Life-Long Learning, Team Work, and Critical Thinking

# Life-Long Learning

**Multiple Dimensions and Definitions**

*The European Commission (2001) found that lifelong learning has “Four broad and mutually supporting objectives: personal fulfilment, active citizenship, social inclusion, and employability/adaptability”. In this regard, lifelong learning has lifewide dimensions that transcend narrow economic and vocational aspects.*  
  
The European Lifelong Learning Initiative defines lifelong learning as  
  
*“…a continuously supportive process which stimulates and empowers individuals to acquire all the knowledge, values, skills and understanding they will require throughout their lifetimes and to apply them with confidence, creativity and enjoyment, in all roles circumstances, and environments.”* (Watson 2003)

The definitions of lifelong learning don’t actually give us much direction on the knowledge and skills we need to develop to become successful lifelong learners. Most definitions have two parts, first recognizing and appreciating that we need to keep learning throughout our lives, and second, having the skills to engage in lifelong learning. It is interesting that the first part of most definitions are aligned with the kind’s of learning described in Bloom’s Affective Domain of Learning; receiving, responding, and valuing. It is the second part of the definition that is often of most interest to our accreditors and needs to be a focus of our learner development efforts.

Here are a range of examples of accreditation language that refer to lifelong learning. You can see that they don’t actually provide much guidance for a teacher on the skills to be developing and must be assessed to show our accreditors that our students are on their way to becoming successful life-long learners.

**AACSB: Life-long learning:**preparation for life-long learning.

**AAMC: life-long learning:** defined lifelong learning by identifying key competencies including: an understanding of evidence-based healthcare and critical appraisal, familiarity with informatics and literature search and retrieval strategies, practice-based learning and improvement methods, self-reflection and assessment, and other skill sets related to knowledge management

**ABET: Life-long learning:** a recognition of the need for, and an ability to engage in life-long learning

**CEAB: Life-long learning:**An ability to identify and to address their own educational needs in a changing world in ways sufficient to maintain their competence and to allow them to contribute to the advancement of knowledge.

**Dartmouth Medicine:** **Life-long learning: l**earn and adopt a structured approach to lifelong updating of knowledge and skills.

**What are lifelong learning skills?**

To help students become lifelong learners, we need to help students develop meta-cognitive skills, so they:

* Understand what they need to learn
* Evaluate their prior knowledge and identify gaps
* Develop strategies for learning what they need
* Monitor, reflect and adjust their learning strategies as needed

Metacognition refers to a level of thinking that involves active control over the process of thinking that is used in learning situations. These include planning the way to approach a learning task, monitoring comprehension, and evaluating the progress towards the learning goal. (*Wikipedia*)

**Metacognition has 3 major components:**

***Awareness***- refers to understanding what knowledge and skills are needed to be successful at required task, recognizing gaps in knowledge that need to be addressed to be successful at required task, and finally determining what learning strategies should be used. There are 3 different types of meta-cognitive awareness:

* **Declarative knowledge** is knowledge about oneself as a learner – what one knows, how one best learns, and other factors that influence one's learning performance.
* **Procedural knowledge** refers to the specific processes and strategies to learn things. The greater the procedural knowledge base, the greater the variety of learning strategies that can be brought to bear on a particular problem.
* **Conditional knowledge** refers to knowing when and why to use declarative and procedural knowledge.

***Regulation* -** involves the planning, monitoring, and evaluation of the learning experience.

* **Planning**: determining effective strategies and allocating sufficient time and energy to achieve the learning goal.
* **Monitoring**: watching oneself learn and monitoring progress towards required learning goals.
* **Evaluating**: determining when learning has been successfully accomplished. This includes re-evaluating strategies to make learning more effective.

***Experiences***– involves our experiences and current identity as a learner.

Our previous learning experiences shape who are as a learner. We all have an identity as a learner, some worthy educational goals inspire us to action, other goals are not deemed worthy or too difficult and do not inspire us the action. Our previous successes and failures as learners have lasting effects on how we respond to these challenges and interact with the world.

