CHAPTER 1

Introduction to Team-Based Learning

Team-Based Learning (TBL) is an extraordinary form of small-group learning—both effective and fun. TBL can and will transform you as a teacher, transform your students, and bring more fun, energy, and deep learning to your classroom than you may have ever thought possible. This chapter will introduce you to TBL.

Judy Currey had just joined the Critical Care Nursing faculty at Deakin University in Melbourne, Australia. As a first-time teacher, she was given the daunting task of redeveloping the lowest rated course at the university. She used a traditional course design model and turned it into the highest rated course in the university. Then, already at the top of her instructional game, she discovered TBL—and became so convinced about the value of TBL that she committed to redeveloping this highly rated course within the TBL framework. From the very start, she was glad she did:

The very first time we did TBL, we invited the ICU and Cardiac group students to a bit of an orientation to this new teaching method. With two colleagues, we met with the students at the end of the day, maybe 35 students. We gave them an advanced life support case put together in the TBL format. I assumed, with them having just completed the Advanced Life Support Assessment and Theory course, that they would have an easy time of it.

I was facilitating, and we did a question where the patient’s heart rhythm changes from normal to an abnormal rhythm. The point at which the rhythm changes is often the indicator of what that rhythm might be, and sometimes rhythms can look like each other, and it takes a fair amount of skill to discern between two or three possible rhythms. We gave them an ECG where the top half of the heart had stopped working and the bottom had come in as a support rhythm to keep the patient alive, but because it’s from the bottom of the
Overview of TBL

heart, it’s wide and so it looks like it’s a malignant rhythm. But it’s a support rhythm. It’s lifesaving.

Our question to the students was simply, should you defibrillate?

After some intrateam discussion and deliberation, the teams put up their voting cards. Every single team chose to defibrillate. Every single team had interpreted the rhythm as malignant. One of the other instructors came up and put her face in front of mine, her back to the students, and mouthed, “Oh my goodness, how could they have done this? Why haven’t they learned?” I stayed calm and impassive and started asking,

“Okay, group six. You were going to defibrillate. Why were you going to do that?”

“Because it’s ventricular tachycardia.”

“Okay. Another group. You thought it was VT? So what are the characteristics of VT?”

“It’s wide, and it’s slow.”

“Okay. Another group. So you all concur with that?”

“Yes.”

“So how does VT start? Is that what happened here?”

And 35 heads went down, and it was just unbelievable. It was silent, and then there was a collective “Oh no!” as every one of them, at that moment, saw it was not VT and that they had in fact killed the patient. It was transforming. They thought they knew this, and they suddenly realized that they had not learned it properly, that they couldn’t read the ECG accurately. Defibrillating the patient would have wiped out this ventricular rhythm that was keeping them alive. When you wipe that out, then they’re dead. There was a collective professional embarrassment; we had shown them the power of TBL. It was an amazing moment. (Judy Currey, Critical Care Nursing, Deakin University)¹

TBL is a unique and powerful form of small-group learning. It harnesses the power of teams and social learning combined with accountability structures and systematic instructional sequences to let you achieve powerful results. This book will be your guide, with practical advice, suggestions, and tips to help you succeed in the TBL classroom. This book will help you understand what TBL is and why it is so powerful. You will find what you need to plan, build, implement, and use TBL effectively. This book will appeal to both novice and expert TBL teachers. Each part will start with the basic principles to help the novice get started and then go deeper with concrete examples, practical advice, and nuances to help the more experienced TBL teachers understand their practice even better. Be forewarned that some TBL principles might challenge some of your beliefs about teaching.

© 2014 Stylus Publishing, LLC

www.Styluspub.com
Before we start, here are some ways you can use this book to improve your practice. You can learn

- the fundamental principles of TBL,
- how to effectively design a TBL experience,
- how to maximize the benefits and minimize the risks,
- how to prepare for the emotional journey, and
- to appreciate how TBL provides a reliable, coherent instructional framework to navigate the learning-centered classroom.

As you explore more about TBL, it will become apparent that fidelity to the essential elements of TBL will be your guiding touchstone. This fidelity goes a long way toward ensuring instructional effectiveness and a positive outcome. Experienced TBL teachers often comment on their growing understanding of the fundamental importance of certain essential elements, and their commitment to those elements is actually key to successful implementation of TBL.

