

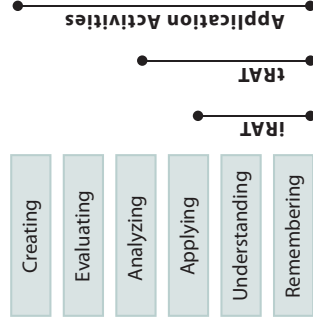
Why TBL Works

Teams focus on making decisions

Having TBL assignments based on discussion and decision-making, and not building lengthy product prevents many of the undesirable group behaviors common in "divide and conquer" product based assignments. Many traditional group assignments are actually individual assignments, with little reason for student interaction, except at final product compilation.

Activities progress through Bloom's levels

Since the primary course goal in TBL shifts from conveying course content to helping the students learn how to apply course concepts to solving relevant, interesting and significant problems, the TBL instructional sequence naturally progresses to higher Bloom's levels as individuals progress through the modules.



The initial acquisition of content and important foundational knowledge occurs during the Readiness Assurance Process which has the students progress through **Remembering, Understanding** and into the simple **Applying** level of Bloom's taxonomy. The Application Activities can take students through the higher Bloom's levels of **Analyzing, Evaluating** and **Creating**. The whole class discussions following the simultaneous report in the Application Activities give the students the opportunity to articulate and examine their own thinking, to explore a variety of different perspectives, and finally arrive at a socially verified version of the "truth" or optimal solution.

Demonstrates power of teams

By reviewing student performance part way through the semester students learn a powerful message about the effectiveness of team work.

In the Past 20 years, over 99.95% of the teams have outperformed their best member by an average of nearly 14%.
In fact, the worst team typically outperforms the best student in the class!

Michaelsen et al, 1989

Attention focuses on harder concepts

As students progress through the Readiness Assurance Process, there is a natural shift in instructional focus to the harder, more difficult concepts. This shift is caused by the underlying structures in the Readiness Assurance Process. The differential attention on more difficult concepts begins in the Team Readiness Assurance Test. During the tRAT, the teams will often vote on questions, accepting consensus when it exists and quickly moving on. On more difficult questions, where there is no simple consensus, they will discuss for a longer period of time. The length of the discussion is affected by the overall difficulty of the question and the underlying concepts. Each time the team scratches off the IF-AT card and does not find the correct answer, they return to the question for further discussion. Following the tRAT, the teams are encouraged to appeal incorrect answers. This pushes the teams into further discussions and back into the reading material, exactly where they are having the most difficulty. Once the Appeals Process is complete, the instructor can provide a targeted mini-lecture on the most troublesome concepts.

	Easy Concepts	Hard Concepts
Readings	✓	✓
Individual Readiness Assurance Test	✓	✓
Team Readiness Assurance Test	✓	✓
Appeals Process Research & Intra-team discussion		✓
Appeals Process Written Justification		✓
Mini-lecture Instructor Clarification		✓

Works in large class settings

TBL was originally developed by Larry Michaelsen, at the University of Oklahoma Business School when his classes went from 40 to 120. He was unwilling to give up the effective outcomes that were possible in the smaller class using Socratic discussion. When he first tried TBL, he was surprised at how effective it was. TBL is now routinely used in large classes (up to 400, but more typically 120-150 Students with a single facilitator) and is even possible in difficult classroom spaces (i.e. tiered lecture theatres). Bottom line is - give students something compelling enough to work on and they will ignore the limitations of the room.

Can Large Classes Be an Asset?

What was the impact of the large class size on what you gained from taking this course?

Helped more than it hurt	49%
Helped and hurt	18%
Neutral	24%
Hurt more than it helped	7%
Hurt a great deal	2%
	Michaelsen, Knight, Fink, 2002

TBL 101

Adapted with permission from a handout by Jim Sibley and Sophie Spiridonoff, Center for Instructional Support, The University of British Columbia

What is TBL?

Team-Based Learning – A special form of collaborative learning using a specific sequence of individual work, group work and immediate feedback to create a motivational framework in which students increasingly hold each other accountable for coming to class prepared and contributing to discussion.