Metacognition is an iterative process where a learner identifies a gap in their knowledge, develops a strategy to overcome the gap, does the learning, and then evaluates their progress to determine if additional learning is required or a new strategy should be formulated.

Research shows that students tend not to apply meta‐cognitive skills as well or as often as they should. They need your support and significant practice in developing and applying meta-cognitive skills.

# Activities

**Application Card (10 + 10 minutes)**

Identify some of your existing assignments where students are already using metacognitive skills. Come up with ideas to modify the assignments to make the meta-cognitive skills more visible to you and therefore assessable. Share with your team and select one to commit to a flipchart – labelled old assignment.

If you were to design a new assignment that help students develop their meta-cognitive skills, what would they look like, and how design performance opportunities so students can both show you they know and get feedback on their progress. Share with your team and select one to commit to a flipchart – labelled new assignment.

**Gallery Walk and Debrief (15 minutes)**

Tape your flipcharts to wall. Have part of your group circulate and look at other teams flipcharts, then switch.

Teamwork

Teamwork can be difficult for us to implement well. It is worth thinking about what you want to see from teamwork, what your students want to see from teamwork, and what the accreditors are looking for from teamwork. As a teacher, we are often interested in both the product and process of teamwork. Students are often just interested in the production of the final product, since they often only just see the curriculum as a series of assessment tasks.

**Product vs. Process**

It is often helpful to think of teamwork as having two categories; one category that focuses on **product** (written report, presentation, poster, a physical prototype) and one category that more focuses on **process** (most often made visible by peer evaluation). Our accreditors are more interested in seeing this process piece. The major difficulty with the process piece is to make it visible, observable, and measurable.

The major differences on whether teamwork is effective and achieves the outcomes you expect is in a large part driven by the design of the team task. When a faculty member comes to me and describes difficulties they are having with a team assignment, my first question is “tell me the design of the task.” Often a faulty design can lead to poor but predictable behaviours from our students. It is worth remembering that situations where a teammate is not doing their fair share or “social loafing” is often a problem created by a faulty task design. If I am a weaker student (academically) that just wants a C, and you are a stronger student who wants an A, then it is a reasonable adult learning behaviour on my part to sit back and let you get me an A. You can hope that the weaker student might strive to be fair and contribute, but if their contributions are at a C level, the contributions might not even be appreciated by the A student. This can leave both the C student and A student unhappy.

**The Range of Group/Team Work**

The spectrum of group work goes from short activities with small, ad hoc groupings to longer activities where teams are permanent, larger, and carefully criterion formed.

**Collaborative Learning, Peer Instruction, and Classroom Assessment Techniques**

The short term, ad hoc kinds of group work are often characterized by low accountability. Activities are short (a few minutes to one class), stakes are low, and most often these are just part of a strategy to bring more active engagement to the classroom.

This end of the spectrum includes Collaborative Learning (think-pair-share, buzz groups, jigsaws, etc.), Peer Instruction (Mazur), and Classroom Assessment Techniques (Angelo and Cross). The Classroom Assessment Techniques are specifically designed to give the teacher valuable information on student progress and understanding to be able to adjust instruction to better serve student learning. What this end of the spectrum doesn’t allow is time to develop team cohesion and doesn’t produce is much in the way of team processing information that might make the development of teaming skills more visible and measurable (which our accreditors want to see). This is not to say these techniques are not important, they are, but they are not going to help us show the results of team work in our course and programs to our accreditors.

Outcomes: **focus classroom engagement**, feedback for instructor to adapt instruction on the fly, low stakes

**Cooperative Learning**

In the middle of the spectrum is Cooperative Learning with its larger teams (3-4) longer duration (entire project or assignment) and increased accountability. Cooperative Learning is often focused on the development of a team **product**. The product focus can create some poor individual behaviour within the team (think of story above with A and C student). There are often elaborate individual accountability structures (assigned roles, timesheets, etc.) to ensure equitable contribution to final product. But even with equitable contributions, differences in quality of work produced, timing of effort (last minute vs. well in advance) and clashes in leadership and personalities can lead to difficulties inside the team. The tasks are often highly structured, timed, and monitored to minimize the intra-team conflicts. There is a standing joke about “divide and staple” assignments – where a team member might say to another team member “*meet me at the stapler at 5 o’clock to compile the final assignment submission.*”

Outcomes: **focus on product**, instructor grade on team product, and very limited team process information, since task structures are designed to control teaming behaviours (i.e. minimizing bad behaviours).

