



# Fundamentals of Team-Based Learning: **Principles and Practices**

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Erasmus+



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# INTRODUCTION & ABOUT YOUR EBOOK

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Hi. My name is Beck McCarter and I am an expert in empowering pedagogies and digital learning. I'm an accredited TBL Trainer-Consultant and the course leader for the Fundamentals of Team-Based Learning Programme.

I created this eBook as a companion to the first workshop in the programme, Principles and Practices of TBL, and it contains all the preparatory material you will need to participate in the workshop.

I teach you about TBL by using TBL, partly so that you have an opportunity to experience everything from the student perspective but also because I've found that it's without doubt the most effective way to teach and learn.

In order to get the most out of the workshop, please take time to read through this booklet in advance and consider how the TBL approach would work for your subject and context.

I look forward to working with you!

*Beck*

Let's connect!



@beckmccarter

# Intended Learning Outcomes

After completing this workshop, participants should be able to:

- 1 Compare and contrast Team-Based Learning with other teaching approaches
- 2 Describe the essential elements of Team-Based Learning
- 3 Explain clearly and concisely how and why Team-Based Learning works

You will need to use some software to participate in the workshop: please make sure you have saved your log-in details and can access the application before the session begins.

Once you've completed the workshop you will be eligible for a digital badge: you do not need to do anything to claim this other than be patient as it may take a few weeks to be issued.





# WHAT IS TEAM-BASED LEARNING?

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Team-Based Learning (TBL) is an elegant framework of high-impact learning interventions that combine to form something greater than the sum of their parts. It is a student-centred, active and collaborative pedagogy that is most easily described as a form of flipped teaching with structure.



## WHEN CAN YOU USE TBL?

TBL can be deployed in online, in-person or hybrid teaching contexts to create an engaging atmosphere in your teaching and learning space. It has all the characteristics of small group learning but is highly scalable and so suitable for use with cohorts of 200+ students. The only real limitation is that ideally you need to have enough students to make at least two teams!

# How does TBL compare to other teaching methods?

**Task**

Mark on the line where you think Team-Based Learning belongs

Teacher-centred

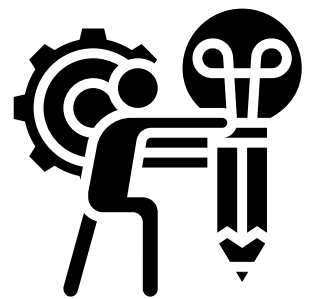
Student-centred



Lecture  
Worked examples  
Interactive lecture  
Flipped classroom  
Socratic questioning  
Discussion-based  
Case-based  
Collaborative  
Inquiry-based  
Problem-based  
Project-Based



Exposition



Generative

# What does TBL look and feel like?

One of the first observations people often make about TBL is how noisy it is: you frequently hear people whooping and high-fiving each other or groaning and commiserating, depending on their answers in the team quiz; there is an intense buzz as team members discuss options and often a chorus of 'Yes!' or notes of incredulity as teams reveal their answers during application exercises.

Classes using TBL are reliably lively and that engagement is the secret of its success – students find this type of learning more satisfying (Rienties and Toeteneel, 2016) which means they are more likely to persist and pass their course (Freeman et al, 2014). It is also much more inclusive and has been shown to reduce or remove attainment gaps (McNeil et al, 2019) where disparities exist.



# Core principles of TBL

1

## FORM AND USE TEAMS PROPERLY

Teams are allocated by the teacher and stay together for the long term – at least one semester. They are strategically designed to distribute resources evenly across all teams: this enables you to leverage social capital to increase accountability and demonstrate the benefits of diversity.



2

## GENERATE ACCOUNTABILITY

The essential elements of TBL all combine to generate interdependence between team members. The approach provides students with the opportunity and resources to manage themselves and their teams in a safe and supported environment.



3

## USE ASSESSMENT AS AND FOR LEARNING

Students are provided with real time feedback throughout each phase of the process so it is easy for them to benchmark their performance and determine where they need to focus their energy to improve.



4

## PROVIDE FREQUENT AND TIMELY FEEDBACK

Feedback is provided at both individual and team levels at each step in the process so that it feeds into future activity. Feedback is provided by peers as well as teachers so that students develop capacity to give and receive feedback well.

