Selkirk College TBL Implementation Guide

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Introduction

This implementation guide is intended for Selkirk College instructors who are considering adapting their course(s) to, or who have inherited a course that has already been adapted to the Team-Based Learning format. It takes into consideration the specific context of Selkirk College instructors and the tools readily available to do so. The implementation suggestions have been trialed in a TBL based class and have been selected for the flexibility to be adapted for both the in-person and remote delivery of a TBL course.

This guide will be most useful for:

1. Instructors who are considering implementing elements of TBL in their classrooms, but have not yet taken any of the TBL workshops. This guide in its entirety will provide some of the underlying foundations and concepts, and guidance in the use of suggested tools for implementation. It is recommended that these instructors seek support from TLI and to attend the TBL workshops when able.
2. Instructors who have inherited a course that has already been adapted to TBL and are seeking guidance in how to deliver it. It is recommended to use the guide in its entirety, but also to seek support from TLI and attend the TBL workshops when able.
3. Instructors who have taken the TBL Fundamentals Workshop Series and are comfortable with the concepts and implementation of TBL, but are seeking guidance in the use of various tools and technology available to Selkirk College instructors. These readers may find the best use of their time by skipping to the section: Selkirk Implementation.

The Selkirk College TBL Implementation Guide can be downloaded as a digital PDF or imported as e-reader files to platforms such as Kindle or Kobo, however it is recommended to be viewed as

the Pressbooks web book to access the interactive content and multimedia.

TBL is intellectual property and carries a trademark. This implementation guide does not claim ownership of the TBL format or seek to replace the TBL Fundamentals Workshop Series. This guide does not imply proficiency or qualification to implement the TBL format. The author of this guide has not received any compensation or recognition from the Team-Based Learning Collaborative (TBLC).

Acknowledgements

This open source guide was developed as a capstone project for my graduate studies in health sciences education (MEdHSE).

I would like to thank my advisor, Mark Gierl for his guidance and support in this process. But mostly, I want to thank him for the gift of his enthusiasm for thinking about student assessment and what it means. I will never not question what a grade means or doesn't mean and ask important questions about what a student might be capable of, regardless of their marks.

I would also like to thank my co-reader, Gail Crockford. Gail is a true innovator in the world of both healthcare and education. Her passion for teaching is infectious and I learned so much from our work together in how she both supported me, but encouraged me to step out of my comfort zone and try something new.

I am incredibly fortunate to live, work, and play in a land that provides for myself, family, friends and community. I commit to improving my stewardship for the land, in honour of the previous stewards, the Sinixt (Lakes), the Syilx (Okanagan), the Ktunaxa, and the Secwépemc (Shuswap) peoples.

Chris Hillary

PART I

WHAT IS TBL?

Team-Based Learning (TBL) is a structured method of teaching and learning that seeks to meet course outcomes while fostering engagement, accountability, critical thinking and participation in a functional group process. It was first developed in the 1970s by Larry Michaelsen in response to increasing instructional workload and class sizes, as well as increasing pressures on post-secondary institutions to produce more functional and job ready graduates. TBL is a structured format of teaching and learning that breaks course content into modules that are delivered in a three step cycle (Winter, 2020).

TBL is an active learning modality that makes use of multiple educational philosophies and methods to support learning across the spectrum of cognitive levels. The core tenet of TBL focuses on learning outcomes at the applied level and employs the concepts of a flipped classroom and problem based learning to foster student engagement and accountability, critical thinking and team-building (Michaelsen & Sweet, 2008; Winter, 2020).

With TBL, the instructor role shifts from dispensing or banking information to designing and managing overall instructional process. While no less important to teaching and learning, the instructor steps away from being the "sage on the stage" to the "guide from the side" (Winter, 2020, p. 1). This process allows educators to support students as they acquire content knowledge, but embrace the value added application activities that most teachers are unable to find the time for during their classes.

The following is a video of TBL in action:

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1. Why Should I Use TBL?

Evidence shows that TBL is an accepted pedagogical format that is effective at meeting learning outcomes and engaging students across all disciplines, including medicine, nursing, accounting, biological sciences and computer programming (Arcila Hernández et al., 2020; Branney & Priego-Hernández, 2018; Christensen et al., 2019; Joshi et al., 2020; Shannon, 2020).

Critical Thinking and Application

TBL makes use of the **flipped classroom** and shifts the instructor role from dispensing information in a lecture to managing the overall instructional process and supporting students as they work through relevant problems to construct their learning. This process moves the synchronous class focus to application of conceptual and procedural knowledge by immersing students in carefully constructed profession or vocation based situations (Michaelsen & Sweet, 2008). During this time, the instructor is able to facilitate and support critical thinking as students venture into application, analysis and evaluation activities relevant to the field of study.

Functional team process

One would be hard pressed to name a profession, trade, vocation or job that does not require some degree of interaction with other people. It is often assumed that graduates innately possess the skills required to be a functional team member.

Despite this, the term "group work" is often universally reviled amongst students and instructors alike in the educational world. Group work is fraught with dysfunctional interpersonal dynamics,

scheduling conflicts, accountability issues and the ever-dreaded grade allocation.

TBL uses longer group lifecycles, authentic team activities, frequent formative assessment, group and individual accountability, and group work facilitated during class time (Christensen et al., 2019). Research indicates a potential but significant impact on individual and team performance (Thompson et al., 2015).

COVID-19 and the New Norm

In early 2020, the COVID-19 pandemic forced the world to a grinding halt. In education, this meant a temporary pause, followed by a radical shift to implement remote learning. Educators found themselves scrambling to conceive of ways to meet learning outcomes and then implement them through **learning management systems (LMS)**. The video conferencing platform, Zoom became a **proprietary eponym**. The pandemic imposed process changes which in turn have become structural changes for faculty and students alike (Pham & Ho, 2020; United Nations, 2020). And while many people are waiting for things to return to normal, there are those who feel that COVID-19 merely accelerated a change process that was already underway and it is likely that education will never fully return to the way it was (Tesar, 2020).

This presented a unique, en masse pedagogical experiment that some have taken advantage of. TBL practitioners seized the opportunity to determine if the foundations and principles of TBL could be effectively maintained remotely. Despite endless confounding factors, recent studies have shown that TBL can be effectively delivered remotely and achieve benefits of the format that have been well established by the in-person modality (DeMasi et al., 2019; River et al., 2016; Wong et al., 2020).

Limitations of TBL

TBL is a noted departure from the traditional lecture format of classes. As such, adaptation is labour intensive and should be undertaken with consideration and intention.

While TBL has been shown to meet learning outcomes, foster critical thinking and application, the literature is equivocal as to whether measureable performance is improved in comparison to other, more traditional teaching methods and formats. In many cases, student performance as measured by exam scores were not significantly different, but qualified by several limitations (Branney & Priego-Hernández, 2018).

Instructors implementing TBL in their classes could expect an increase in engagement, team process and application abilities, but not necessarily a magic bullet that will result in academic excellence.

PART II

PRINCIPLES AND FOUNDATIONS OF TBL

2. Philosophies and Pedagogies

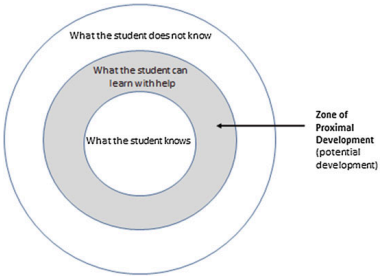
Constructivism

Educational psychologists such as Bruner and Piaget believed that learning occurs when an independent and conscious learner creates and codifies their own interpretation of the world, experiences and information. By engaging in problem solving activities, the learner builds upon foundational knowledge in a subjective way that results in increasingly sophisticated levels of cognitive ability (Bates, 2015; Ng, 2015; Sibley & Ostafichuk, 2015).

TBL exposes learners to real-life challenges and problems and compels them to interpret information and construct learning through discovery.

Social constructivism

Vygotsky took the isolationist view of constructivism and couched the philosophy in a social context. In social constructivism, learners still build their own interpretation of knowledge and application through exposure to problems, but they do so alongside other learners who influence the process through cultural and societal factors. Vygotsky felt that an individual in a silo could attain only so much learning, but that a



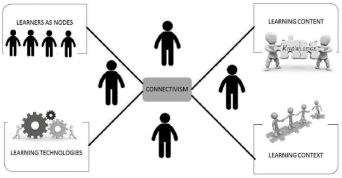
Zone of Proximal Development (Ng, 2015, p. 83).

group of individuals could support each other in reaching beyond the cognitive "zone" of what each already knows, into a zone of potential or proximal development (Ng, 2015; Sibley & Ostafichuk, 2015).

By its very foundations, TBL exposes individuals within teams (groups) to application based problems. As these active learning strategies support construction of knowledge in the individual's mind, the individuals simultaneously help to grow the zone of proximal development for others.

Connectivism

Connectivism, as the name implies, is about learner developing connections to knowledge. Specific to technology based learning, connectivism describes the distribution of knowledge across a network of "nodes" that hold and transfer knowledge to the learner. The learner builds a network that includes individuals over technological interfaces, information repositories and other digital formats. The broader and more diverse this network, the more rich and expansive is the learning that is both consumed and created, in collaboration with the nodes (Bates, 2015; Ng, 2015).

