Active/Engaged Learning

Learning is an active process, a process that must change as we do. For students to learn, they need to process information in a way that relates to them. The “factory model” – conformity, compliance, centralization, standardization – no longer engages students who have been comfortable with technology since an early age, are entrepreneurial in spirit, and have a hands-on “let’s build it” approach to life. Today’s students are social, multitasking and team-oriented. They are very much into gaming, which is an analytic/trial-and-error way to learn. For them technology, access to the Internet, distance learning opportunities and BYOD have created an expectation that learning should be personalized and portable, can happen anytime-anywhere, and must be active and engaging.

A NEW GENERATION: ALIGNING EDUCATION, EXPECTATIONS, SUCCESS

According to the U.S. Census Bureau, Millennials (born between 1982 and 2000) now number 83+ million, representing more than a quarter of our population and overtaking Baby Boomers as America’s largest generation. Growing up in a time of rapid technological change and economic disruption, today’s student has a different set of priorities and expectations when it comes to education. Unlike previous generations who viewed education as a rite of passage and an investment in their future, Millennials view education as an expense which is unnecessary unless it is going to lead them to an outcome they are actively seeking to achieve. Millennial students are also known to disengage if they are not actively involved in the education process (Suzanne Morrison-Williams, “Millennials - Changing the Face of Higher Education”).

For these “digital natives,” the use of technology plays a big part in how they communicate and access information. They have “seen the rise of a pervasive, ever-present connectivity and access to capture, process, send and receive information through multiple devices (wireless handheld computer, smartphones, PDA-phone hybrids and next generation handheld gaming devices) anytime and anywhere, like never before” (Chelliah & Clarke, 2011). To address student needs, newer methods of online and technology-enhanced course delivery, including “flipped classrooms” and gamification, are showing promising student outcomes. According to Hanover Research, these instruction models have resulted in greater student engagement.
FLIPPED CLASSROOM
The flipped classroom is a model of learning that rearranges how time is spent both in and out of class. In this model, the typical lecture and homework elements are reversed. The ownership of learning shifts from the educators to the students (Horizon Report: 2015). The value of a flipped class is in the repurposing of class time into a workshop where students can inquire about lecture content, test their skills in applying knowledge, and interact with one another in hands-on activities. During class sessions, instructors function as coaches or advisors, encouraging students in individual inquiry and collaborative effort. (EDUCAUSE).

BLENDED LEARNING
Blended learning is a formal education program that combines the best of online learning with teacher-led instruction. Online, students can control the time, pace, path and place of their learning. What the students learn online informs what they learn face-to-face. The flipped classroom is one example of blended learning.

GAMIFIED INSTRUCTION
“Gamification” is the application of game-based dynamics to an educational effort. In an educational context, a game is a space where certain factors converge – players, abstract thinking, challenge, rules, interactivity, feedback, quantifiable results and emotional reaction – all within a “system” that provides structure. (Kapp)
A NEED FOR CHANGE

The World Economic Forum’s New Visions for Education project (2016) shows that the gap between the skills people learn and the skills people need is becoming more obvious, as traditional learning falls short of equipping students with the knowledge they need to thrive. The report projects that 65 percent of children entering grade school will work in jobs that do not exist today. Some economists argue that the emerging labor market will require workers to be able to solve unstructured problems, work with new information and carry out non-routine manual tasks.

Gallup’s latest report, “How Millennials Want to Work and Live,” finds that millennials struggle to find good jobs that engage them. Only 29 percent of employed millennials are engaged at work. With technology in hand they are hyper-connected, which has helped them gain a unique global perspective and has transformed the way they interact, consume content, browse, buy and work.

_Tectonic changes are reshaping U.S. workplaces as the economy moves deeper into the knowledge-focused age (Pew Research Center, The State of American Jobs, 2016)._

Millennials are pushing hard to change the world – at work and in school. An “exam factory” mentality in education does not fill the needs of today’s students or of tomorrow’s workforce. In fact, evidence indicates that excessive focus on examination results encourages teaching to the test, and reduces the extent to which active, student-centered learning is adopted (Polesel, Dulfer & Turnbull, 2012).

FROM TEACHER-CENTERED TO STUDENT-CENTERED LEARNING

Technological advances, societal changes, student expectations and new research on teaching and learning are drivers for the paradigm shift being seen in education today. In the “traditional” approach to education, teachers lecture and students listen. Assignments are worked on independently. Teamwork and communication is limited. In a student-centered learning environment, teachers are no longer viewed as the disseminators of knowledge, but as facilitators of learning. The focus has changed from students’ ability to memorize facts to their ability to gain and retain knowledge by exploration, trial-and-error and being connected to the world they live in.