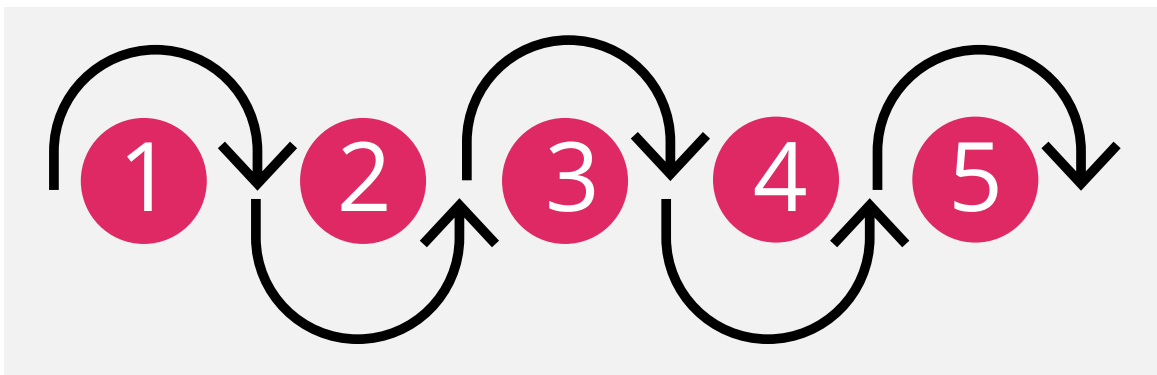




# The structure of TBL

## Block delivery

The curriculum is divided into major themes which are delivered as blocks or units throughout the semester. Each unit spans multiple contact sessions – it's common to have blocks that last a week or a fortnight.



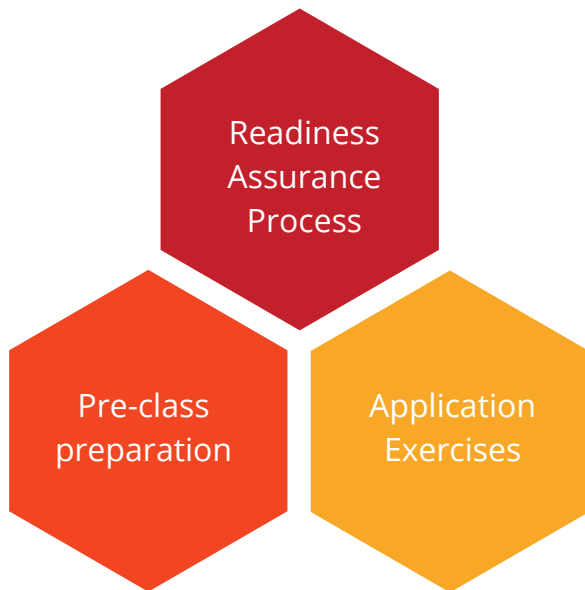
## Team formation

A typical TBL module will start with the formation of teams: it's the teacher who determines which student should join each team based on factors that they know are linked to success in the module. This enables all relevant skills, experience and abilities of the students to be evenly distributed throughout the teams and the diversity in team composition makes the team better at solving problems ([Phillips et al, 2008](#)).

The teams are fixed for the duration of the module so that they have the time and opportunity to work through the phases of team development (Forming, Storming, Norming and Performing – [Tuckman, 1965](#)) and transform from a group of individuals into an effective learning team.

Although each block has specific topics, they all cycle through the same sequence of tasks:

1. Pre-class preparation
2. Readiness Assurance Process
3. Application Exercises



## Pre-class preparation

The pre-class preparation is the content that would normally be delivered during lectures in conventional programmes. By asking students to complete acquisition of material before they come to class we free up valuable time to focus on supporting the learning process and, by utilising rich media to produce the learning resources, we make the experience more equitable for our students.

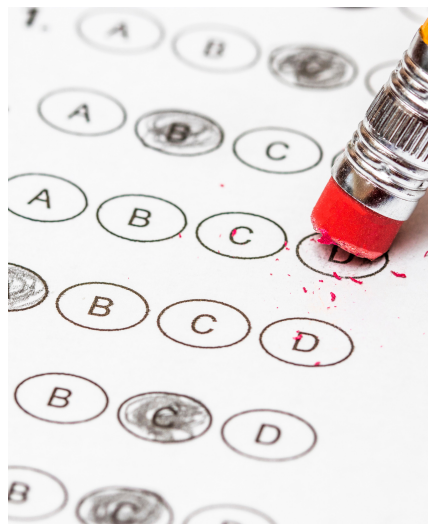
## Readiness Assurance Process (RAP)

The first contact session in the unit is always used for a Readiness Assurance Process (RAP), a refinement of the two-stage exam developed at the University of British Columbia ([Wieman et al, 2014](#)). The RAP consists of an individual test (iRAT), the same test taken as a team (tRAT), an opportunity to challenge the test items and answers followed by a short review of any remaining troublesome concepts called a clarification session.