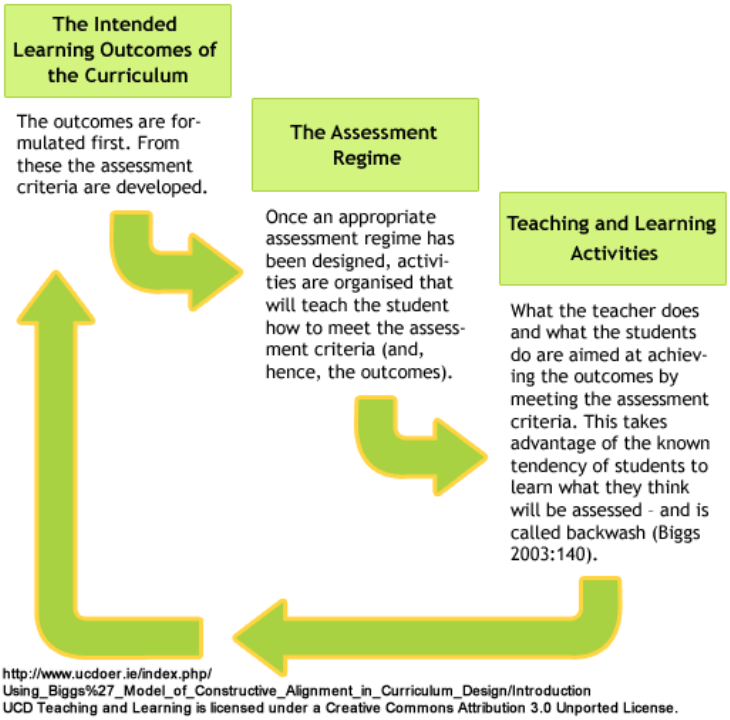


Learning nodes (Chetty, 2013, p, 187)

TBL intentionally connects learners to each other, to sources of knowledge and various learning resources. Connectivism cannot be ignored as digitally based, remote learning has been necessitated since early 2020.

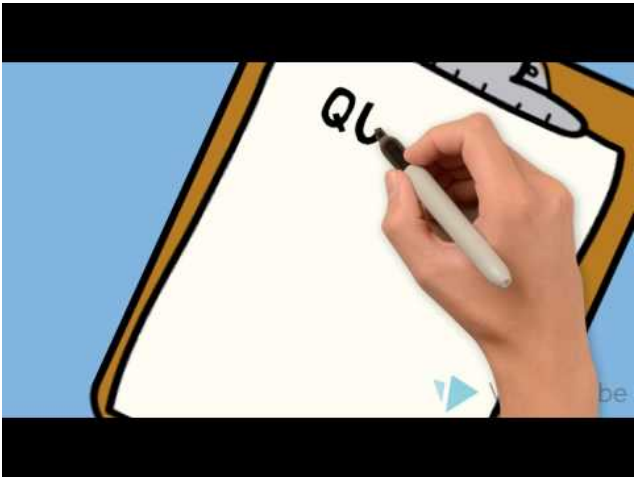
3. Outcomes Based Design

Outcomes based design, sometimes referred to as "*backwards design*" or "*understanding by design*," is one example of a curriculum design model. While there are many such models, backwards design provides a structured process of identifying relevant learning outcomes and then designing instructional modules, teaching strategies, and assessment and evaluative events to support them. Because TBL places so much weight on learner outcomes, backwards design becomes the most logical tool to design a TBL course and modules.



Using Biggs' Model of Constructive Alignment in Curriculum Design/ Introduction – UCD – CTAG, n.d.

While it is beyond the scope of this guide to completely cover curriculum design, this overview is intended to provide context for the foundation of TBL design. It is highly recommended to seek out courses on curriculum design, as well as TBL workshops.



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Outcomes based design occurs in three stages:

1) Identify the Desired Outcomes

In many cases, there is tendency to select readings and resources first and then developing activities and outcomes based on those. In designing a TBL course and individual modules, the first step is to begin at the end with desired outcomes and then work backwards to design the evaluative and assessment events to support the learning

outcomes, and then developing the teaching and learning activities to ensure that they support the evaluative and assessment events (Bowen, 2017; McTighe & Wiggins, 2012).

In reimagining a course with a focus on application, analysis and evaluation, the verbs selected for the outcomes become key. When developing a course and module outcomes, it is important to consider the question, "what do I want the students to be able to DO at the end of this course or module?" (Michaelsen & Sweet, 2008; Roberson & Franchini, 2014; Sibley & Ostafichuk, 2015).

Bloom's taxonomy of learning can be very helpful in identifying specific verbs to support this learning levelling.

2) Determine Assessment Evidence

The next step in outcomes based design is to determine what will indicate that students have achieved the desired learning outcomes. In most post-secondary institutions, this evidence will often be attached to a grade and traditionally take the form of quizzes, exams and assignments. In the TBL context, evidence of learning may or may not be attached to a grade, and can simply be an activity that gives the instructor the opportunity to offer feedback to the student (Bowen, 2017; McTighe & Wiggins, 2012). In the TBL context specifically, evidence of successful learning is generated from the Readiness Assurance Tests (RAT) and the group application activities. Assignment Design should be undertaken intentionally and with consideration in order to meet the learning outcomes and support students in achieving the desired cognitive level of learning.

The RAT will usually be comprised of multiple choice questions (MCQ) and associated with a low stakes grade. In most cases, the teams will perform better than most individuals and you will find that the Team Readiness Assurance Test (tRAT) grade will be higher than the Individual Readiness Assurance Test (iRAT). Well designed MCQs must be designed using evidence based item response theory in order to support conclusions drawn for both **formative**

assessment to support learning and **summative evaluation** of learning.

Development of group application activities require equal attention and should follow the 4S framework discussed later in this guide. These activities may be graded or ungraded and can be assessed by circulating through the teams (physically or virtually) while they engaged in the activity discussion and during the larger class discussion at the end (Michaelsen & Sweet, 2008; Roberson & Franchini, 2014; Sibley & Ostafichuk, 2015).

3) Plan Learning Experiences and Instruction

The final phase of outcome based design is to plan the learning activities. As with developing the assessment events, planning the learning activities also requires careful consideration and alignment to ensure that they support the assessments, which in turn support the outcomes. (Bowen, 2017; McTighe & Wiggins, 2012).

Traditionally these take the form of pre-class readings and lecture content and may still be components in your classroom. In your TBL adapted course, you will likely still have some form of pre-class preparation and you may have some degree of clarification lecture instruction as part of the **readiness assurance process**. However, TBL learning and instructional events are often more active and learner involved, and depending on your design, you may find that these activities serve double duty as assessment tools as described above.

The RAT in particular, can serve as an instrumental learning activity due to the repeated exposure and opportunity for the learner to receive feedback, self-assess and apply new learning between the iRAT and tRAT phases of the RAP. The group application activities offer individuals learning support from the team as they collectively work through complex and relevant problems. Finally, all of these activities are completed with an open and resolving discussion of the problems presented, which

manifests as a teaching opportunity for the instructor to provide feedback in the form of a consolidation of the learning (Michaelsen & Sweet, 2008; Roberson & Franchini, 2014; Sibley & Ostafichuk, 2015; Sibley & Roberson, 2016).

Bloom's Taxonomy

Bloom's Taxonomy model was conceived of in 1949 and has since seen revision. While there are other models of learning cognition, Bloom's has been a mainstay for educators since its inception. It is used to guide educators as they codify their teaching and develop and measure learning goals and outcomes and (Adams, 2015; Anderson et al., 2001; Bouchard, 2011).

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(Image from: Ekaza, n.d.)

4. Selected Response Items

While not the sole assessment method, TBL relies heavily on **selected response item** (commonly called multiple-choice questions or MCQ) quizzes in the Readiness Assurance Tests (RAT) and in the group application activities. A well-developed MCQ is an efficient and reliable way to generate valid evidence that reflects conclusions about student learning. As with everything discussed in this manual, selected response items demand a deliberate and evidence-based approach. The process to develop quality MCQs can be exhaustive to ensure that each item reliably reflects the intended **construct** at an appropriate cognitive level. A low stakes quiz may merely involve several hours of instructor time to develop questions, colleagues to review them and a review of the questions for quality and validity after administration. Meanwhile, a high-stakes licensing exam generally involves a panel of expert developers, a review by subject matter experts, a field testing phase of the item, hundreds of hours and thousands of dollars to develop a test bank with an adequate quantity of items (Downing & Haladyna, 2006; *Guidelines for the Development of Multiple-Choice Questions*, 2010; Williams, 2020).

It is beyond the scope of this manual to adequately prepare instructors to develop high-quality selected response items, but because MCQs are so prevalent in TBL, an overview of the process will be described.

The Anatomy of a MCQ

A MCQ is built according to a consistent framework:

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(adapted from Gierl, n.d.)

Identifying the Construct

As with the development of a TBL course and TBL learning modules, the development of quality MCQs begins at the end by determining what is to be measured by a selected response test and each item or question that make up the test. A MCQ test should evaluate an overall construct, while individual items (questions) should target a specific concept that is a component of the larger construct. Selected response items do this by forcing students to make a choice (Downing & Haladyna, 2006; Gierl, n.d.; Sibley & Ostafichuk, 2015; Sibley & Roberson, 2016).

Not only does an instructor need to identify the specific concept that an item will test, a target cognitive level needs to be identified according to a model such as Bloom's taxonomy. Varying cognitive levels are desired depending on the activity it is designed for.

- RAT items will typically focus on remembering, understanding and light application. These questions will often ask students to perform tasks such as: identify, distinguish, classify and organize. Questions will usually begin with: "What is…?" and "Why does…?"
- Group application activities should push students into higher level application, analysis and evaluation. Questions designed for the application activities will typically contain verbs such

as: solve, compare, categorize, organize and design. Questions will often contain a superlative in their wording, such as: "What is the **most**…?" or "Which is the **best**…?" in order to force a specific choice. Students will be required to construct a rationale for their choice in order to adequately answer and defend their decision (Roberson & Franchini, 2014; Sibley & Ostafichuk, 2015; Sibley & Roberson, 2016; Williams, 2020).