**Case-Based, Problem-Based, and Team-Based Learning**

At this end of the group work spectrum, teams are larger (CBL up to 24, PBL 6-10, TBL 5-7), groupings are often permanent (course long), and teams are carefully formed to bring a diversity of talents to each team. What most defines this end of the group work spectrum is the nature of the team tasks. The tasks most often focus on the **process** of analysis, synthesis, judgment, and critical thinking. One of the most clarifying tasks a team can do is make a decision – whether it is to accept or discount a source of information, take a stand, or complete a complex analysis of a situation that leads to selecting a reasonable course of action. It is interesting to note that one of the things teams are naturally good at is making decisions and building rationales for why a particular decision is a reasonable course of action.

Outcomes: **focuses on process**, often makes output of team thinking visible, creates strongly interdependent teams, students are in a good position to provide information about team process (often via peer evaluation).

**High Performance Teams**

It is worth remembering what should be going on inside a high performance team. A high performance team should have developed a clear, shared vision and set of goals that all team members believe in. The team members should begin to feel interdependent and feel a sense of duty to both the successful achievement of the task, and to the well being of each other. This interdependence grows from time spent together, the development of the shared vision, and respect and understanding of each other’s strengths and weaknesses. If you think of the A and C student in the description above, they perhaps had a shared vision of getting an A, but had a different a sense of duty to the task and to each other.

So how do we do it? How do we build tasks for teams that naturally bring out good team behaviours and minimize poor team behaviours? It is all contingent on the quality of the task design.

**Designing Team Tasks**

The design of team tasks is absolutely critical to the outcome of teamwork. In Roberson and Franchini’s excellent article, *Effective task design for the TBL classroom*, they highlight a number of important aspects of great team tasks. First, they make an argument that our disciplines are more defined by the action disciplinary experts take rather than a specific body of knowledge. The tasks we build for student teams should mimic these disciplinary actions – if a history expert reconciles different sources into a coherent narrative then students should be asked to take very same action. If a business expert assess a variety of marketing strategies and decide on the best marketing strategy…then business student team should be asked to take very same action. The other insight they had into task design is that students need to wrestle with concrete scenarios that have concrete consequences for different courses of action. As the situations the students are confronted with become more complex, the abstractions that they have learned from their preparation are increasingly used to come to a “reasonable” decision. What is worth remembering here is getting my abstractions wrong doesn’t have impact unless I have applied them to a concrete situation and get to live the concrete consequences.

It is worth remembering that even a well design task that is poorly delivered/facilitated can lead to poor results. The importance of good task design and effective classroom management will be the focus of the afternoon session.

**Common measures of teamwork**

Common product measures – are team grades for some kind of artifact (report, video, poster) or some performance (presentation). The assigned grade grades can be tempered by using a peer evaluation process to more fairly distributed grade based on individual contribution to team product.

Common process measures – are peer and self evaluation scores, learning journals, and reflections.

**Activity (20 minutes)**

**Setting Peer Evaluation Criteria**

In 5 minutes make a list of up to 5 criteria, based on what you think is important for teamwork and should be assessed using peer evaluation. Prioritize the list from more to less important. Then each team will be asked to send a representative to front of class to establish an executive council, and decide what the final 5 will be.

Critical Thinking

# What is Critical Thinking?

Critical thinking is characterized as a comprehensive, systematic, and methodical approach to investigating, analyzing, interpreting an issue, situation, or problem. Often it takes the form of analyzing and interpreting to make a difficult, complex decision by building a reasoned argument to support that decision, position, or interpretation.

