Introduction to Team-Based Learning (TBL)

Gail March Cohen, Ph.D.
Office of Undergraduate Medical Education
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Zipinar Goal & Learning Objectives

**Goal:** The purpose of this Zipinar is to provide the information needed to implement Team Based Learning (TBL) in a class.

**Learning Objectives:** By the end of this Zipinar on Team-Based Learning (TBL), you will be able to:

- Define Team Based Learning and its components
- Compare the benefits and challenges of TBL
- Provide the four essential principles of TBL
- List the steps to implement TBL in a class

**What is TBL?**

**Why use TBL?**

**What is needed?**

**How to do TBL?**
# What is the TBL Difference?

<table>
<thead>
<tr>
<th>Key points</th>
<th>Lecture</th>
<th>Problem-Based Learning</th>
<th>Team Based Learning</th>
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</thead>
<tbody>
<tr>
<td><strong>Teaching Methods</strong></td>
<td>Instructor provides content for student note-taking in a class</td>
<td>Student-directed learning in solving real world problems in small groups</td>
<td>Instructor-directed content applied to real world problems by student teams in a class</td>
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<td></td>
<td>Lecturer didactically provides content</td>
<td>Facilitators give cases and students analyze facts to solve case</td>
<td>Students prepare content before class. In class, they apply it in teams to solve problems</td>
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<tr>
<td><strong>Outcomes</strong></td>
<td>Content acquisition and conceptual understanding</td>
<td>Problem-solving abilities, critical reasoning, content acquisition, understanding, effective communication and small group interaction</td>
<td>Content acquisition, understanding, content application to solve problems, critical reasoning, effective communication, collaborative teamwork</td>
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<tr>
<td><strong>Instructor’s role</strong></td>
<td>Identifies learning objectives, prepares presentations and answers student questions</td>
<td>Facilitates small group discussions and gives students feedback and guidance as needed</td>
<td>Identifies learning objectives and content, prepares readiness tests, answers student questions and prepares application assignments for teamwork</td>
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<tr>
<td><strong>Student’s role</strong></td>
<td>Attend lecture, study notes, prepare for exam</td>
<td>Identify learning issues, do independent out of class research, join group discussions</td>
<td>Do independent out-of-class study, join team discussions, defend team solutions to class</td>
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Table excerpted from Baylor College of Medicine, Team Learning in Medical Education, Sept 2002
Why NOT Lecture?

Lectures focus on delivering one way information and are passive learning to gain mastery.

Many learners don’t always capture all the information.

Education is not about information transfer, but the absorption of the information into the learner’s useable knowledge base.

The key to lifelong learning is to ask the learner to gather in and out of the learning activity the knowledge, apply the concepts learned, and formulate an idea or response.

Diamonds represent learners in the lecture

Passive learning where learners take notes
What is Team-based Learning?

Permanent small groups of learners interact as in-class teams to apply content to simple and complex problems with the feedback of the facilitator as the content expert.

Pre-class
- Individual learns assigned facilitator-specified content

In-class
- Assigned learner teams apply facilitator-specified content to problem-solving discussions and activities

During class
- Learners receive immediate feedback

# Team-Based Learning Process

<table>
<thead>
<tr>
<th>Phase 1</th>
<th>Phase 2</th>
<th>Phase 3</th>
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<tbody>
<tr>
<td>Individual Preparation</td>
<td>Group Readiness Assurance</td>
<td>Group Application of Course Concepts</td>
</tr>
<tr>
<td>(Pre-class)</td>
<td>(In-class)</td>
<td></td>
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<tr>
<td>Individual Study</td>
<td>1. Individual Readiness Assurance Test (iRAT)</td>
<td>Small Group Application Exercise (AE)</td>
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<tr>
<td></td>
<td>2. Group Readiness Assurance Test (gRAT)</td>
<td>with Total Class Discussion and Instructor Feedback</td>
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<tr>
<td></td>
<td>3. Written Group Appeals</td>
<td></td>
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<tr>
<td></td>
<td>4. Instructor Feedback</td>
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</table>