FROM ‘SAGE ON THE STAGE’ TO ‘GUIDE ON THE SIDE’

In active learning, the teacher once seen as the “sage on the stage” has become the “guide on the side,” acting as a facilitator and mentor. A variety of techniques including response systems, think-pair-share and other cooperative learning strategies are used to involve students in the learning process that make learning more meaningful, more engaging and more effective. When the classroom becomes a dynamic environment where students are given a voice, they stay interested and learn more.
FROM PASSIVE RECIPIENT TO ACTIVELY ENGAGED LEARNER

Rather than being passive recipients of knowledge, students must assume an active role in a collaborative and interactive learning environment, solving problems, debating answers and participating in brainstorming sessions. Students learn what they care about and remember what they understand (Ericksen, 1984). Actively involved students “own” what they have learned since this knowledge is based on their own questions and explorations. In addition to the knowledge gained, active learning promotes social and communication skills by creating environments that emphasize collaboration and the exchange of ideas. The emphasis is on the development of skills rather than the transmission of information.

I hear, and I forget. I see, and I remember. I do, and I understand. (Asian proverb)

A study by the National Training Laboratories Institute for Applied Behavioral Sciences, “The Learning Triangle: Retention Rates from Different Ways of Learning,” Bethel, Maine, 2005, shows that only about 5% of the information delivered through lecture was retained. Compare that with retention rates of 50% for discussion groups, 75% for practice by doing and 80% for students teaching others. Numerous 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.
IMPROVING STUDENT PERFORMANCE
In the Proceedings of the National Academy of Sciences (PNAS) study “Active learning increases student performance in science, engineering, and mathematics,” a comprehensive review was done on the effect of active learning on STEM (Science, Technology, Engineering and Mathematics). The results of this study indicate that:

- Average examination scores improved by about 6% in active learning sections and would translate to a 0.3 point increase in average final grade. On a letter-based system, medians in the courses analyzed would rise from a B− to a B or from a B to a B+.

- Students in classes with traditional lecturing were 1.5 times more likely to fail than were students in classes with active learning. Under active learning, the average failure rate drops from 33.8% to 21.8%.

- Students performing in the 50th percentile of a class based on traditional lecturing would, under active learning, move to the 68th percentile of that class – meaning that instead of scoring better than 50% of the students in the class, the same individual taught with active learning would score better than 68% of the students being lectured to.

MOTIVATING STUDENTS TO LEARN
In the 2015 Gallup Student Poll “Engaged Today — Ready For Tomorrow” of students in grades 5-12, only 50% reported being engaged in school. Twenty-nine percent were not engaged and another 21% were actively disengaged. When questioned about their hope for the future, only 48% were hopeful, 34% felt stuck and another 18% felt discouraged. Active learning techniques address different learning styles, providing students the with a chance to think, talk and process course material which in turn creates a connection that helps engage and motivate students to learn.

CONNECTING WITH TECHNOLOGY
In the EDUCAUSE report, “Study of Students and Information Technology, 2014,” findings indicated that technology makes students feel more connected to other students (51%), their instructors (54%) and their institution (65%). More students than ever have experienced a digital learning environment and the majority say they learn best with a blend of online and face-to-face work. Most students own smartphones, half connecting to a network with at least two devices at a time.

Technology provides students instant access to information, more opportunities for active and blended learning, increased student engagement and better preparation for the workplace where independent research, critical thinking and the use of technology will be a must.
RETHINKING SPACE

Active learning environments require flexibility, mobility, comfort and choice. Classrooms with long rows of desks have been replaced by spaces with flexible seating that allows for individual or group activities and can be easily reconfigured to support the various teaching and learning styles.

Learning spaces have expanded beyond the traditional classroom. Nooks and huddle rooms equipped with audio, video and display-system technology or writable walls are provided for small groups to collaborate on projects. These intimate settings help to keep students involved, encouraging creativity, communication, sharing ideas and ultimately, learning.

Informal spaces that were once considered wasted space (hallways, study break areas, cafés, residence hall lounges) have become areas where informal communications, individual learning and self-organizing group learning takes place. These spaces, often furnished with soft furnishings, allow learning to happen in a more relaxed environment. Studies show that the environment affects student learning. A variety of furniture styles in these informal spaces allows each student to create his or her own “ideal environment” for learning.

Researchers have found that classroom design, furnishings and flexibility can shape instructor behavior and student activities. Spaces designed for active learning promote teacher-to-student and student-to-student interaction and give students permission to collaborate, explore, create, learn and succeed.