Michael Sweet

Paradigm Shifts

- Course goal shifts from knowing to applying
- Teacher shifts from "sage on stage" to "guide at side"
- Students shift from passive to active
- Responsibility for learning shifts from instructor to student

TBL dramatically shifts the focus of classroom time from conveying course concepts by the instructor to the **application of course concepts** by student teams.

In the TBL process, students acquire their initial exposure to the content through readings and are held accountable for their preparation using a Readiness Assurance Process (RAP). Following the RAP, the bulk of class time is used to practice applying content in a series of team application exercises. The components of TBL are very adaptable to many situations, disciplines and classroom types.

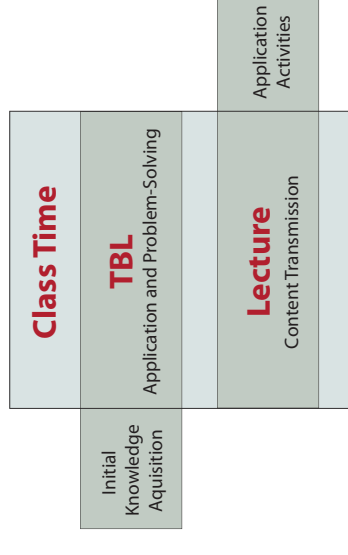
Four Key TBL Design Principles

- **Large teams** are required (5-7); teams should be diverse and permanent.
- **Accountability** for student pre-class preparation and contributing to team success
- **Students make complex decisions** that require the use of the course concepts that can be reported in simple form
- **Frequent and timely feedback** must be given to students.

Instructional focus shifts to learning how to use course concepts

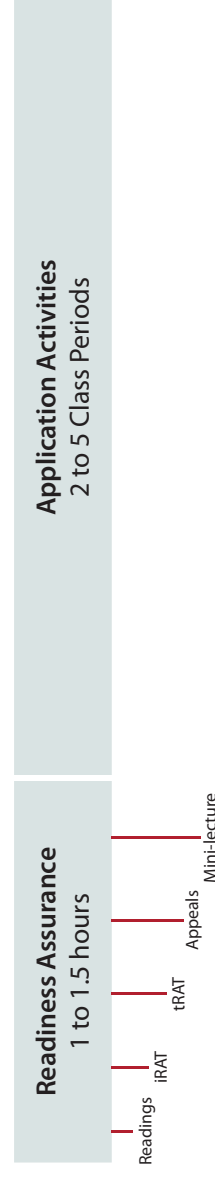
TBL shifts the bulk of content acquisition out of the classroom and gives students the responsibility for gaining the initial understanding of course concepts through the Readiness Assurance Process. With TBL, students spend the bulk of class time in the application of course concepts to problem-solving. This is in contrast to the traditional lecture model, where the bulk of classroom time is spent conveying course content and team application assignments are most often completed outside of the classroom.

By shifting application activities into the classroom, the students can better use the expertise of the instructor and get more immediate feedback on their decisions and thinking process.



In a traditional course when a student team completes an application assignment, the instructor often only gets to view the final product and therefore has limited opportunity to provide students with timely feedback as their application assignment progresses. By contrast, since TBL application activities occur in the classroom, there are opportunities for rich and detailed feedback from both peers and the instructor.

Typical TBL Module



How TBL Works

Getting Ready

The Readiness Assurance Process (RAP) occurs at the beginning of each major instructional unit. The RAP ensures that students are held accountable for completing the pre-class reading and have acquired the foundational knowledge that they will need for the in-class team work that follows.

At the first class meeting of a module, a multiple-choice test (15-20 questions) is given. It covers key concepts and important foundational knowledge from the readings. The test is first taken individually and then immediately re-taken as a team test using the IF-AT (Immediate Feedback Assessment Technique) "scratch and win" testing cards. At the completion of the team test, teams are encouraged to "appeal" incorrect answers for extra marks. The appeal process requires teams to look up the "right" answer and complete a written form that is only considered after the class meeting. The appeals process pushes students back into the readings right where they are having the most difficulty. Following the appeals process the instructor provides a short clarification in the form of a mini-lecture. The focus of this clarification is often informed by the item analysis from the individual tests (if tests are scanned in real-time in the classroom).