**Impact on Learning**

- Individual Work
- Small Group Discussion
- Total Class Discussion

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*UMass Chan Medical School*
**4 Essential Principles of TBL**

- **Team Formation**: Appropriately form and manage permanent diverse teams.
- **Learner Accountability**: Learner is responsible for pre-class preparation, contribution to team, and team grades.
- **Team Assignments**: Assignments promote learning, team member integration, and teamwork development.
- **Frequent & Immediate Feedback**: Feedback provided through iRAT & gRAT results and team assigned application exercise with instructor guidance.

1. **Individual RAT** (iRAT) – Individual learner answers in class short MCQs on class concepts that is submitted to the instructor.

2. **Group RAT** (gRAT) – Team members in class or in Zoom breakout rooms defend their individual answer choices to the same iRAT MCQs and come to a consensus as a team to submit to the instructor.

3. **Appeal Process** – (optional) to instructor and is an opportunity to restore credit for answers missed on Group RAT.

4. **Feedback/Corrective Instruction** – Instructor adds comments for correct comprehension of key concepts.
## Advantages of TBL

### For the Learner
- Motivated to attend and be part of a team (community)
- Applies knowledge and promotes high-order thinking
- Participates actively in education and addresses misunderstandings
- Develops interpersonal skills, confidence, and working in a team

### For the Facilitator
- Includes high amount of faculty-to-learner interaction
- Taps enthusiasm to teach
- Avoids learner attendance issue with Readiness Assessment Tests (RATs)
- Work with teams in low faculty-to-learner ratio
- Requires no special room—can be done in lecture room or large room or in Zoom
Challenges to TBL

Active learning involves communicating and this can be noisy with multiple groups talking at the same time.

Some learners prefer a didactic lecture where all they do is take notes and NOT actively think and apply.

Facilitators need to address the learners who do not want to contribute to the learning activity and are called social loafers.

Some learners may complain that learners in their group are lowering the group score. This is a lifelong learning lesson to work with everyone as a team.
Team-based Learning Active Learning

Faculty identifies content for pre-class assignments, the tests, and team interaction

Pre-class: learner “must” study concepts for test

In class: learner is tested on concepts and actively joins assigned team to solve simple and complex concept applications

Learner accountability: learner pre-class work and test, team test, teamwork, and final team assessment
TBL is NOT a Small Group Discussion

Compare a **Team** with a **Small Group**

**A Team** develops 1 idea/product
- Permanent Team Members
- All Team Members participate in the idea/product

**A small group** of learners talk about a topic
- Members change
- A leader and some of the learners engage to complete task

Commitment to Team
Trust

98% of teams will out perform the best member on learning-related tasks
How to Form a TBL Team

**Team Cohesiveness**
- Avoid previous grouping (dividing alphabetically)
- Mix learners

**Team Resources**
- Assets: previous life and work experiences
- Evenly distribute resources

**Team Size**
- Odd number for voting
- Large enough (5-7 members) to maximize resources

**Team Permanency**
- Easier communication
- Willingness to challenge ideas for team success
Getting Started in 1st Class

1. Introduce TBL
   - Explain how the class will be conducted in teams
   - Provide a rationale for using TBL
   - Form the Teams

2. Describe Grading Weights
   - Emphasize that both individual & teams will be graded
   - Define the % of final grade for RATs and AE
   - No makeup for RATs or AE

3. Define Facilitator’s role
   - Facilitator is a guide, referee, and manager

4. Develop Positive Group Behavior
   - State that all team members must participate
   - Enforce the use of the Team Folders to document team’s success
Phase 2: Readiness Assurance Tests (RATs)

1. Individual Test
   - Closed book
   - NO TALKING
   - #pts/question
   - Answer both on test and answer sheet
   - INDIVIDUAL score sheet goes in Team folder

