

Learning Spaces at Algonquin College



Classroom Design Principles Framework for Active Learning

Re-Visioning the Classroom Learning Experience

Classroom Design Principles Framework for Active Learning

“Learning is not a spectator sport...[Students] must talk about what they are learning, write about it, relate it to past experiences, apply it to their daily lives. They must make what they learn part of themselves.”

Chickering and Gamson (1987). *Seven Principles for Good Practice in Undergraduate Education*, American Association of Higher Education.

Background

Thirty years of research has shown that active learning activities produce better learning outcomes than instructor-centred teaching practices focused on lecture and information transmission (Freeman et al., 2014).

Renovations of our informal learning spaces over the past few years have transformed the student learning experience on campus. Students have access to various learning space options on campus where they can collaborate as groups, connect with technology, and study independently. Now, there is an opportunity to physically manifest the College’s vision for student-centred learning within our formal learning spaces.

The *Classroom Design Principles Framework for Active Learning* is intended to guide the redesign and renovation of classrooms to support active learning activities at Algonquin College. These principles are based on well-established qualities of active learning described in educational research literature and were informed by feedback collected from Algonquin faculty and students.

These design principles are oriented towards supporting active learning activities that are applied and authentic. It is important to acknowledge that many practical considerations (e.g. financial, structural etc.) will influence the extent to which these design principles can be realized. What is paramount is that the framework will provide a learning-focused language for informing classroom design decision-making.

Vision

At Algonquin College, our focus on creating learner-driven, personalized learning experiences corresponds with a teaching approach that embraces active learning. In terms of teaching approach, this is a mindset change from an emphasis on providing instruction to guiding learning activities.

Our vision is to encourage active learning practices across all classroom types. This recognizes that active learning includes a continuum of activities from simple (e.g. interactive lectures and lessons) to more complex (e.g. project-based learning). At the same time, the desire is to evolve Algonquin's fleet of classrooms to include classroom whose features are especially conducive to collaboration and group work which is the hallmark of active learning.

What is Active Learning?

While there is no one definition of active learning within the education literature, the following definitions capture its essence.

Instructional activities involving students in doing things and thinking about what they are doing.

Bonwell and Eison, 1991.

Active learning strategies have students doing something other than taking notes or following directions...they participate in activities..[to] construct new knowledge and build new scientific skills.

Handelsman et. al., 2007.

Active learning engages students in the process of learning through activities and/or discussion in class, as opposed to passively listening to an expert. It emphasizes higher-order thinking and often involves group work.

Freeman et al., 2014.

On their Teaching Commons website, Stanford University provides this advice:

"Active learning" means students engage with the material, participate in the class, and collaborate with each other. Don't expect your students simply to listen and memorize; instead, have them help demonstrate a process, analyze an argument, or apply a concept to a real-world situation.

Retrieved May, 2019.

Examples of Active Learning Activities

Active learning activities range from simple engagement with content and classmates to more complex group interactions. These include:

- discussion groups
- debates
- games
- simulation
- interactive lecture
- project-based learning
- peer-led group learning
- peer review
- problem-based learning
- inquiry-based learning
- case-based learning
- hands-on learning

As a BYOD (Bring Your Own Device) college, all of these activities take place within wireless-enabled classrooms that have furniture and electricity to support student use of laptops and mobile devices.

Active vs Experiential Learning

Experiential learning is a form of active learning in which there is “learning through reflection on doing” (Kompf and Bond, 2001). It can include interaction with experts and practitioners, learning within actual or simulated work environments, or work on projects for real clients. We often associate this kind of learning with cooperative education, internships, and apprenticeships. Experiential learning for specific fields often require dedicated lab spaces that are unique to the industry (e.g. simulated nursing lab, workshop, studio, robotics lab etc.). However, in many cases, experiential learning can happen in a classroom.