Implementing TBL requires a commitment to examine your own beliefs about what good teaching is. You may find you need a shift in your beliefs as a teacher and a change in your thinking to be able to design and implement a TBL course well. Part of examining your beliefs and realigning them for success in the student-centered classroom is convincing yourself of the value of TBL. A good place to start is Sisk’s (2011) or Haidet, Kubitz, and McCormack’s (in press) systematic review of the TBL literature. In chapter 4, “The Evidence, Please,” we will examine in detail the literature and educational rationales for using TBL. Objectives must evolve from the traditional “What do I want my students to know?” to “What do I want them to be able to do?” Considering deeply how our students will use what they learn motivates us to build course experiences focused more on doing than on knowing. Using the course concepts to solve significant, real-world problems is the instructional heart of TBL.

It can sometimes be difficult to reimagine our content-rich courses. TBL forces us to more accurately develop instructional objectives and really take those objectives to heart as we develop our courses. We need not only to know what we want the students to be able to do but also to design opportunities for our students to show us what they know.

Your shifting role as a teacher can be unsettling initially as your role morphs from a traditional teacher to a designer of high-quality learning experiences and a coach, facilitator, mentor, and guide. You may have relied in the past on your content expertise and “teaching by telling,” but TBL will require a different set of skills. Some skills you will certainly have from your past teaching experience, and some may be new.
You may experience student resistance as well. Students who have been told all their lives what to know, when to know it, and when to give it back do not always appreciate being pulled from their passive role in the didactic classroom to the active role in the learner-centered classroom, but the results can be stunning when TBL is implemented well. By carefully orienting our students and convincing them of our rationales for using TBL, we can acknowledge possible student apprehension and lessen any resistance. The orientation process is described in detail in chapter 3, “The Whole Course Experience.”

**HOW TBL IS DIFFERENT**

The TBL methodology is different from other forms of collaborative or cooperative learning, because it provides a whole coherent framework for building an entire course experience. Michael Sweet (2010) described TBL as

> a special form of small group 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.

TBL isn’t a method that you sprinkle over your existing lecture course. It requires a complete rethinking of your overall course goals, a focused redevelopment of your course materials, and a commitment to take that adventurous plunge into learning-centered teaching. There are powerful and important synergies between the components of TBL; although it is possible to selectively implement some components of the model, considerable instructional power is lost. Many experienced TBL teachers think it is best to commit to the entire model to get the largest benefits and effects. Preparing for TBL is very different from preparing for a traditional course. In a traditional course, you may be able to dash off a lecture at the last minute, but with TBL’s requirement for thoughtful integration of reading, getting your student ready using the Readiness Assurance, and engaging in classroom Application Activities, last-minute prep will not work.

The TBL model can help you achieve two important things: having your students come to class prepared, and having them deeply learn the material by learning how to apply the course concepts to solve interesting, authentic, real-world problems. Using TBL’s ingenious Readiness Assurance Process (RAP) ensures that students come to class prepared (more on the RAP in chapter 6). Next, students learn how to apply course concepts to solve problems by making complex decisions in teams, then publicly reporting their decisions; in this sense, TBL could easily be called decision-based learning. The public reporting and ability to compare answers naturally leads to teams defending their own decisions and critiquing the decisions.
of other teams. It is in this intense give-and-take reporting dialog that students deeply learn the material.

A useful analogy is to think of the work of a courtroom jury that sifts through large amounts of evidence, statements, and transcripts to come up with a simple decision: guilty or not guilty. The jury members ultimately need to consider the evidence presented to them, apply the law to the case, and arrive at a reasonable interpretation. TBL sets up a similar dynamic by requiring teams to arrive at a simple decision after interpreting complex and often conflicting data and selecting and applying appropriate criteria for decision making. TBL adds an important social learning step during the reporting. Now again imagine the jury; the foreman rises to state the jury’s verdict, but another foreman rises from a different jury team in the same courtroom and states a different verdict. They naturally want to talk to each other; they naturally want to ask, Why? This simple comparability between decisions, and the natural tendency to ask the question why, is at the heart of TBL. This why motivation provides the instructional fuel to power insightful debates between student teams.

HOW TBL GOT STARTED

In January 1979, Larry Michaelsen was a junior faculty member teaching an organizational behavior course at the University of Oklahoma. Budget cuts had tripled his class size from 40 to 120 students. He had been advised by senior colleagues to give up on his case-based, Socratic dialogue approach and switch to lecturing. But he was unwilling to let go of working with cases and facilitating deep disciplinary problem-solving discussions. He felt strongly that these discussions really were at the heart of deep and enduring learning. He had an idea. He tried something different. He called it Team-Based Learning. It was an invention that preserved what he so valued in his teaching: engagement, decision making, deep
discussions, and feedback. His method actually made positive use of the larger class size to improve the quality of the discourse.