It's a good idea to use technology to manage the RAP so that you can provide immediate feedback to your students and quickly and easily identify concepts to tackle in the clarification segment.



Pre class  
preparation



Readiness  
Assurance



Application  
Exercises

Such frequent, low stakes summative tests are a great example of assessment as and for learning in action as they provide an incentive framework for students to complete the pre-learning, develop their oracy, analytical and negotiation skills and engage in peer teaching.



The readiness assurance test confirms whether or not your students have reached the required minimum threshold to begin the unit so they only need cover key foundational concepts: 10 questions is normally sufficient. The tests use the format of single best answer (SBA) multiple choice questions and should be pitched at the earlier remembering, understanding and applying levels of Bloom's taxonomy.



As a rule of thumb, the RAP should take up no more than 25% of the contact time for the unit.

## Application exercises

Application exercises are the tasks we design so that students learn how to use and apply new concepts to solve problems in their teams. You should expect to dedicate around 75% of class contact time in each unit to this phase.

Application Exercises come in all shapes and sizes but to be effective they should follow the 4S model (Michaelsen & Sweet, 2008) which means all students should work on the same, significant problem in order to make a specific choice and share that choice in a simultaneous reveal.

# 4S Model for Application Exercises



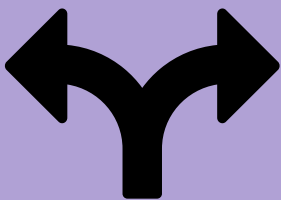
## Significant

TBL tasks are basic simulations of the sort of problems discipline experts are often required to solve in the real world. "By interrogating and processing information as a professional in their discipline would, students become more intentional and expert in their thinking which leads to deeper learning" ([Roberson & Franchini, 2014](#))



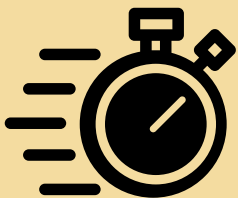
## Same

By setting all students the same problem to work on we avoid teams becoming content experts on a small portion of the syllabus and ensure everyone works towards mastery of the most important learning outcomes for the module. It also motivates individuals and teams to interact because they are keen to explore how others overcame the issues they wrestled with, especially if that resulted in a different answer.



## Specific choice

Adding constraints intensifies the discussion and placing the emphasis on the decision making rather than the product discourages students from taking a 'divide and conquer' approach. Condensing complex analysis into a choice also makes it easier to compare and contrast the conclusions of different teams and primes students to challenge teams who reached different decisions.



## Simultaneous reveal

The knowledge that they must publicly commit to and defend a decision amongst their peers helps keep discussion in teams focussed and productive. Revealing the answers of all teams simultaneously helps to prevent 'answer drift' where teams may revise their answer as a result of the comments by other teams and also adds a dramatic flair that encourages engagement.



## Close the loop

After teams have reported their decision, what follows is a facilitated, inter-team discussion of how and why they made their choice: the debrief. Students should be encouraged to articulate their own thinking and examine the thinking process of others openly in a trusting, respectful environment. It takes time and effort to nurture such an environment so an important part of your role as facilitator is to make this phase as supportive as possible by valuing productive failure ([Kapur, 2016](#)) and by providing and eliciting constructive feedback.

One of the clearest indicators that this ideal classroom climate has been achieved is that students are willing to challenge each other directly and without much reference to you. This opportunity to explore and critique the outcomes of multiple teams is an empowering way to model what good looks like in this context and the lively exchange of teacher-student and student-student dialogue make an engaging and memorable experience.