There are a many things that need to be considered to comprehensively, systematically, and methodically investigate, analyze, interpret an issue, situation, or problem. The common attributes of critical thinking include:

* **Relevant Information** - Identifying and evaluating quality of information
* **Missing Information** - Identifying any missing information
* **Assumptions** - Identifying underlying assumptions (own and others)
* **Necessary Inferences** - Identifying when inferences need to be made with incomplete information
* **Multiple Perspectives** - Recognizing complexity and using different perspectives to analyze problem
* **Contextual Effects** - recognizing influence of context – limits of applicability

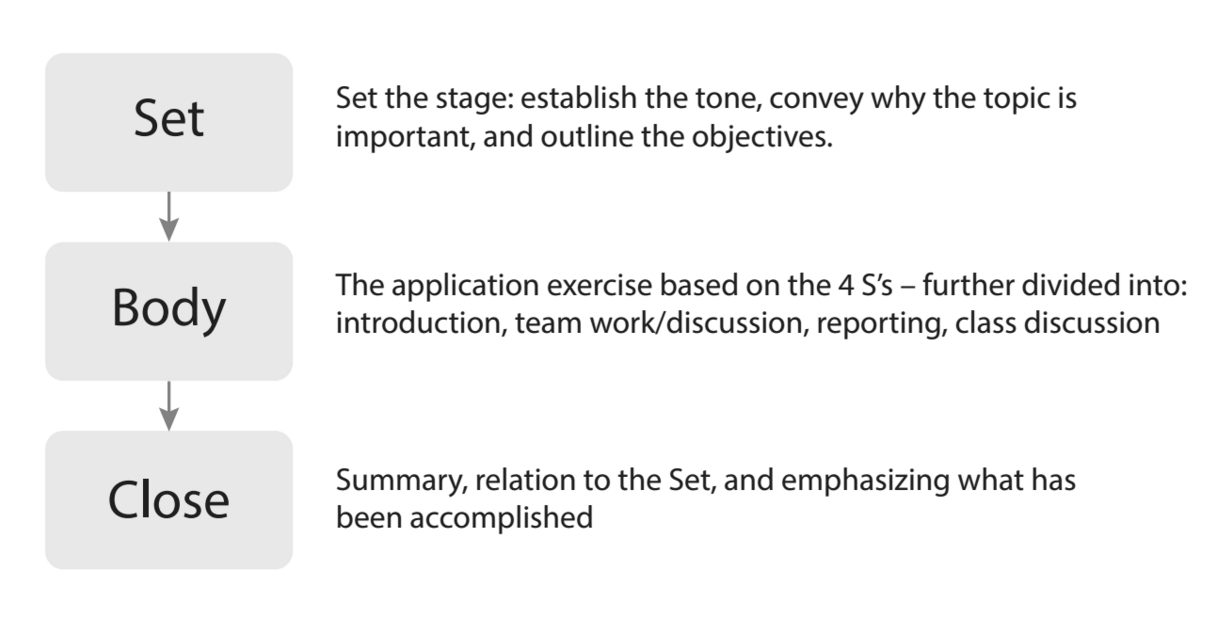
# Planning discussions that foster critical thought?

Carefully planning the logistics, flow, and desired outcomes of a discussion can put you a position to more easily facilitate the conversation to greater depth and therefore greater learning. You should take some time to consider the likely responses from students, the nuances they will see easily, the nuances that you will have to help them see, and what you want the students to ultimately take away from the conversation.

There are two levels to the planning.

**Lesson Planning**

At the macro level, we want to set the stage for the discussion at begin of class, structure the bulk of the time on the main discussion, and then close the discussion in a way that cements the learning for the students. A lesson-planning model known as Set-Body-Close can be used structure the macro plan for a discussion.