He realized he needed to overcome two challenges. First, how could he engage large classes in effective problem solving when the teacher is a scarce resource and class size encourages anonymity rather than accountability? Second, how could he induce his students to come to class prepared?

Right from the start, he developed something very close to the structure that TBL classrooms still use today.

Student preparation was ensured by using the ingenious RAP. During an early Readiness Assurance Test, he listened to the students’ discussions as they were answering the questions, and he realized that the students were actually discussing the very material that he would have been forced to cover if he had to lecture. He knew he was on to something.

Once Michaelsen knew his students were ready, he was in a position to help them begin problem solving. The overarching course goal of helping students learn how to apply course concepts was successfully structured using the “3 S” framework (now the “4 S” framework: Significant Problem–Same Problem–Specific Choice–Simultaneous Report). The 4 S framework encourages students to make difficult, data-rich decisions that can be quickly reported to the entire class. Much to his relief, he found that the decision-making and problem-solving aspects of the course that he valued so highly were in fact very possible, even in large classes. Using this structured problem-solving method, students engaged deeply with the content and were learning more than he had thought would be possible.

The elements of TBL have evolved slightly over the years, but these two original pieces that ensure preparation and guided problem solving are still the heart and soul of TBL. Over 30 years later, TBL is used with great success all over the world, in virtually all disciplines, and in classes as large as 400 students.

ESSENTIAL ELEMENTS OF TBL: AN OVERVIEW

There are four essential elements of TBL. These elements have evolved over the years. In the original TBL book (Michaelsen, Knight, & Fink, 2004), the four essential principles were (a) groups must be properly formed and managed, (b) students must be accountable for their individual and group work, (c) group assignments must promote both learning and team development, and (d) students must have frequent and timely performance feedback. These principles continue to be essential and will naturally happen when we adhere to the practices and guidance that are provided by the revised four essential elements of TBL. We will be using the revised four essential elements (see Figure 1.1) that were described in
Sweet and Michaelsen’s (2012a) book *Team-Based Learning in the Social Sciences and Humanities.*

The following sections introduce each of the four essential elements of TBL. Each of the essential elements will be discussed in greater detail in its own chapter (see chapters 5–8). The four essential elements of TBL are as follows:

1. Teams must be properly formed and managed.
2. Students must be motivated to come to class prepared.
3. Students must learn to use course concepts to solve problems.
4. Students must be truly accountable.

**Element 1: Properly Formed and Managed Teams**

TBL teachers recommend large, teacher-created, diverse teams. The importance of using teacher-created and diverse teams is consistent with recommendations in the educational literature. The recommendation for large teams (five to seven students) is unique to TBL. The large teams work well because of TBL’s accountability structures and the complex nature of classroom activities. The literature on team formation is very clear on the importance of using teacher-created, criterion-based teams to ensure the best educational results. Teacher-formed teams outperform randomly and student-selected teams (Brickell, Porter, Reynolds, & Cosgrove, 1994). Students will often plead to be placed on teams with their friends, but the research shows that student-selected teams consistently underperform other team formation strategies. To paraphrase from Brickell et al. (1994), student-selected teams are often “social entities” where existing relationships and cliques can make team cohesion difficult.
Feichtner and Davis (1984) found that students are more likely to have positive experiences in classes where groups are either formed by the instructor or by a combination of methods (e.g., one instructor collected data on students’ research interests and then grouped those with similar preferences). Specifically, in recording information concerning their worst group experience, 40 percent of the respondents noted that the groups were formed by the students themselves, while in the best group experience, only 22 percent reported that the students were responsible for forming the groups. Thus, by nearly a 2 to 1 margin, if students formed their own groups they were also likely to list the group as being a worst group experience. (p. 60)

You must acknowledge and resist the request for self-selection by some students by carefully explaining your rationale and standing your ground.

It is recommended that TBL teams have five to seven students. TBL teams need to be larger than is suggested in most cooperative or collaborative learning literature because of the complexity of problems to be solved. This may be contrary to your intuition. Many people’s first reaction to this recommendation for the large team size is disbelief: Won’t larger teams let some people hide and not contribute? The structure of TBL alleviates this concern. The teams need to be large enough to have the intellectual horsepower to solve very complex problems, individuals need to have accountability to the instructor for their preparation, and individuals need to have accountability to their teammates for the quality of their contribution to the team’s success.