Guiding Principles for Writing Selected Response Items

The following considerations should be taken into account when developing new MCQs or revising existing ones:

- Items should represent a specific and important concept or topic
- Each item should pose a clear question that students could answer without looking at the options
- Avoid negatively worded stems or options
- All options should be homogenous in terms of wording, grammar, length and content
- Avoid "all of the above" and "none of the above" options
- Distractors should all be plausible and none should be obvious as a distractor (all options could be correct)

(Gierl, n.d.; Williams, 2020)

PART III

ESSENTIAL ELEMENTS OF TBL

In order to effectively transition a course to the TBL format, four essential elements should be implemented.

These elements include:

1. Groups
2. Accountability
3. Feedback
4. Assignment Design

5. Groups

Successful execution of group work should be supported with evidence and best practices on what fosters an effective team. Features of effective groups include intra-team diversity to bring varying perspectives to challenges and tasks, an absence of existing coalitions or conflict, and time for the members to develop functional strategies and dynamics to work with each other. In order to facilitate functional team dynamics, teams should be selected by the instructor, teams should be diverse, all teams should have a balance of strengths, the teams should be 5-7 students and the teams must be consistent throughout the duration of the course (Brickell et al., 1994; Feichtner & Davis, 1984; Sibley & Ostafichuk, 2015).

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Creating diverse, functional teams with students you are not familiar with can be a challenge. Depending on your course, you may have students who are an established program cohort, or students who have never met each other and are taking a common course between different programs.

It is suggested that an even distribution of attributes and characteristics such as age, work experience, academic experience, culture and research interests be considered and distributed randomly between the groups (Sibley & Ostafichuk, 2015). In the context of a program cohort where some of these characteristics may be more homogenous, the personality typing program, True Colors could be used to distribute individuals with differing priorities, communication styles and team interactions.

6. Accountability

With the ultimate goal of learning, student accountability is crucial to ensuring participation, engagement and buy in. Like any other course, most instructors of TBL courses are required to assign a grade to students, which can serve as an extrinsic motivator for learning yet has limits (Blum & Kohn, 2020). While TBL does leverage marks as a motivator, the format also seeks to foster intrinsic accountability by way of its structure and use of feedback.

Accountability to Self

Pre-class preparation is something that most instructors expect of students. Often there are readings from text books, articles or other resources. Yet research indicates that when the expectation is that the instructor will review content in a lecture, preparation compliance is abysmal, with one-half (1/2) to three-fourths (3/4) of students self-reporting that they do not complete any readings prior to class in some instances (Gammerdinger & Kocher, 2018; Hoeft, 2012; Miller et al., 2018).

These same studies advocate the use of the "**flipped classroom**," where content from the class preparation is not again covered in the synchronous classroom. When students are aware that content will not be covered before they are immersed in assessment events such as the Individual Readiness Assurance Test (IRAT) and participation in complex team activities students are more accountable in completing the preparation. It should also be noted that the instructor plays a large role in ensuring that pre-class preparation material is not only relevant and interesting, but that it does not overwhelm the students' cognitive capacities (Michaelsen & Sweet, 2008; Sibley & Ostafichuk, 2015).

Accountability to Team

When students know that they have an obligation to others and that their actions will impact their team performance during friendly yet competitive group activities, most feel an intrinsic motivation to ensure they are do not let their team down. Students are more likely to ensure that they are accountable when they know that they will be engaging in activities that rely on team members to be prepared and engaged. Sibley and Ostafichuck make the claim that this intrinsic motivator can be more powerful than a transactional grade (2015). TBL also integrates the use of peer feedback and evaluation to support student growth and accountability to the team in a transactional grade (Michaelsen & Sweet, 2008; Sibley & Ostafichuk, 2015).

7. Feedback

Feedback for learning can be viewed in two broad categories: **formative assessment** and **summative evaluation**. While most post-secondary courses are structured to generate a ranking final grade of students, there has been considerable research into the importance and pedagogical value of emphasizing early and frequent formative feedback (Blum & Kohn, 2020; *MODULE III – Assessment and Evaluation*, 2011).

Assessment	Evaluation
Emphasis on the teaching process and progress	Emphasis on the mastery of competencies
Focus on the Teacher Activity or Student Activity	Focus on Student Performance or Teacher Performance
Methods include: Student Critiques, Focus Groups, Interviews, Reflective Practice, Surveys and Reviews	Methods include: Test/Quizzes, Semester Projects, Demonstrations or Performances
Purpose is to improve the teaching and learning process	Purpose is to assign a grade or ranking
Generally Formative	Generally Summative

(*Image from: MODULE III – Assessment and Evaluation*, 2011)

Instructor Assessment and Evaluation

Recent research in the field of educational psychology is compelling that rich, supported learning comes when students receive frequent and early, formative feedback. TBL integrates this into its integral structure as an essential element. Students receive regular assessments to support learning, both in terms of the course content and their part in the team dynamics and functioning .

A TBL course facilitates this in several ways. The first is during the RAP phase of a TBL module. These low stakes quizzes not only expose students to knowledge gaps, but also give them the

opportunity to improve those gaps in real time during the team portion of the quiz.

A second opportunity for instructor assessment occurs during the group application activities. Whether facilitated in-person or remotely with video conferencing break out rooms, the instructor can "circulate" through the various teams to observe the discussion around the presented problems. This appraisal is further rounded out during the discussion phase of the group application activities, when the instructor solicits and facilitates rich, critical discussion around the problem presented. It is at the discretion of the instructor to evaluate the group application activities with a mark or not, but typically this activity is purely formative (Michaelsen & Sweet, 2008; Sibley & Ostafichuk, 2015).

Peer Feedback

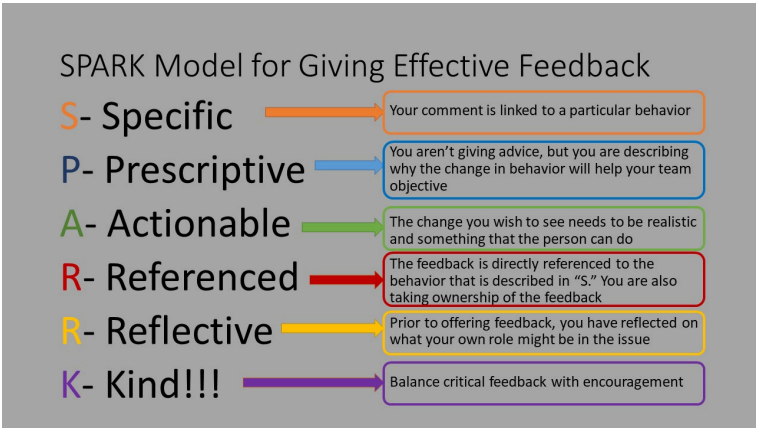
Peer assessment has been demonstrated to have great value in learning, particularly as a formative tool. The process of peer feedback can foster cognitive gains for both the giver and receiver, motivate students to be accountable and participate, improve quality of work and increase function as a team member (Cestone et al., 2008; Topping, 2009, 2018).

Click here to see how to implement peer assessment at Selkirk College.

TBL is structured on the development of functional teams and team dynamics and as such, requires team member input into that process. In addition to being formative in nature, TBL integrates a low-stakes grade into the peer evaluation process to foster accountability within the team. This grade should be small enough that it doesn't dramatically impact final grades, but significant

enough (5-10%) that students will make efforts to participate and engage (Cestone et al., 2008; Sibley & Ostafichuk, 2015).

What is clear, is that peer evaluation must be facilitated carefully and with guidance or the outcomes can be catastrophic. Students must buy in to the importance of conducting peer evaluation, they must have clear criteria against which they are measuring their peers (and potentially be involved in developing the criteria), and they must be given instruction on how to develop and offer peer feedback (Cestone et al., 2008; Topping, 2009, 2018) . The following is one model that can help instructors to guide students in formulating and delivering peer feedback that will support reflection, learning and growth in a safe and supportive manner.



(Image adapted from: Teaching Students to Give Peer Feedback, n.d.)

8. Assignment Design

Your course may have multiple types of assessment and evaluative events, but there are two tasks specific to a TBL module of learning: the quizzes that are part of the RAP and the group application activities. As with the careful design of learning outcomes and TBL modules, these tasks should also be developed with intention and care with the priority of providing **formative assessment**. Tasks should be frequent and provide early, immediate feedback to support learning.

> *"The most clarifying action a student can take is to make a decision" (Roberson & Franchini, 2014, p. 278).*

As noted in the section on outcomes based design, TBL course and module learning outcomes are aimed at higher order cognitive learning and the tasks should be designed to support them. In completing tasks, students should demonstrate the verbs that reflect application, analysis and evaluation. The activities should be rich and substantial enough to require collective decision making and not be solved with a simple Google search.

It is important that task should not focus on a "product" as this creates an urgency to produce and team discussion will be more on the logistics of how to produce it, rather than engaging with the group process to address the problem and the rich learning that comes with it. This further supports that the group tasks should largely have low or no stakes grading (Dickinson, 2011; Michaelsen & Sweet, 2008; Roberson & Franchini, 2014; Sibley & Ostafichuk, 2015).