Readiness Assurance

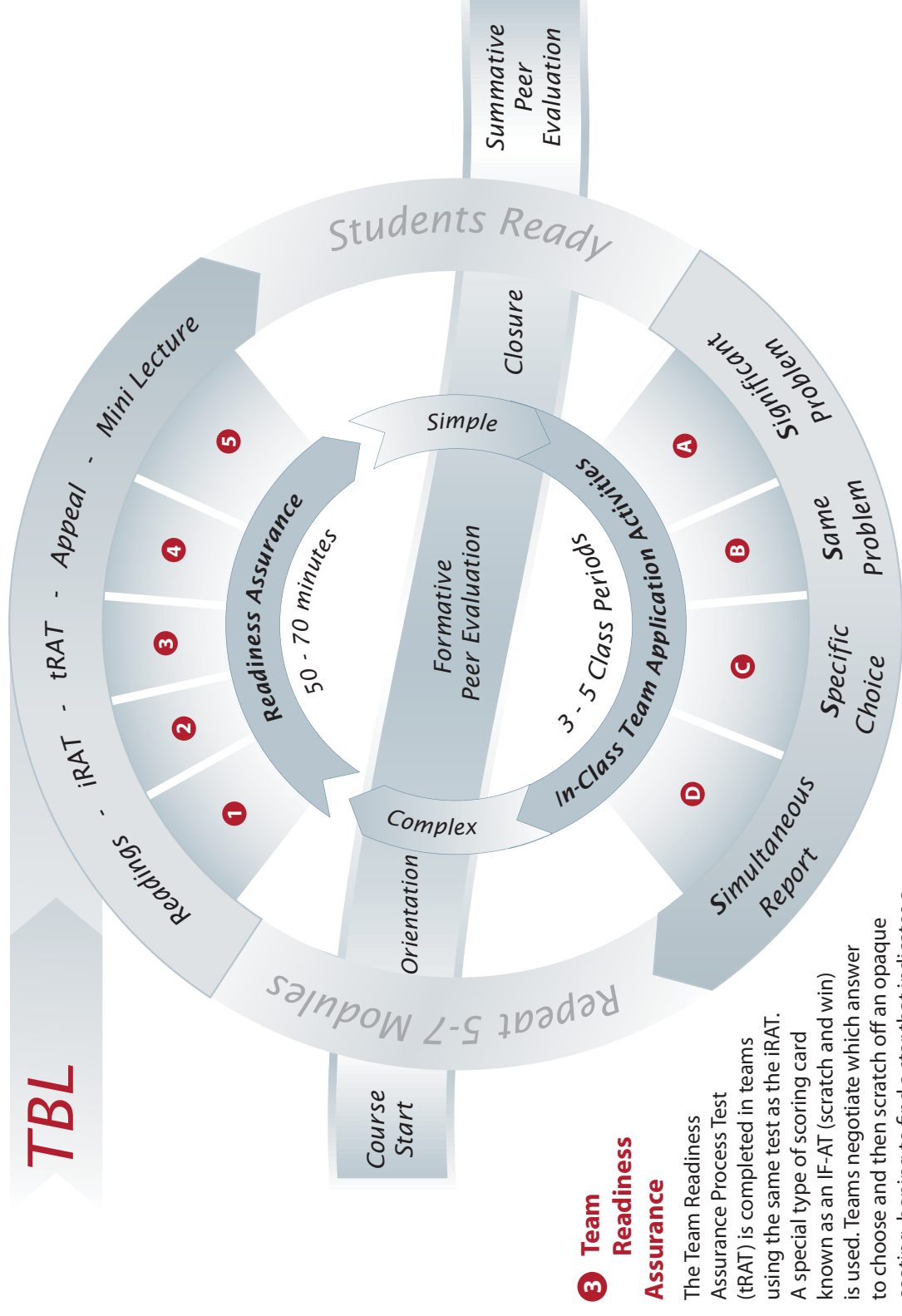
1 Pre-Readings

Readings often include of 30-50 pages, or more, from textbooks, monographs, reports and papers. The large amount of reading materials forces students to develop skills in predatory reading. (The analogy is that the student is a predator, looking for the meat of the readings.) The following tips should be helpful:

- Find & highlight thesis statements.
- Skip to the end and highlight major conclusions.
- Flip through the readings and note major headings.
- Study all figures and tables.
- Read the first sentence of every paragraph.