Peer evaluation lets us give the grading scheme the teeth to motivate every student to contribute and be fairly rewarded (or not) for his or her level of contribution. Because team scores are higher than individual scores, peer evaluation tempers the effect of the high team score on a student’s final grade. Contribute well to your team, and you benefit from the high team score. When you don’t contribute to your team’s success, you will not receive that benefit. The thoughtful design of activities to leverage the diversity of the teams can help ensure that all students remain engaged in the activities. TBL is actually better with diverse teams, which is great news for our increasingly diverse classrooms.

New TBL teachers often initially underestimate teams’ abilities to learn how to solve difficult problems and need to ratchet up the problem difficulty as the semester progresses. This is because the teams, with time and practice, naturally get better at problem solving.

Team members must stay consistent for the duration of the course. Groups take time to gel into teams as they progress through Tuckman’s (1965) stages of team formation: forming, storming, norming, and finally performing. Students’ shared activities, shared goals, and accountability to the team all aid in the development of an important factor known as team cohesion. Teams need to remain together for this cohesion to occur. The sequence of TBL activities and its accountability structures all synergistically aid the development of team cohesion.
There was a remarkable study that highlights the amazing development of team cohesion in TBL (Michaelsen, Watson, & Black, 1989). The study found that in early Readiness Assurance testing, student teams often used simple votes on split decisions and let the majority rule. But as team members found their social feet within the team and team cohesion began to increase with each testing cycle, the decision-making process progressively became more consensus based. It showed that in as few as four Readiness Assurance cycles, teams had switched strategy from majority rule to consensus-based decision making.

**Element 2: Readiness Assurance to Ensure Preclass Preparation**

The second essential element is using the RAP to get students prepared. Most teachers have had the bad experience of the class discussion where no one has read the preparatory material. These can be painful, disappointing events. Larry Michaelsen realized that motivating his students to come to class prepared was key to their being able to engage in the deeper, richer, and more interesting problem-solving Application Activities. In an attempt to induce preclass preparation, many teachers have used reading quizzes to promote some level of preparation. Unfortunately, these kinds of quizzes at best can provide some individual accountability and at worst may not effectively measure whether students have genuine understanding of the preparatory materials. A student can choose not to complete or do poorly on the reading quizzes, which can leave the instructor with the conundrum of either moving on and potentially leaving unprepared students behind or backing up and reviewing the material that the students were supposed to read. The problem with using class time to review the preparatory materials is that it eliminates the incentive to prepare, because the students know the teacher will go over it in class.

Michaelsen’s RAP was an important discovery that solves this conundrum. The RAP has some similarities to traditional reading quizzes, because it does get at some individual accountability, but it goes further and builds on that preparation and accountability in the individual test by unleashing the power of social learning and immediate focused feedback during the team test. The magic of the RAP is that it actually builds on initial student preparation and turns it into genuine student readiness for the learning activities that follow in the Application Activity phase.

To build on students’ out-of-class preparation, each module begins with the same structured RAP (see Figure 1.2). The RAP begins by assigning preparatory materials (e.g., newspaper articles, journal articles, textbook readings, PowerPoint slides, videos, or podcasts). The students come to the first class of each module having completed the assigned preparatory materials. Simply put, the in-class portion of the RAP is the administration of a series of multiple-choice tests. These multiple-choice tests are based on the preparatory materials. Students first complete the test individually (known as the iRAT, or Individual Readiness Assurance Test) and then retake the exact same test in their teams (tRAT, or Team Readiness Assurance Test).
Overview of TBL

Test). Following the team test, teams are encouraged to appeal any questions that they disagree with, using a structured written process known as the Appeals Process where they can identify ambiguity in the reading or the question. To close out the RAP, the instructor provides a short mini-lecture or clarification on any specific troublesome topics that still remain.

The entire RAP will be discussed in greater detail in chapter 6.

Element 3: Learning How to Apply Course Concepts

The main goal of any TBL course is to help students use the course concepts to solve significant, relevant problems. TBL uses something known as the 4 S framework for designing and implementing effective problem solving in the classroom (see Figure 1.3).

This structured problem-solving model is used to create classroom events that require students to make complex decisions that can be reported simply, and then the public reporting discussion provides them with rich and specific feedback on the quality of their team’s decision. Teams publicly report their decisions, and this leads to a give-and-take conversation between teams that is a powerful tool to help students develop a deep understanding of the course material.