PART IV

DIGITAL TOOLS

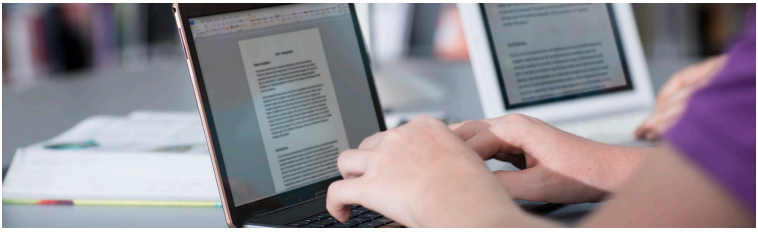


Image from: Open Access College, n.d.

Teaching with technology interfaces extremely well with the TBL modality as they both draw from similar theories and philosophies of teaching and learning. In many applications, educational technologies can be implemented to embody the philosophies of social constructivism and connectivism (Ng, 2015).

This section will offer guidance to help an instructor navigate and select appropriate educational technologies to support the foundations and practices of TBL.

9. Privacy

As instructors, we are morally and legally obligated to protect our students privacy. Internet security and privacy is federally regulated by the *Personal Information Protection and Electronic Documents Act* (PIPEDA). In British Columbia, the *Freedom of Information and Protection of Privacy Act* legislates the guidelines and actions that educators must follow in order to ensure that the personal identity and information of our students is not inappropriately collected (Canada, 2021; Klassen, n.d.; *Table of Contents – Freedom of Information and Protection of Privacy Act*, 2021).

Prior to implementation of new digital tools, web based platforms and other educational technologies, each must be carefully evaluated for security and privacy. When evaluating the security and privacy policies of individual tools, the educator should challenge it against a set of questions:

1. Where is the information stored? If the servers are outside of Canada, student information is at risk.
2. What information is collected? Less is better. If students are required to create an account, their information can be compromised.
3. How difficult is it to remove information? If a platform has no way of completely deleting sensitive information, students can be compromised.

The Selkirk College Teaching and Learning Institute has drafted an algorithm to assist instructors in evaluating an educational technology for safety (Appendix A).

These restrictions drastically limit the volume and diversity of digital tools and instructors may wish to use a technology that does not meet these regulations. While there remains a lack of clarity on how to proceed (Klassen, n.d.), Selkirk College has made a process available as outlined in the above algorithm, but must inform the

students of the intent, offer options that achieve the same intended outcomes, and gain their written consent (Appendix B).

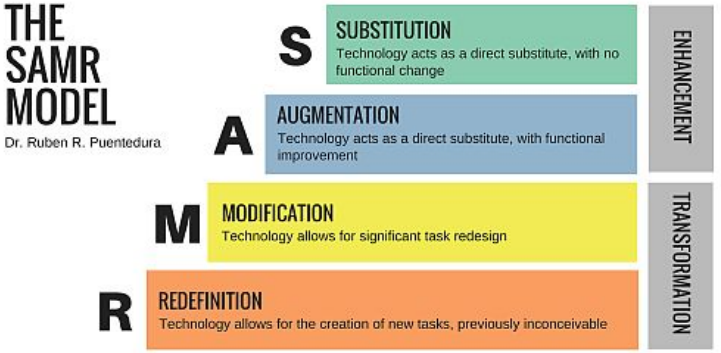
10. Selection of Digital Tools

There are literally hundreds of web-based platforms, apps, digital tools and programs available that could be applied in the educational context. Some of them are excellent and some are not. And just because we can use something, doesn't mean we should. The following tools are effective at evaluating an educational technology for safety, appropriateness and effectiveness.

SAMR

The SAMR model is used to evaluate a digital tool in terms of what the instructor wants to achieve. Each letter of the acronym stands for the degree of integration that the instructor intends the tool to meet.

1. **Substitution:** simply replacing an activity or material with a digital version. There is no functional change. Eg: a reading that has been scanned onto Moodle.
2. **Augmentation:** digital enhancements are incorporated into standard content. Students accomplish the same outcome but with a different interface Eg: a Moodle quiz
3. **Modification:** at this point, the learning activity has been transformed and is integral to the technology. Eg: intentional use of the Zoom chat to facilitate questioning and clarification for students who are otherwise reserved
4. **Redefinition:** learning is fundamentally transformed and the technology enables previously impossible activities to support learning. Eg: virtual reality simulations or a video documentary assignment



(Lefflerd, 2016)

SECTIONS

The SECTIONS tool assists instructors in evaluating a specific educational technology for safety, appropriateness, ease and effectiveness. By addressing each step in the acronym, educators should be able to select a digital tool that best meets the intended outcomes, while ensuring safety, and minimizing cost and energy to implement.

1. **Students:**
   Who are your students?
   What demographics do they come from that could impact their comfort and ability with technology?
   Do they have any access barriers or differences in learning preference?
2. **Ease of use:**
   Does the technology require and orientation to use effectively and when will this occur?
   Is the interface user friendly?
   Is the technology reliable?
3. **Cost:**

Is there a subscription or initial cost?
Who pays for it?
Are there time and energy costs involved to set it up and use it?

4. **Teaching and learning:**
   Does the tech support the learning outcomes?
   Or is it just cool?
5. **Interactivity:**
   Does this platform facilitate interaction with the content or with other learners?
6. **Organizational issues:**
   What logistics and supports need to be implemented and maintained in order for the students to use this platform?
7. **Novelty:**
   Is this new and exciting for the students so as to foster engagement?
8. **Security and Privacy:**
   Do the students need an account?
   Is their information vulnerable?

(Bates, 2015)

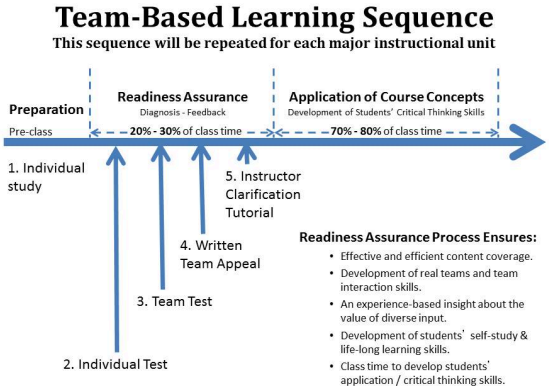
PART V

TBL IN ACTION

A Team-Based Learning course divides content into logical modules, with a module typically spanning across 1-3 class sessions.

Execution of a TBL module occurs in 3 distinct phases. Each phase is designed to build on the cognitive learning levels, beginning with content acquisition in the remembering and understanding stages of Bloom's taxonomy and supporting the students as they begin applying and analyzing. When each learning module is conducted in the same sequence each time, students quickly learn the routine and come to class knowing what to expect (Michaelsen & Sweet, 2008).

Brouwer, 2018



11. Individual Pre-class Preparation

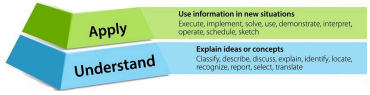
Pre-class preparation supports remembering and understanding. (Image from: Ekaza, n.d.)

Most classes require students to complete some amount of independent preparation prior to the synchronous class time. Interestingly, many students have become accustomed to the pattern that the content in their assigned readings is then covered during class, resulting in as few as 17-27% of students completing their preparations (Gammerdinger & Kocher, 2018).

In TBL, students are accountable for completing the assigned preparation as the module content is not covered by the instructor in its entirety. During this phase of a TBL module, students are exposed to the content in various forms at the lower cognitive levels of learning that involves remembering and understanding. These materials can take the form of traditional readings, study guides, class notes or a pre-recorded lecture (Michaelsen & Sweet, 2008; Sibley & Ostafichuk, 2015).

It is important that the pre-class materials and resources should be carefully selected to support your module learning outcomes as outlined in the section on outcomes based design, without overloading the students' time and mental bandwidth.

12. Readiness Assurance Process



The RAP builds on remembering and understanding to begin fostering application. (Image from: Ekaza, n.d.)

The Readiness Assurance Process (RAP) can be separated into distinct phases and begins with the pre-class preparation. It then continues with the synchronous class time and includes the Individual Readiness Assurance Test (iRAT), the Team Readiness Assurance Test (tRAT), readiness assurance test appeals, and concludes with a clarification lecture. The RAP is designed to consolidate the content acquisition that occurred during the preparatory phase and provides the foundation for the team application activities.

It should be noted that it is not recommended to conduct the iRAT and tRAT portion of this phase more than approximately seven times over the duration of a course, so there may be some adaptations required depending on the number of learning modules (Michaelsen & Sweet, 2008; Sibley & Ostafichuk, 2015).

1) Individual Readiness Assurance Test (iRAT)

On class days that a RAP is being conducted, the IRAT is the very first event of the class, even before fielding questions about the content covered in the preparation materials. It is the obligation of the student to arrive prepared to participate.

Click here to see how to implement the IRAT at Selkirk College

The IRAT is a short quiz of approximately 10-20 well-constructed questions, usually selected response items (multiple-choice). It should be **formative** in nature in that they are designed to provide early and frequent feedback with low stakes summative scoring. This is completed individually with **deferred feedback**, designed to assess content understanding and light application (Michaelsen & Sweet, 2008; Sibley & Ostafichuk, 2015).

2) Team Readiness Assurance Test (tRAT)

The TRAT immediately follows the IRAT and is the exact same quiz, but completed collaboratively in the assigned teams. Here, students discuss their responses with the goal of arriving at consensus to answer the questions with **adaptive feedback**.

Click here to see how to implement the TRAT at Selkirk College

Research has shown that an initial tendency is for the team to resolve disparate opinions with a majority rules vote. As the team dynamics evolve, however, previously reserved or deferential students will often begin to voice their opinions more

assertively and stand fast. It is in this phase of team evolution that the zone of proximal development begins to expand (Sibley & Ostafichuk, 2015).