Universal Design for Learning

Active learning supports the principles of *Universal Design for Learning (UDL)*. The developers of the framework define UDL this way:

Universal design for learning (UDL) is a framework to improve and optimize teaching and learning for all people based on scientific insights into how humans learn. CAST

There are **three main principles of Universal Design for Learning:**

Engagement

Stimulate interest and drive for learning to *support learners to be purposeful and motivated to learn.*

Representation

Present information and content in different ways to *support learners to be resourceful, knowledgeable learners.*

Action and Expression

Differentiate the ways that students can express what they know to *support learners to be strategic, and goal-directed.*

Design Principles: Active Learning Classrooms

Learning as Active/Doing vs Passive/Listening

CLASSROOMS ARE:	DESCRIPTION	SUPPORTS LEARNERS AND TEACHERS TO
SOCIAL	Supports a Community of Learners	<ul style="list-style-type: none"> • Move around the class to increase interaction • Discuss, brainstorm work on projects etc.
COMFORTABLE	Supports Health, Well-being, and Safety	<ul style="list-style-type: none"> • Feel and perform well due to optimal physical conditions (e.g. natural light, air quality, stable temperature, good acoustics, adequate working space etc.)
ACCESSIBLE	Supports Learning that is Inclusive and Accessible for All Students	<ul style="list-style-type: none"> • Have equal access to instructor for interaction • Have clear site lines • Have special needs accommodated (e.g. height adjustable desk)
FLEXIBLE	Supports Range of Active Learning Activities	<ul style="list-style-type: none"> • Move certain furniture to suit learning activity
CONNECTED	Supports Information Sharing and Virtual Connection With Others	<ul style="list-style-type: none"> • Connect with information via Internet • Connect with others remotely via conferencing • Share work with each other (e.g. groups can project work to share with whole class)
SCALABLE	Design is financially and operationally sustainable	<ul style="list-style-type: none"> • Teachers are supported to explore and adopt active learning practices via professional development opportunities. • Classroom technology can be supported by ITS/AV • Responsive to operational realities of the college • Adaptable to changing needs of the college

Active Learning Classroom Framework

Design Principles

1) Social - Supports a Community of Learners

- enables professors to be facilitators of learning rather than just transmitters of information (e.g. are not stuck at front of the room)
- allows students to discuss and work as groups
- supports brainstorming, note-taking, and the visualizing of individual/group ideas via multiple media: laptops, mobile devices, dry-erase whiteboards etc.
- encourages student and professor to physically move around the class which increases student to student and student to faculty interactions

2) Comfortable - Supports Health, Well-being, and Safety

Known physiological attributes that are conducive learning and well-being are part of design wherever possible (Barrett, Davies, Zhang, and Barrett, 2015).

- natural lighting
- ability to control room lighting (e.g. to optimize projection)
- stable temperature
- ergonomic, light furniture that avoids strain when moving or using it
- uncluttered (flooring, walls avoid busy patterns)
- blinds to avoid whiteboard glare from excessive light from windows
- optimal personal space (to move in chair, use device without concern of it dropping off desk)
- space to put coats and backpacks to avoid clutter and tripping hazards
- acoustics optimized (e.g. little noise distraction from ventilation, classroom chatter is muted rather than amplified) to lower stress and avoid voice strain for professors
- in large classrooms, wireless headset microphone provided to avoid professor voice strain and allow flexible movement
- ability for students and professor to move around the class which increases blood flow, reduces lethargy, and is conducive to effective brain functioning
- avoidance of tripping hazards (e.g. laptop cable connections are in line of traffic)
- indoor air quality

3) Accessible Supports Learning that is Inclusive and Accessible for All Students

- avoids sight lines in which some students have a poorer learning experience than others (e.g. golden zones vs shadow zones of a cathedral style, rowed classroom. Park and Choi (2014)
- supports students with various special needs (e.g. mobility, wheelchair access, vision, auditory etc.)
- student seating provides accessible pathways for faculty/student and student/student interaction

4) Flexible - Supports Range of Active Learning Activities

- Moveable furniture suitable for various configurations
- Furniture with wheels allows for quick reconfiguration of desks and chairs to support various learning activities.
- Nesting and folding furniture for rooms that need to accommodate moderately sized and smaller sized classrooms

5) Connected – Information Sharing and Virtual Connection with Others

- allows students to connect with information via Internet
- allows students to connect with others remotely via conferencing
- allows students to share work with each other (e.g. groups can project work to screen or monitor in order share with whole class)

6) Scalable

- Teachers are supported to explore active learning practices via professional development opportunities
- Classroom technology can be supported by ITS/AV
- Responsive to operational realities and changing needs of the college

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