- 1** Address any gaps between the work teams submitted and the assignment objective
- 2** Encourage teams to probe and constructively challenge the assumptions and conclusions of others
- 3** Support learners to think critically about their own thinking processes

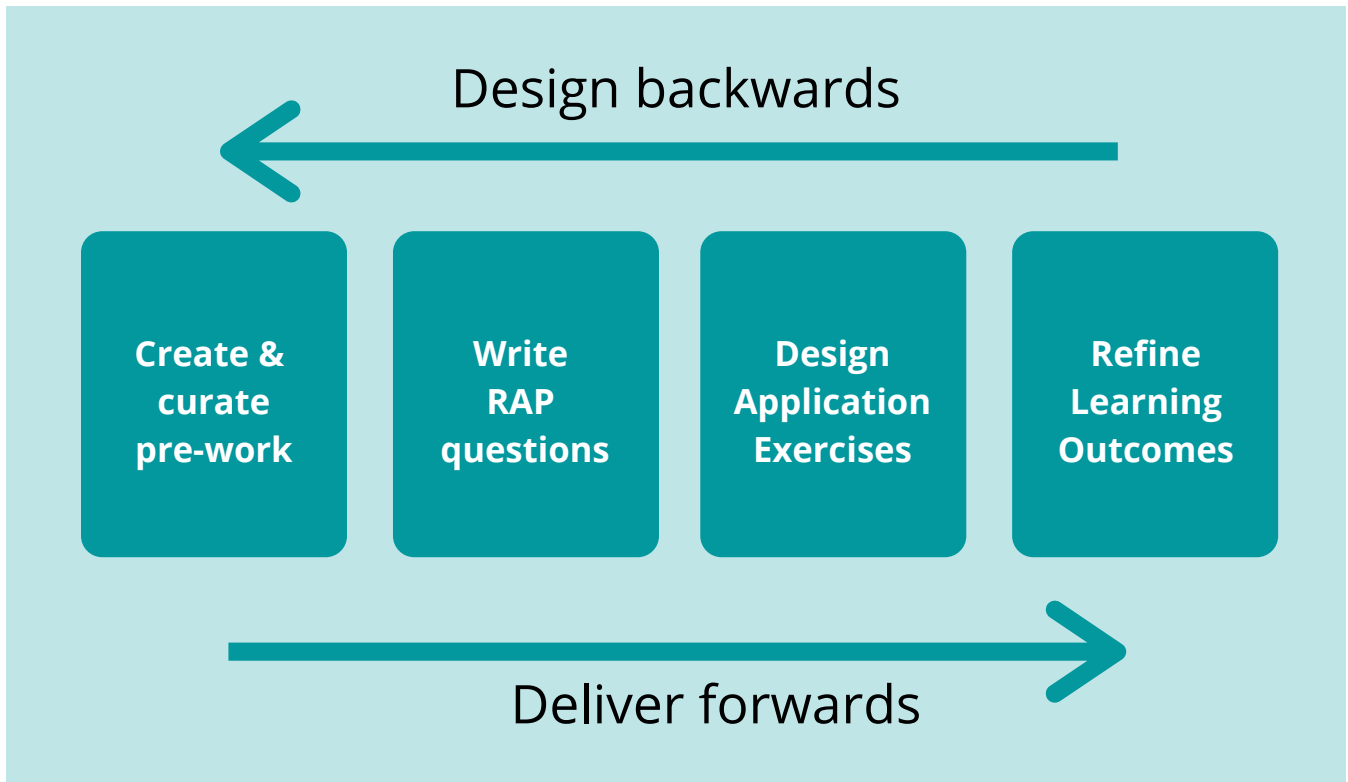
## Peer Evaluation



The feedback culture is radically different to that commonly found in lecture-seminar approaches: in the TBL classroom there are many real-time feedback loops built into the process so that students receive and provide feedback at the point of need.

The integration of reflection within the learning process is particularly beneficial as it promotes the development of metacognitive skills i.e. learning how you learn. Additionally, [Cho & Cho \(2011\)](#) found that learners often gain more from composing peer feedback than from receiving it. Peer evaluation is therefore a critical component of the TBL framework.

## BACKWARDS DESIGN



### **Outcomes based**

When you design instructional materials using a backwards design approach, it means your focus is on what you want learners to actually be able to do at the end of the session, unit or module. This is a simple but powerful change for many educators introduced by Wiggins & McTighe in the late 90's.



### **Alignment**

Once you have a clear idea of what outcomes your learners need to achieve, determining what counts as acceptable evidence and designing learning experiences to enable them to demonstrate that they have met that objective naturally flow. This constructive alignment harmonises and streamlines curricula.