2 Individual Readiness Assurance

The Individual Readiness Assurance Process Test (iRAT) typically consists of 15-20 multiple-choice questions. The iRAT holds students accountable for acquiring important foundational knowledge from the readings that will ready them to begin problem-solving in subsequent class sessions. The questions are typically written at Bloom's levels: remembering, understanding, and simple applying.



3 Team Readiness Assurance

The Team Readiness Assurance Process Test (tRAT) is completed in teams using the same test as the iRAT.

A special type of scoring card known as an IF-AT (scratch and win) is used. Teams negotiate which answer to choose and then scratch off an opaque coating, hoping to find a star that indicates a correct answer. If the team does not discover a star, they continue to discuss the question and sequentially select other choices. Every student leaves this test knowing the correct answer to every question!

4 Appeals

During the closing of the team test, the instructor circulates around the room and encourages teams to appeal questions they got incorrect. This forces students back into the reading material exactly where they are having difficulty. The team then researches the "right" answer and may choose to complete the appeals form with their rationale and defense for their answer. The instructor collects these forms and considers them after class.

5 Mini-lecture

To conclude the Readiness Assurance Process, the instructor reviews the item analysis from the individual tests and focuses a short mini-lecture on the concepts that are most problematic for the students.

Following the Readiness Assurance Process, the bulk of class time is spent with students working in teams applying course concepts and solving problems.

A Significant Problem

Teams are presented with a Significant Problem

Successful application activities include problems that are significant and relevant, capturing the interest of students. The quality of the problem ultimately is the most powerful factor in influencing the effectiveness of an application activity. Problems should require students to use course concepts to solve them. Students should be able to recognize the connection between the problem and the content of the Readiness Assurance Tests. The best problems will highlight a real-life scenario that is relevant to the subject matter and also representative of opportunities students will likely have for future application of the course concepts.

B Same Problem

Teams are given the Same Problem

Giving the same problem to all teams creates reporting opportunities for teams to defend, challenge, discuss, and examine each other's thinking and problem-solving process. Having the teams work on the same problem ensures the comparability of student decisions and acts as a potent discussion starter. The sequential report, where teams work on different problems, is often a very low energy event, where other students have little motivation to examine the thinking and decisions presented.

C Specific Choice

Each team must make a Specific Choice

Open-ended questions have long been the hallmark of efforts to foster critical thinking in students, but complex, open-ended questions might be too challenging for the novice learner. The most significant drawback in using open-ended questions is the difficulty in efficiently letting students report their answers and the difficulty in comparing their answers with their peers. This opportunity for comparability of decisions is one of the major strengths of the TBL reporting process.

D Simultaneous Report

Teams Simultaneously Report their decision

Simultaneous reporting can be accomplished with the simple holding up of a card indicating a particular choice. When a particular team sees that another team has made a different decision, they naturally want to challenge the other teams' decision. In the ensuing conversation, the teams challenge each other and defend their own thinking. The reporting requires teams to articulate their thinking to other teams – putting their thoughts into words. This helps cognitively with the process of creating enduring, deep understanding. The feedback from their peers is very immediate and focused on "how did you arrive at your decision" and not "which is the right answer."

In-Class Activities (4 S's)

- **Significant Problems.** Teams work on a relevant, significant problem.
- **Same Problem.** Teams work on the same problem.
- **Specific Choice.** Teams required to make a specific choice.
- **Simultaneous Report.** Teams report simultaneously.

In the TBL classroom, the bulk of class time is spent having student teams solve and discuss relevant, significant problems. Structuring the problems around the TBL 4S's leverages the power of team processing without many of the problems (like social loafing) that are inherent in other forms of small-group work learning. The structure of the TBL activities gives individuals, teams and the whole class many opportunities to reflect and get feedback on the specifics of their thinking and their process for arriving at their answer. The activity reporting allows students to engage with a diverse set of perspectives and approaches to problem-solving.