3) Appeals

Following the IRAT and TRAT components of the RAP, students are encouraged to appeal the quiz questions that they got wrong but felt were inaccurate or poorly worded. In keeping with the concept that the students are partners in their learning, the appeals process encourages students to revisit the material and proactively challenge the instructor. When there is a small grade associated with the RAP, students are usually eager to ensure that they are awarded all points that they feel they deserve.

Appeals are typically submitted in writing following the TRAT on a team by team basis, but may be done through discussion at the instructor's discretion. Appeals to the accuracy of the content/correctness of the question must be supported with citations from the pre-class or other material. Appeals on the clarity of the wording of the question must be accompanied by a revision of the question to make it more clear. Appeals offer the students an opportunity to revisit the materials and consolidate content that was perhaps unclear. The instructor will need to review the appeal and make a decision on whether or not to grant it. If granted, the team that submitted the appeal will receive the points associated with that question if they got it wrong (Sibley & Ostafichuk, 2015).

4) Clarification Lecture

The clarification lecture does not review every question in the RAP quiz. Rather, it seeks to offer focused feedback from the instructor and clarify any uncertainties that arise from the RAP. In general, it appears to be a "mini" lecture that is focused and short, covering

vital information only. This is also an opportunity to address more advanced concepts if relevant to the learning module (Michaelsen & Sweet, 2008; Sibley & Ostafichuk, 2015).

13. Group Application Activities

(*Image from: Ekaza, n.d.*)

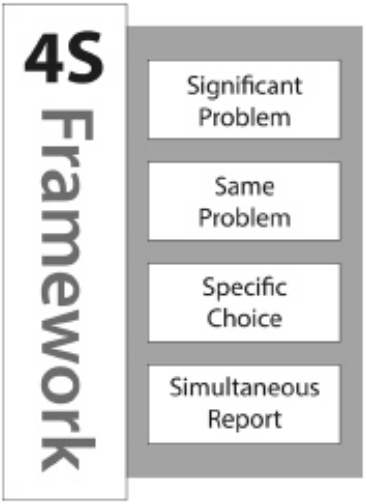
Group application activities are the core of the TBL learning module in that, when facilitated well, students learn by doing and achieve a higher level learning in doing so. When designed and facilitated effectively, the results of a group application activity can be rich and exciting (Michaelsen & Sweet, 2008; Sibley & Ostafichuk, 2015).

While an instructor may choose to attach a mark to group application activities, they are generally assessment activities (ungraded) that are constructed intentionally to support low/no stakes learning to achieve module outcomes and provide real-time, formative feedback. These activities usually occur at the end of a TBL learning module and consume the bulk of synchronous class time. It is here that students will consolidate their content acquisition and understanding. When well designed and implemented, students are engaged in critical discussion and higher levels of learning are fostered.

Designing Group Application Activities Using the 4S Framework

Design of the group application activities will likely be the most challenging and time consuming part of adapting of your course to TBL. Group application activities should be developed with the 4S model in mind:

1) Significant Problem



(Image from: Sibley & Ostafichuk, 2015)

To gain student buy in and engagement, it is important that activities be meaningful and relevant to the students. Group application activities should be designed to expose and immerse students in real world problems that they are likely to encounter in their chosen profession or vocation. This brings us again to the outcome design question: "What do I want the students to be able to DO when they have completed this module?"

To be significant, the problem also needs to be rich and challenging in order to engage the whole team, rather than something that one person can answer on their own or by doing an internet search. The problems should be "messy" enough that it cannot be solved by simply knowing content or conducting a Google search. Teams will have to work together to apply the content knowledge and apply, analyze and evaluate (Michaelsen & Sweet, 2008; Sibley & Ostafichuk, 2015; Sibley & Roberson, 2016).

2) Same Problem

Teams should simultaneously be working on the same problem in order to further foster engagement and interaction between the teams when the activity is discussed in the larger group. When teams work on different activities, each team effectually becomes the de facto "expert" on that topic and others will not typically present challenges to their conclusions. When all groups are

engaged in the same problem, there is energy and focus to contribute contradictory conclusions to the discussion (Michaelsen & Sweet, 2008; Sibley & Ostafichuk, 2015).

3) Specific Choice

In seeking to foster higher order thinking, cognitive research suggests that students should be engaged to process information with the goal of making a specific decision. In a real-time, facilitated discussion of a group application activity, problems with succinct and specific responses make the most sense. And, when the problem is significant and messy enough, the discussion becomes more about the rationale than the specific response.

In many cases, the easiest form of a specific response format is a multiple choice question. However, group application activity responses can also be structured around a gallery walk, a one to two word response to a prompt, or identifying a field or point on an image or map. It is beyond the scope of this guide to detail the essential components and process involved in developing high quality multiple choice questions or other activities, but these should be undertaken with intention using best practices and evidence.

While teams will generally want to know the "right answer," group application activities do not necessarily require a correct and incorrect response as the purpose is to generate discussion through defense of a response. It is here that the learning is most rich (Michaelsen & Sweet, 2008; Sibley & Ostafichuk, 2015).

4) Simultaneous Report

A typical practice in classrooms is sequential reporting where teams reveal their responses one by one. The power of the first response has been shown to introduce a type of cognitive bias that

Michaelsen and Sweet call "answer drift" (Michaelsen & Sweet, 2008, p. 22). In answer drift, subsequent teams begin to align their original response to a question with the team that first reported, even if it is not correct or warrants challenge. Not only does this limit learning, but also impairs discussion and engagements. By facilitating simultaneous reporting on a problem, students are more likely to engage in defense and discussion of their response (Michaelsen & Sweet, 2008; Sibley & Ostafichuk, 2015).

Group Application Activity Facilitation

Facilitation of effective group application activities that support learning is an art form that takes practice. It is here that educators truly become the "guide from the side" and can be an uncomfortable experience at first when they relinquish control of the process as students actively engage with the construction of their own learning (Gullo et al., 2015; Lane, 2008; Sibley & Ostafichuk, 2015). It is highly recommended that instructors new to TBL attend a TBL Fundamentals workshop to gain education and resources on how to facilitate an effective group application activity.

Implementation and facilitation of a group application activity forms the main body of this phase of a learning module. This body is broken into 4 stages:

Introduction

The key here is consistency. When the group application activities occur the same way every time, students know what to anticipate and quickly transition from the RAP to team engagement. Whether facilitated in person or remotely, it is important that students have the tools they require to engage in the group application tasks. This may include providing additional resources, but also refers

to the making sure the outcome expectations are clear (Sibley & Ostafichuk, 2015).

Team Discussion

While the focus of the team discussion stage may be on the students working in their groups, the role of the instructor is far from passive. During the team discussion, the instructor should be moving from team to team, whether in-person or during video conferenced break out groups, to track progress, monitor discussion and respond to questions that will avoid giving the answer, but offer support in the right direction. Due to the often loud and animated nature of this stage, this can be a great opportunity for the instructor to covertly assess learning through direct observation (Sibley & Ostafichuk, 2015).

Instructors can support students in this by further facilitating the logistics. Instructors should set a timeline for expected completion of the activities, but monitor progress and adapt as required. Having students begin their team discussion phase by routinely assigning roles such as facilitator, timekeeper and documenter can help them to ensure that everyone has a chance to speak, the team stays on the timeline and that their work has been recorded for the reporting stage of the activity.

Simultaneous Reporting

Click here to see how to implement the Group Application Activities remotely at Selkirk College

The next phase of the group application activity body is taken directly from the 4S elements of the design. In this phase, the instructor facilitates all of the teams to report their answer at the same time and for other teams to see all of the answers at the same time, thus preventing response bias and influencing the discussion to follow (Gullo et al., 2015; Michaelsen & Sweet, 2008; Roberson & Franchini, 2014; Sibley & Ostafichuk, 2015). This can be facilitated in many different ways depending on the modality of delivery (in-person vs remote). The simplest way of doing this in person is with the use of lettered response placards where teams hold up the letter corresponding to the response choice they have made.

Class Discussion

Immediately following the reporting phase is the class, or inter-team discussion. This is arguably the most rich, dynamic, engaging and challenging point for an instructor of a TBL module. Whether innate or learned, it is vital that a TBL instructor possess some personal characteristics that will optimize the safe learning environment for students. Instructors need to be aware of both verbal and non-verbal communication, cognizant of their own non-verbal and emotional responses, open to challenges from students, and vested in the value of TBL. While the instructor is not directly delivering content, it is perhaps even more important that they are a content expert in order to smoothly facilitate and direct the discussion (Gullo et al., 2015; Lane, 2008; Sibley & Ostafichuk, 2015).

It is important to remember that the discussion phase is not a

delivery of content, but rather giving students space to respond, challenge and explore their learning in a supported manner. The instructor does this through a variety of strategies:

- Ask neutral and open ended questions that inspire students to critique, analyze and justify their own response and the responses of other teams. Use a variety of questioning strategies that seek to clarify, elaborate and probe.
- Ensure individual accountability by incorporating strategies that solicit responses from individuals, even those who are reticent to speak up in class.
- Wait for students to respond. This may mean uncomfortable silence that feels longer than necessary, particularly in a remote delivery context, to allow students time to formulate a response and deliver it.
- Rephrase or restate student responses to ensure clarity for both the instructor and for teams to respond to.
- Facilitate the discussion, but avoid joining in. There may or may not be a "correct" answer to the task, but to this end, the instructor should defer revealing of an answer until the discussion has been exhausted.
- Students will seek resolution in the form of correct or mostly correct/best answer and time should be managed such that this can be provided (Gullo et al., 2015; Michaelsen & Sweet, 2008; Sibley & Ostafichuk, 2015).

