innovative teaching ideas. This journey required me to reluctantly leave my post-secondary career as an educator, home-school my son for four years, and retrain as a tutor for children with learning disabilities, eventually making my way back to postsecondary education.

I reframed my nursing knowledge of neurobiology into the teaching and learning context. I understood that learning was a process of innervating neurons within the brain. Some of the neuron activity would end up as long-term memory: a lesson learned. What I learned was that the more neurons that are active in multiple areas of the brain, the greater the chances of understanding and the greater the chances of this information making it to long-term memory. Attaching knowledge to a piece of knowledge already in the long-term memory also helps increase retention. I imagine each neuron that fires as a spark; many sparks in different areas of the brain at the same time create fireworks. Sparks create curiosity and interest in a learner; fireworks create engagement, passion and longevity of memory.

Three steps to engagement

Full inclusion: As an educator, I researched learning, and better understood the complexity of understanding language. Auditory language can be difficult for some individuals to understand and it takes a great deal of energy for them to process the information (Arwood and Kaulitz 2007, Levine 1999, Gillingham and Stillman 1997). I prepare my PowerPoints, then revise them by ensuring the language is easily understood, then revise them again using fewer words and adding visual pictures and video clips. Some individuals also have a great deal of difficulty listening when they are writing notes, so I always supply a copy of the PowerPoint to every student. My LD student would not need special accommodation and would feel fully included. It has been my experience that ease of language increases engagement and creates energy for increased student involvement.

Multi-sensory learning: As a tutor, I saw the success of multi-sensory learning. I carried this into my classroom by using PowerPoints with many pictures, hand-outs for all students, video clips and multiple posters. The posters display the concepts in a visual way; they also augment repetition of learning and give time to process the information at the individual’s own rate. I see a symphony of fireworks using this method, as multiple areas of the brain are engaged with the material, including the areas of past experience and memory.

Storytelling and case studies: Storytelling has engaged learners since the beginning of language. Our society is fascinated with stories, from books to television and movies. I find telling stories and giving real-life examples creates high interested paired with emotion. This is very engaging and also greatly increases retention (Levine 1999). At the end of a topic, case studies are used to highlight and review the important concepts. I find case studies bring together information from multiple areas of knowledge. Students are very engaged in discussing the case study and problem-solving for solutions. Group problem-solving is also a symphony of fireworks.

When student engagement is high I find retention and exam marks are also high. With ease of language and multisensory lecturing, the energy of the room seems to shift from the sparks of understanding content and taking notes to the fireworks of engaging in conversation and learning in depth. The only part I love more than watching the fireworks is hearing my favourite phrase: “I get it, I really understand it!”

References


http://illt.okanagan.bc.ca/
PARTNERSHIP IN EDUCATION: GIVING STUDENTS A CHOICE
CHANDRA MCCANN, ILLT FELLOWS FOR AACP

Recently, I gave my Fundamental English class a writing assignment—an assignment that I intended to be short, simple, and quick—to introduce some concepts around the subject of journalism. My idea was that they would invent a humorous or far-fetched story and write it up as an entertaining article in the space of a class or two.

Instead, my students have dived into this project with serious intent, checking books out of the library and undertaking detailed internet searches for reference materials to support their topics. It is clear that this project is going to take much longer than anticipated, and should probably be worth more than the meager 10 marks I had intended. My students’ engagement in this assignment has far exceeded my expectations.

How did this happen?

When I first introduced the assignment, I had some push-back from a few students. They didn’t want to make up a fake story. They thought it seemed childish. They were much more interested in writing about real events, things that a reporter would actually report on. This was certainly a valid point, so I modified my criteria and told the class they could either make up a story or write about a current event. They all chose the latter option.

It is clear that my students became far more engaged in this assignment once they were given choices, and thus a sense of autonomy over their work. Instead of doing something because they had been told to, they took ownership of the project and became more deeply invested in its outcome.

This anecdote supports the notion of education as partnership. Instead of a top-down approach where the teacher dictates course content, expectations, methodology, and evaluation, students in a partnership model of education work with teachers to make decisions about every aspect of their learning process. This has obvious implications for student engagement; when students are given the opportunity to make choices based on their interests, needs, and aptitudes, they will have a better appreciation for the value of their learning, and more confidence in their ability to succeed.

What do instructors do to provide their students with more choice? They work with individual students to set learning objectives. They give multiple options when assigning work, and offer multiple formats for responses. They negotiate the terms of evaluation, and offer a variety of approaches, including peer- and self-evaluation.

In a society which places high emphasis on the traditional top-down model of education, it can be challenging to readjust our practice, but I believe that offering students choices on even a small scale will help improve their level of engagement. In fact, our students are already making choices every day: they are choosing to enroll in our courses; choosing to attend class (or not); choosing to pay attention and invest themselves in their work when they feel that it is relevant to their aims. The partnership model is simply a way of acknowledging and legitimizing students’ freedom to make decisions about their education.

Suggested Reading

RECENT LITERATURE ON LEARNER ENGAGEMENT

Recent articles on “learner engagement” retrieved from ERIC database available via Okanagan College Library Website.

Explore ERIC and other article databases by going to www.okanagan.bc.ca/library >Find>Articles>Education>ERIC


As part of its mandate to support dialogue among peers and to enhance the practice of learning and teaching, the ILLT will publish yearly three issues (Winter, Spring, Fall) of the Enhancing the Practice of Learning and Teaching. All employees of the Okanagan College are encouraged to contribute. Please see the ILLT website for more information: http://illt.okanagan.bc.ca/