Structured Discussion

Focused Conversation Framework

**Discussion Planning**

At a more micro-level a focused conversation framework can be used to structure the body of a discussion. There are a number of focused conversation frameworks that allow you to pre-plan aspects of the conversation to ensure the examination of the issues is systematic and comprehensive. My favourite discussion framework is the ORID framework from Stanfield’s excellent book *The Art of Focused Conversation.* ORID is an acronym, which stands for Objective, Reflective, Interpretive, and Decisional. These four are progressive stages in a systematic, methodical analysis discussion. In the first stage, Objective, you establish the facts, agree on the data, and established a shared view of how we perceive the “facts” of the issue. This helps get everyone on the same page. In the second stage, Reflective, we get peoples personal reactions to the issue out in the open. Beliefs, attitudes, and personal internal responses are important to make visible at this stage. In the next stage, Interpretive, we search for meaning and try to establish what is significant and what is not. Values play an important role in establishing what each of us find significant. In the last stage, Decisional, we are seeking resolution, calls to actions, and considering future implications. We are trying to bring the conversation to a powerful close.

Example prompts for different ORID stages

**Objective**

* What is this?
* What do you see?
* What happened?
* What are the main ideas/points?
* What words or phrases really stand out?
* What recommendations were made?
* Where would you like to have more information?
* What information would you like to verify?
* What are the different aspects of the problem?
* What assumptions are being made?

**Reflective**

* What do you agree with?
* Where did you most identify with reading? Where did you feel convinced? What ideas intrigued you? Where were you surprised?
* What do you disagree with? What part of this makes you mad? Where did you feel uneasy? What should concern us? What do you acknowledge as necessary, but don’t like?
* Where did you reconsider a previous belief?
* Have you dealt with this kind of situation in the past?

**Interpretive**

* What is the real intent of…? What was this really about?
* What should we learn from this? What is the insight? What did you learn that you didn’t know before? What would be the advantages/disadvantages?
* What is the significance of this? What came through to you as very important?
* What difference will this make? What will this accomplish?
* What effects will these changes have? Who else will be affected?
* How could we use it? What will we need to do differently?

**Decisional**

* What would you recommend? What decision is called for?
* What would be the first step? What are the first 3 steps?
* What should we do now? How should we proceed?

# Facilitating to foster critical thought?

When facilitating a discussion there are some general strategies that you can use to deepen the discussion and try to ensure a more comprehensive examination of the issues.

**Listening**: (letting participants know they are being “heard”)

* Repeating and Clarifying
* Probing and Elaborating
* Paraphrasing
* Summarizing

**Processing**: (helping participants learn how to step back from their ideas and “think” about them)

* Transitioning and Linking
* Challenging
* Acknowledging
* Evaluating
* Informing
* Interrupting

**Other**:

* Gesturing and Non-verbal
* Recording

Part of your job as a discussion facilitator it to help you students develop a critical argument, not just tell you why they picked a particular choice. You need to help them more thoroughly examine their thinking process that led to their decision/position. The facilitation questions that you use to gently guide students can be generated from the common attributes of critical thinking.

* **Relevant Information** - Identifying and evaluating quality of information
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**Critical Thinking + ORID (example)**

The ORID framework questions can be used to structure this kind of discussion. Here is an example built around the ORID framework:

**Objective**

* What are the facts?
* What are the main ideas/points?
* Where would you like to have more information?
* What information would you like to verify?
* What assumptions are being made?

**Reflective**

* Would you be comfortable making this decision with limited information?
* What information would you like to have?
* Where did you feel convinced?
* What should concern us? What do you acknowledge as necessary, but don’t like?
* Have you dealt you seen this kind of situation in the past?

**Interpretive**

* Is there another important perspective we aren’t considering?
* What would happen if we changed…..?
* Can we apply this kind of thinking to this different situation?
* What effects will these changes have? Who else will be affected?
* What should we learn from this?

**Decisional**

* What should be done?
* What was your first choice?
* What was your second choice?
* What are the first 3 steps?
* Was there disagreement inside your team about the best choice?

**Activity (30 minutes)**

In teams or individually, using the Roberson and Franchini paper, develop a list of discussion facilitation questions using the ORID framework.