PART VI

SELKIRK IMPLEMENTATION

This section will provide suggestions and step-by-step instructions to successfully implement the concepts and phases of TBL at Selkirk College and addresses the digital tool selection considerations noted in the section on educational technology.

14. Pre-Class Preparation

The pre-class preparation consists of materials that students asynchronously read, watch or interact with to acquire the content knowledge that will be used during the scheduled class time. These resources come in various forms, including text books, articles, digital readings, pre-recorded lectures produced by the instructor, links to external videos (YouTube, Khan Academy, etc), or interactive modules.

The following tools are readily available to Selkirk instructors to house and augment various preparatory materials.

Moodle

Each course at Selkirk is associated with a Moodle shell that enrolled students have access to. Not only does it have the functionality to track grades, administer tests and facilitate student interaction in forums, but it also serves as a repository for various resources. These can be uploaded as files, links or activities.

Moodle course page management is beyond the scope of this resource, but support for Selkirk College instructors is available through the Teaching and Learning Institute and at the Moodle resource page.

Study Guides/Guided Learning Questions

A study guide or series of guided learning questions can be a series of questions that students should be able to answer after completing the pre-class preparation and prior to coming to class and participating in the RAP. In completing these, students are not only readying themselves for learning activities during the

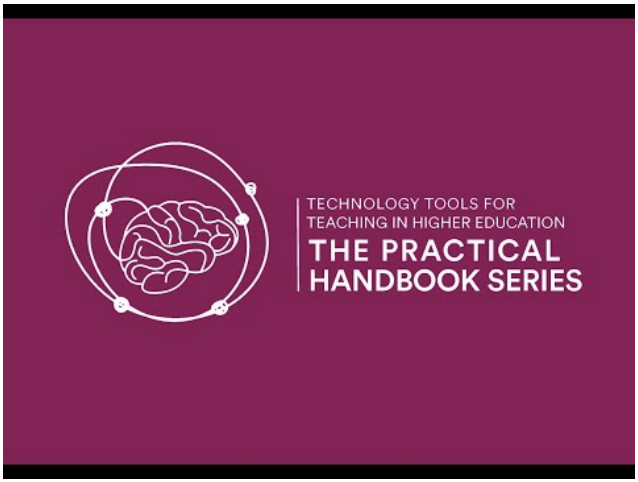
synchronous classes, but also creating their own study resource that can be used for exam preparation.

Kaltura

Kaltura is a video management platform with integration into the Selkirk Moodle LMS platform. Kaltura is a repository for videos with additional video capture, editing and interaction capabilities.

Creating a Screencast Using Kaltura Capture

Kaltura Capture is a desktop interface to record a slide or other presentation with concurrent audio lecture in the creation of a video **screencast**. This functionality is effective for pre-recording lectures for students to view as a pre-class activity.



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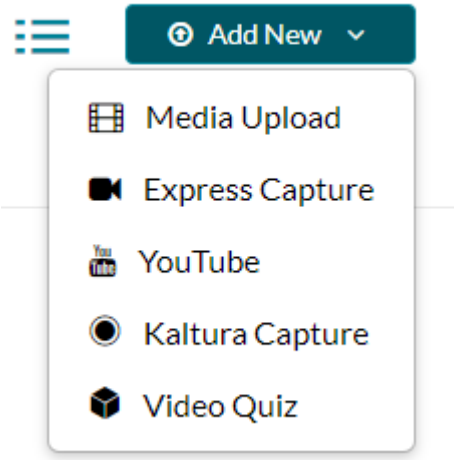
(*Stamatopoulos*, 2020)

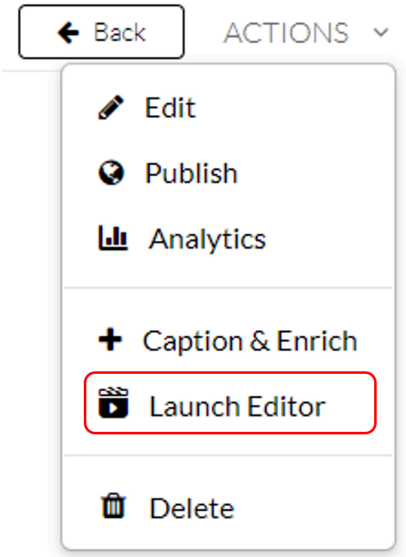
Adding Video Content to Kaltura

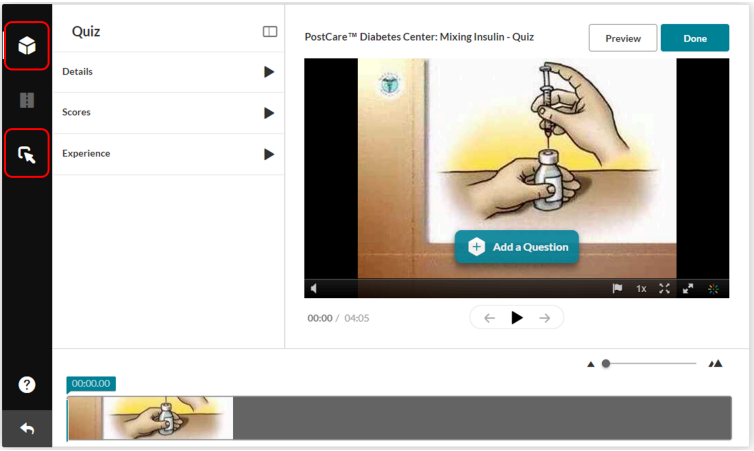
Once your screencast has been created, this can then be housed on the Kaltura integration on Moodle using the Media Uploader in the "My Media" section of Moodle.



As you can see in the image above, this also allows you to directly capture a screencast and add a link to a YouTube video.

Once uploaded, your video can be edited within the tool, as well as augmented with knowledge checkpoint, information hotspots and other interactive content by selecting "Launch Editor."



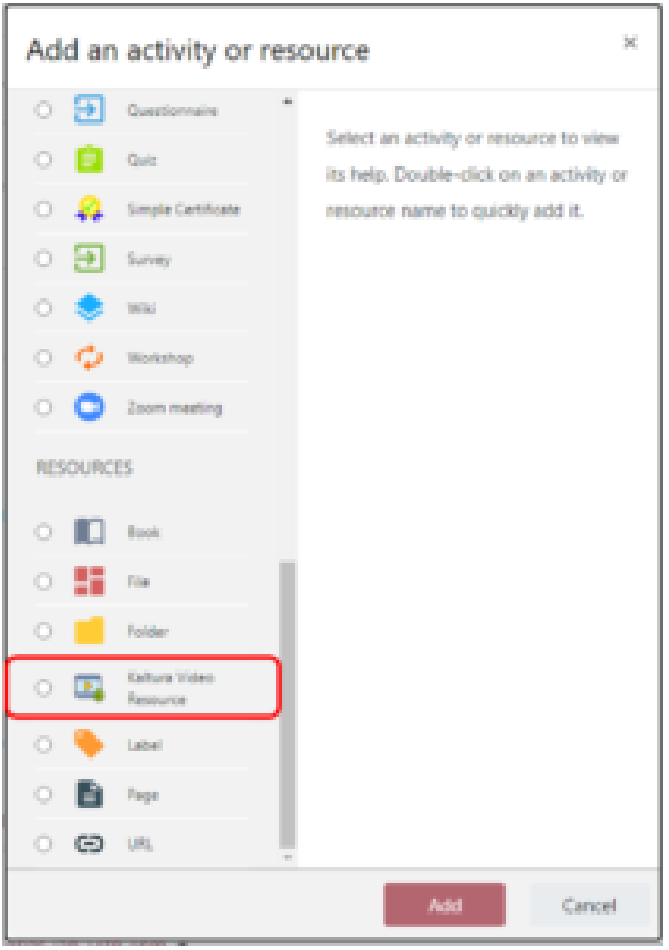


Additionally, Kaltura has the functionality of generating closed captioning from the embedded audio to display the script for

learners who have hearing challenges, language barriers or a simple preference for visual learning.

Adding Kaltura Content to Moodle Course Page

Now that your video is uploaded and any editing and augmentation is completed, the video can then added to the course home page, using the "Add an activity or resource function" and selecting "Kaltura Video Resource."



Kaltura has undergone a **Privacy Impact Assessment (PIA)** and is approved for use under FIPPA legislation in BC.

15. iRAT

Paper Based iRAT

The first obvious option for delivering a quiz is a standard paper based quiz.

Creating an iRAT using Moodle

The IRAT accounts for 50% of the RAP grade. This section describes the process for creating and administering the IRAT stage of the RAP via Moodle.

Step 1

The first step in creating an iRAT is to develop the questions for the quiz. Generally, these quizzes consist of 10-20, high quality multiple choice (item response) questions. These questions will be used again for the tRAT as described in the next section.

It is beyond the scope of this guide to adequately equip educators to develop high quality multiple choice questions (MCQ), but it is advised that instructors who are undertaking the exhaustive and comprehensive process of writing MCQs, seek out education, support and resources to ensure that MCQ items are reliable and valid in their intended measurement (*Guidelines for the Development of Multiple-Choice Questions*, 2010).