2. Group Test
   - Closed book
   - TALKING OK within Team
   - #pts/question
   - Place Team # on answer sheet
   - TEAM score sheet goes into Team folder

3. Call for GRAT Answers
   - Open book to show evidence from pre-class assignment
   - TALKING between TEAMS OK
   - Opportunity for written team appeals

4. Questions & Discussions
   - Clarify issues
   - Teams ready for Application Exercise
Creating the TBL Application Exercise (AE)

1. Significant real question/problem to solve
2. Same question/problem for all teams
3. Set timing for teamwork
4. Specific answer to solve the question/problem
5. Simultaneous team report and then open discussion
6. Supply correct answer/outcome and feedback
Phase 3: Application Exercise (AE)

**Facilitator tasks:**

1. Distributes Application Exercise
2. Facilitates team discussions
3. Calls for AE answers from Team reps
4. Asks for any additional questions

- Distributes any resource material
- Encourages team discussion
- Tells the timing for the test
- Provides feedback on Teamwork
- Elicits inter-team discussion
- Confirms best answers
- Accepts written team appeals
- Clarifies issues
- Links class experience to next assignment
- Places Team score sheet in Team folder
<table>
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<th>Answers</th>
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<tr>
<td>1. <strong>What do I as the facilitator want learners to do?</strong></td>
<td>1. Learner performance is specified in the learning objectives</td>
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<tr>
<td>2. <strong>What do the learners have to learn?</strong></td>
<td>2. The course assignments provide the learning content</td>
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<tr>
<td>3. <strong>How do I know the learners have mastered the concepts?</strong></td>
<td>3. The learners will be evaluated by the Readiness Assurance Tests (RATs)</td>
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<tr>
<td>4. <strong>How can I tell if the learners will be able to use the knowledge?</strong></td>
<td>4. The learners will use the acquired knowledge in the team application exercise.</td>
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Team-Based Learning FAQs

1. How much material can be covered in Team-Based Learning?
   *The same amount or more than provided in a lecture*

2. What is the most important element in Team-Based Learning?
   *Learner preparation, Readiness Assessment Tests and Group application exercise are equally important elements*

3. Where in medical education has Team-Based Learning been used?
   *Pre-clinical and Clinical classes*

4. What is the role of the faculty in Team-Based Learning?
   *Facilitator and Content Expert*

*From Baylor College of Medicine, Team Learning in Medical Education, February 04 Workshops*
Team-based Learning on Zoom

Main Room

1. Instructor (host) visits the breakout rooms to facilitate team discussion
2. Teams return to main room to defend their answers for the application exercise (AE)
3. Instructor provides feedback on teamwork and confirms correct response

A. Each team moves from Main Room to Breakout Room, takes the RATs and submits online to BBL

B. Each team works on AE, submits team response to BBL, and then returns to Main Room to present

Breakout Room A

Breakout Room B

Breakout Room C

Breakout Room D

Each breakout room has one permanent team.
Team Based Learning (TBL) is a small group collaborative method where individual work is done outside the class and teamwork with permanent members is completed in class.

The rationale for using TBL is that it is an interactive alternative to passive lectures, requires no extra facilities or faculty, develops interpersonal skills and assists “at risk” learners.

The 4 principles of TBL are 1) properly formed and managed groups, 2) learner accountability, 3) team assignments that promote learning and team development, and 4) frequent and immediate instructor feedback to learners.

Implementation of TBL involves the instructor planning before the class; forming permanent learner groups; writing TBL learning objectives; generating the iRAT, gRAT, and application exercise; and providing feedback for teamwork.
Reading Sources


Please click on this [LINK](#) and take the brief survey and share your thoughts about this Zipinar.

For Residents, fellows, graduate students and medical students; please enter your name and site so that UMMS and your clinical site knows you viewed this Zipinar.

*Thank you for taking the time to view this quick overview.*