Application Activities directly build on the students’ individual preparation and their subsequent learning during the RAP. In each Application Activity, all teams are given the same significant problems to solve. Your use of the 4 S framework to carefully structure and design and implement your Application Activities allows you to consistently create successful activities that result in deep, meaningful reporting discussions.
Introduction to Team-Based Learning

Remember the analogy of the two courtroom juries reporting at the same time, prompting that natural motivation to ask why? The team-reporting discussion is the students’ opportunity to scrutinize the decision of other teams and, at the same time, defend their own decision. During this powerful give-and-take discussion, a social consensus begins to emerge on what constitutes a reasonable position and what reasonable evidence supports that position. In contrast to a simple jury decision, consider a fact-finding commission that generates long written documents that are often difficult to compare and therefore often lead to poor discussion. In long documents, the decision points that really let us compare our thinking are hard to find, and the readers will be in different states of overall readiness. The explicit comparability of a jury-like decision, based on analyzing a complex problem, drives these rich discussions.

The 4 S framework’s Application Activities will be the focus of chapter 7.

Element 4: The Importance of Accountability

The final essential element is accountability. Every student and every teacher has likely had a bad team experience at some point. When you announce to your class that you will be using teams in your course, you may not be met with cheers. The students may have been burned by noncontributing team members or experienced dominating and bullying behaviors in previous group work. Helping your students understand the rationales for using TBL and its unique accountability structures that prevent most dysfunction is critical to selling TBL to them. Students may even have been subjected to poorly designed group work that was called “team-based learning” but did not use the TBL framework; therefore, you need to show them that genuine TBL is truly different.
There are multiple levels of accountability in a TBL course. There is individual accountability to the instructor from the iRAT (more on this in chapter 6), but what is truly motivating is accountability to one’s teammates, and a formal peer evaluation process is also key. We can try to motivate our students through extrinsic motivators such as grades, but intrinsic motivation activated by accountability to peers is even more powerful and effective and is often reflected in student feedback like “I didn’t want to let my teammates down.”

The peer evaluation process should compensate students fairly for their contributions to the success of the team. Team grades are often higher than individual grades, and peer evaluation allows us to make sure that students are truly rewarded for their contributions to their team’s success or else held accountable for their lack of contribution.

Accountability, peer evaluation, and grading will be discussed in greater detail in chapter 8.

THE RHYTHM OF A TYPICAL TBL COURSE

A prototypical TBL course is divided into roughly five to seven modules, arranged according to logical groupings of the content. A timeline of a typical module is illustrated in Figure 1.4.

Before the course begins, you need to complete all your course design preparations (more on designing your course materials in chapter 2). When the first day of class arrives, you spend the first portion of the class with your students introducing TBL and convincing them of the value of TBL by carefully and thoughtfully explaining your rationales for using TBL (more on understanding the educational rationales in chapter 4). After that first class, you send students a reminder to complete the preparatory reading before the start of the first TBL module. Students

FIGURE 1.4
Team-Based Learning module timeline

<table>
<thead>
<tr>
<th>Typical TBL Module</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Readiness Assurance</strong></td>
</tr>
<tr>
<td>1 to 1.5 hours</td>
</tr>
<tr>
<td>Readings</td>
</tr>
<tr>
<td>iRAT = Individual Readiness Assurance Test</td>
</tr>
<tr>
<td>tRAT = Team Readiness Assurance Test</td>
</tr>
<tr>
<td>Appeals</td>
</tr>
</tbody>
</table>

come to the first class of the module and then complete the RAP. Once the students are ready, you launch into a series of Application Activities (more on Application Activities in chapter 7). A few classes later, as the module is completed, you provide some closure and reinforcement for all that has been learned. As the next module begins, the familiar TBL rhythm starts to build: out-of-class preparation by the students, the RAP, and Application Activities. Partway through the course, we give the students the opportunity to give each other feedback on how well they are contributing to their team’s success (more on grading and peer evaluation in chapter 8). More TBL modules follow. Finally, the course starts to draw to a close, and you help students consolidate all that they have learned (more on finishing well in chapter 3). The course completes with a final peer evaluation.

We have learned many things over the past decade helping teachers take TBL to their classroom. This book is based on our current and ever-evolving understanding. If you are new to TBL, this book can help you get started and successfully bring TBL to your classroom. If you already use TBL, this book can help you excel. Let’s get started.

NOTE