Step 2

Create your Moodle quiz using the following settings:

****settings that are specific and integral to the IRAT setup are indicated with a RED hotspot indicator****

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Step 3

Add your questions using the instructions here: Building Quiz

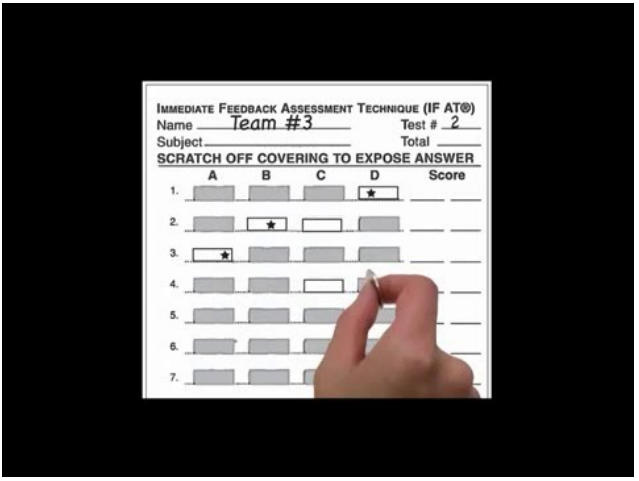
16. tRAT

The tRAT accounts for the other 50% of a student's RAP score. Because of the interactive team nature of the tRAT, facilitation and logistics of this step takes planning and consideration.

Below are two potential methods of implementation:

Immediate Feedback Assessment Technique (IF-AT) Cards

IF-AT cards are scratch cards that correlate to the tRAT quiz questions and answers. As teams arrive at a consensual answer for each question, one person scratches the letter that corresponds to their answer.



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A correct response will reveal a star, while an incorrect response will reveal a blank space, indicating that the team will need to discuss another response. Full points are awarded for the the correct response, while marks are incrementally deducted for each incorrect response.

IF-AT scratch cards can be ordered from Epstein Education.

Creating a tRAT with Adaptive Feedback using Moodle

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17. Group Application Activities

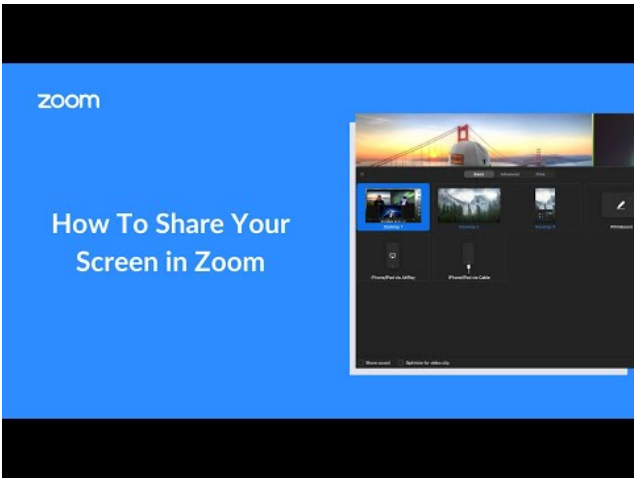
Zoom

Zoom is one example of a video conferencing platform that has seen exponential implementation since the COVID-19 pandemic. While it cannot be ignored that conducting classes via a webcam and computer screen have greatly impacted the human connection of teaching, video conferencing has also afforded some valuable strategies that can be integrated into TBL delivery to meet the integral components and concepts. Within Zoom, instructors can facilitate TRATs and group application activities using breakout rooms, large group discussions and clarification lectures with screen sharing, and students response tracking with Zoom polling or augmented by specific platforms.

Zoom provides a number of resources to support users in the varied functionality, but a few features summarized below in their specific use related to TBL.

Screen Sharing on Zoom

Screen sharing within Zoom allows the instructor to share entire screens, portions of a screen or specific applications from their computer to the entire class of participants. This can be useful to share a PowerPoint presentation or other materials in a clarification lecture. It is especially useful in soliciting and displaying responses from a group application activity either with the native Zoom polling or with a student response tool, such as Poll Everywhere, described below.



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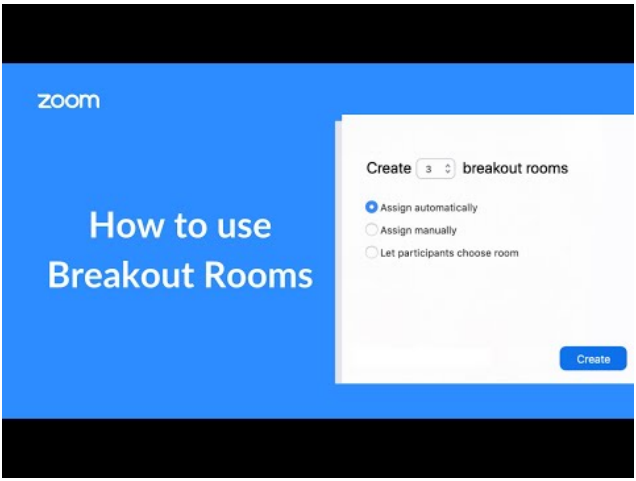
Breakout Rooms on Zoom

Breakout rooms give the instructor the ability to facilitate small group work, or in the case of TBL, team learning activities, such as the TRAT and group application activities.



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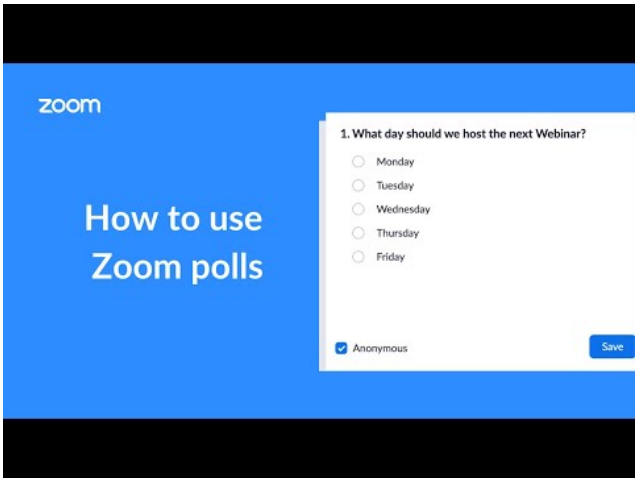
Zoom Polling

Zoom polling offers one method of soliciting feedback from the group application activities, but is limited to multiple choice responses. Application activity questions need to be constructed prior to the synchronous session.



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Zoom Chat

The native Zoom chat window is not only an alternate mode of interaction during a class, but can also be used to solicit and display responses from group application activities by having students enter their responses in the chat in a near simultaneous fashion.

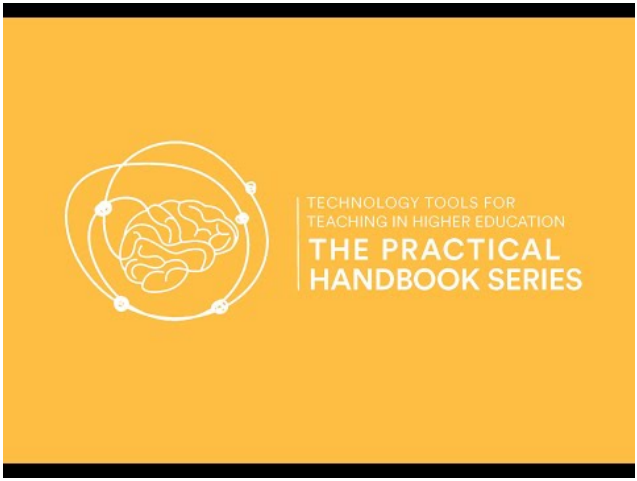
Poll Everywhere

Poll Everywhere is a digital student response system that has been effective in facilitating group application activities in the remote setting and would also be functional for the face to face context.

Poll Everywhere offers both a free and paid subscription account.

The free version has substantial functionality and variety of interactive elements. Instructors can create multiple choice questions, ranking questions and constructed response type activities to meet a variety of group application activities and response types.

While the instructor must create an account, students merely need to access a link via web browser or mobile app to contribute. The platform only collects an IP address (which is easily spoofed with a VPN) and any name that the student chooses to enter when prompted. As such, Poll Everywhere is a viable digital solution that falls within the FIPPA legislation requirements.



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(*Brunton*, 2020)

Utilizing Poll Everywhere in a team context takes some planning.

There are a multitude of alternate digital student response systems, but each should be evaluated against the SAMR and SECTIONS models to ensure security, appropriateness and support of learning outcomes.

18. Peer Evaluation

Peer evaluation is an integral part of TBL. Not only does it serve to ensure accountability, more importantly it helps to grow and foster functional team dynamics. However, it must be undertaken and facilitated with care. Prior to asking students to conduct peer assessment, it is vital that students are taught how to give and receive constructive criticism as feedback. They also must have specific guidelines and criteria on which to base their feedback. The feedback process must be moderated by the instructor to ensure that it is appropriate and accurate (Sibley & Ostafichuck, 2015; Topping, 2018).

There are many ways to facilitate and moderate peer feedback. Many of the analog and digital versions still require the instructor to compile and distribute the feedback.

This section will describe how to use a Moodle workshop for team and peer evaluation. A Moodle workshop is a tool designed to facilitate peer assessment. It occurs in phases that the instructor manages and progresses. The workshop is designed to allow students to submit an assignment and then be assigned 1 or more of the peers' submissions to grade and provide feedback on. The workshop has the ability to provide two different grades for the overall activity: one for the submission itself and another for the assessment they provided of their peer's submission.

In the case of team evaluation, the "submission" has generally happened in person and is each student's conduct and contribution to their team. As well, you may or may not wish to evaluate and grade the feedback that students have provided for the teammates. However, this feedback does need to be moderated. You will probably want to facilitate multiple opportunities for students to give peer feedback. Peer feedback events that occur earlier on in the course will generally be subjective and formative with no grade attached, while the final event will likely be summative and have

a grade attached. When managed by the instructor, a Moodle workshop activity will disseminate feedback to the individual students and populate grades assigned in the Moodle gradebook automatically.