# The science of learning

Cognitive Psychologists have been applying their research findings to the field of education for decades and the effectiveness of certain learning strategies is well supported in the literature and woven throughout the TBL framework.

## RETRIEVAL PRACTICE

The process of retrieval – bringing information to mind from memory – directly helps you to learn even in the absence of feedback.

Activities like the RAP are beneficial to learning because they provide an opportunity for you to retrieve the information and help you to see how well you've grasped the material.

## ELABORATION

Elaborative interrogation means not just explaining things but also making connections between the ideas you encounter and your existing knowledge.

The key to many application exercises is to ask yourself 'how' and 'why' questions about the topic and then try to find the answers to those questions.

## CONCRETE EXAMPLES

Abstract concepts are harder to remember than concrete examples: we can solve this by using an application exercise to illustrate an abstract idea.

Considering multiple examples helps you look beyond the surface features to understand the underlying structure and make the necessary connections.

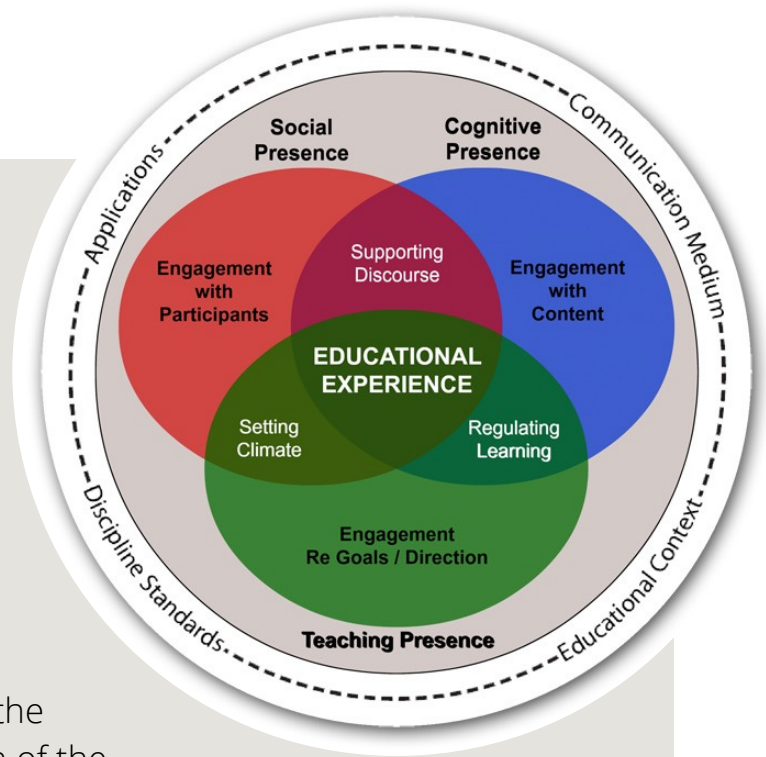
## METACOGNITION

Metacognition and self-regulation approaches help you to think about, monitor and evaluate your own learning and the learning of others.

By working in teams you can support each other to do this and make your thinking explicit through discussion in application exercises, debriefs and peer evaluation.

# Garrison's Community of Inquiry

The Community of Inquiry framework (Garrison, Anderson & Archer, 2000) outlines the process of creating a deep and meaningful online or blended learning experience through the development of three interdependent elements: social, cognitive and teaching presence.



**Teaching presence** is the result of the instructional design and organisation of the material, facilitation of the course and learning activities and shaping of social and cognitive presence which all combine in an effort to achieve the learning outcomes.

**Social presence** relates to how well learners can project their individual and authentic personalities in order to identify and communicate with the community and develop interpersonal relationships. It involves open communication, affective expression and group cohesion.

**Cognitive presence** is the extent to which learners are able to construct and confirm meaning through continual reflection and discourse. The ultimate goal of a Community of Inquiry is to build a solid foundation of social presence and teaching presence in order to stimulate cognitive presence.

Research has shown there is a relationship between these three elements and students' perceived learning, actual learning, satisfaction with the course, satisfaction with the instructor and sense of belonging (Aykol & Garrison, 2008). The theoretical framework therefore provides a useful lens to explore the mechanism of action and appraise the desirability of the components and sequence of Team-Based Learning.