A Moodle workshop progresses through 5 phases: set up phase, submission phase, assessment phase, evaluation phase and close. The steps to set up a workshop, moderate the feedback and progress the phases are described below.

Phase 1: Setup phase and editing the assessment form

An interactive or media element has been excluded from this version of the text. You can view it online here:
https://pressbooks.bccampus.ca/selkirktbl/?p=490

Phase 2: Submission phase and allocation

An interactive or media element has been excluded from this version of the text. You can view it online here:
https://pressbooks.bccampus.ca/selkirktbl/?p=490

Phase 3: Assessment phase (Peer evaluation)

An interactive or media element has been excluded from this version of the text. You can view it online here:
https://pressbooks.bccampus.ca/selkirktbl/?p=490

Phase 4: Evaluation phase (Instructor moderation and grade calculation)

An interactive or media element has been excluded from this version of the text. You can view it online here:
https://pressbooks.bccampus.ca/selkirktbl/?p=490

Phase 5: Close

An interactive or media element has been excluded from this version of the text. You can view it online here:
https://pressbooks.bccampus.ca/selkirktbl/?p=490

Appendix A: How to Adopt Educational Technology

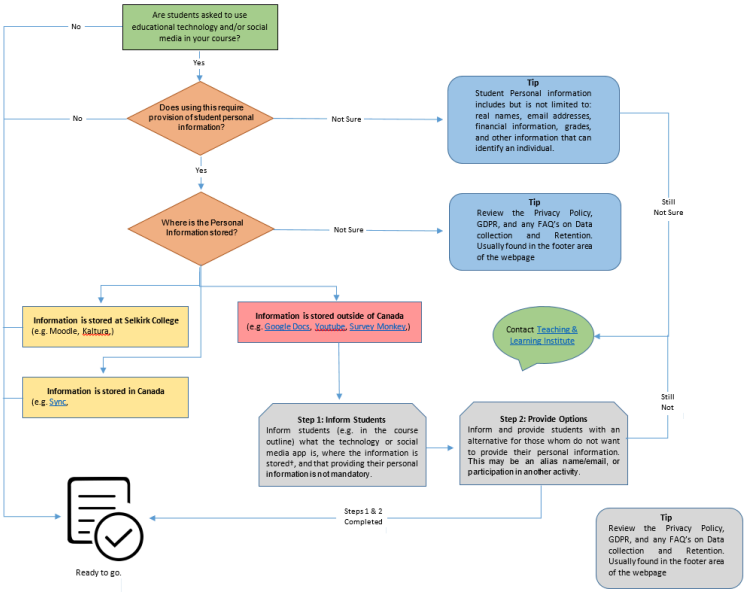
How to adopt educational technology

Web-based technology and social media are increasingly used by instructors in college courses. Examples include Google Docs, Twitter, Facebook, and YouTube. When requiring students to use these technologies, it is important to do so in ways that do not contravene privacy legislation (FIPPA). This law prohibits instructors from requiring that students' personal information* be stored or accessed on servers outside of Canada. Use this tip sheet to safely adopt educational technology in your course.

Inform and provide options

Inform students in advance that the technology may store or access their data outside of Canada (e.g. in Course outline). Provide a reasonable way for students to avoid having their personal information stored or accessed outside of Canada (e.g., by using an alias, by completing an alternative form of the activity).

Privacy check–Am I safely adopting educational technology?



Step 1: Informed Consent Students

"*More than just a signature*" – CMPA; "*is a process not an event*" – CPSA

Depending on Level of Risk:

- Implicit (conversation, implied): low risk, such as any email address and no genuine personal information needed, instructor has control over what is uploaded and shared (real names, D.o.B, gender, photos, student IDs)
- explicit (clear oral or written consent): medium risk, such as institition's email, some genuine personal information; limited control on sharing, storing of data in a closed network
- Written: high risk, such as genioned personal information, open networks, uncontrolled sharing of information

* Regardless of Level of Risk, best practices involves documentation.

Step 2: Provide Options

When privacy of personal information can not be guaranteed. Allow students to complete assignments using an alias, this alias

can be added to their profile in Moodle. [as an alternative name or as their Student ID that would show in the gradebook and is hidden from the class]

Provide an alternative activity for the student to complete.

Appendix B: Educational Technology Consent Form

Selkirk College

Educational Technology Consent Form

As part of your learning experience at Selkirk College, you are being encouraged to use a third party learning resource called **[name of educational technology]** that runs on computer servers beyond the Selkirk Moodle online course platform. Therefore you will be given the following option to the tool: (describe learning alternative to third party learning resource).

The purpose of integrating this tool into your learning experience is to facilitate and improve academic writing skills and recognition of sources. The personal information collected by the third party when students are using this tool include Moodle ID number, email address, first and last name, and assignment submitted. The purposes for which that information is used by the third party are to compare the submission to previous submitted works at the institution and online resources to provide feedback on writing and citation practices.

This cloud-based learning tool is provided through a third party and is therefore not managed by or stored on Selkirk College computer servers. Information that you provide when using this tool and applications may be stored on computer servers located outside Canada. In particular, your information will be stored on servers in the **[server location if known]**. For more information about **[name of educational technology]** personal information privacy practices, please review their privacy policy and terms of use at **[link to privacy policy of intended platform]**

In British Columbia, public educational institutions are governed by the *Freedom of Information and Protection of Privacy* Act ("FIPPA"), which prohibits the storage of personal information

outside of Canada in some circumstances. For that reason, it is the College's policy to make the use of these tools and applications voluntary. If you wish to use **[name of educational technology]**, please ensure that you sign and return this consent indicating that you consent to the collection, use, disclosure and storage of your personal information as described above. . Your consent will be stored by Selkirk College's Privacy office.

If you have any questions about personal information or privacy issues with the use of **[name of educational technology]** you should contact your instructor.

Please indicate below by initialing whether you consent or do not consent.

_____ I CONSENT: I have read the above notification and consent to the collection, use, disclosure and storage of my personal information as described above.

_____ I DO NOT CONSENT. I do not consent to the collection, use and disclosure of my personal information using **[name of educational technology]**. I understand that it is my responsibility to contact my instructor to obtain or access alternate learning activities, processes or evaluations.

Name: _____

Student Number: _____

Course: _____

Signature: _____ Date: _____

Guardian (Student Under the Age of 18) _____

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Glossary

Adaptive feedback

Allows students to have multiple attempts at the question before moving on to the next question. Points are deducted for each incorrect answer until the correct answer is selected and/or the score for that item is zero. This incremental point loss can be facilitated with TBL proprietary scratch cards or on Moodle in the Selkirk Implementation section: TRAT

Construct

The content domain that is to be measured by a MCQ (Downing & Haladyna, 2006)

Constructivism

A philosophy of teaching and learning based on "the belief that learning occurs as learners are actively involved in a process of meaning and knowledge construction as opposed to passively receiving information."

-*Constructivist teaching methods. (2020). In Wikipedia. https://en.wikipedia.org/w/index.php?title=Constructivist_teaching_methods&oldid=991594560*

Deferred feedback

Students must enter an answer to each question and then submit the entire quiz, before anything is graded or they get any feedback.

Flipped classroom

A modality of teaching and learning in which students acquire

content knowledge through pre-recorded lectures or other materials prior to the synchronous class. The synchronous class time can then spent on supported assignment work.

Formative assessment

Formative assessment refers to a variety of methods of collecting detailed information about student learning and implement strategies to augment and further that learning while it is happening. If there is a grade attached to a formative assessment, it is usually low stakes.

The process of appraising for the purpose of providing feedback for learning and performance improvement. In general, is an ongoing and interactive process with low or no stakes events.

"When the chef tastes the soup"

Individual Readiness Assurance Test (IRAT)

The first step in the Readiness Assurance Process (RAP).
A short (10-20 question) quiz that draws on content from the Pre-Class Preparation to support preparation and accountability, and provide formative assessment about student readiness.

Learning Management Systems (LMS)

"a software application for the administration, documentation, tracking, reporting, automation and delivery of educational courses, training programs, or learning and development programs"

-*Learning management system.* (2021). *In Wikipedia. https://en.wikipedia.org/w/index.php?title=Learning_management_system&oldid=1004396733*

Privacy Impact Assessment (PIA)

A privacy impact assessment (PIA) is a step-by-step review process to make sure you protect the personal information you collect or use in your project. You'll work with privacy experts to identify, evaluate and manage privacy risks.

Proprietary eponym

"A successful brand name or trademark that has come into general use to refer to the generic class of objects rather than the specific brand type, without the exclusive rights to said product being lost by the parent company"

proprietary eponym—Wiktionary. (n.d.). Retrieved February 10, 2021, from https://en.wiktionary.org/wiki/proprietary_eponym

Readiness Assurance Process

A 4 stage process that occurs at the beginning of a TBL module designed to prepare students for the learning and assessment activities to come by ensuring the foundational content from the pre-class preparations can be remembered, understood and applied to some degree.

The RAP consists of:

IRAT
TRAT
Appeals
Clarification lecture

Screencast

A screencast is a digital recording of computer screen output, also known as a video screen capture or a screen recording, often containing audio narration

Selected response item

A testing item that asks examinees to "choose and answer to

a question or a statement from a listing of several possible answers" (Downing & Haladyna, 2006, p. 287).

Summative evaluation

A process of judging performance or work that has already occurred, determining the extent that objectives have been achieved and assigning a grade or rank.

"When the customer tastes the soup."

Team Readiness Assurance Test (TRAT)

Immediately follows the IRAT.

The exact same quiz completed collaboratively in teams to increase the Zone of Proximal Development and learning "nodes" that a student has in their network.

Provides immediate feedback on responses to provide formative feedback.