Northeastern University Center for Advancing Teaching and Learning Through Research

GROUP WORK THAT WORKS

Team-Based Learning is a "flipped classroom" form of collaborative learning that consists of four practical elements:

- 1. strategically-formed, permanent teams;
- 2. readiness assurance activities at the beginning of each unit to motivate, engage, and clarify;
- 3. application activities in which teams must make discipline-based decisions;
- 4. student peer evaluations to motivate accountability and high-performance team-work.
- TIPS

Strategically-formed, permanent teams maximize the benefits of diversity and team development: student characteristics that make the course easier or more difficult are spread as evenly as possible across teams that last the entire term, giving them the chance to develop into high-performance learning teams.

Readiness assurance activities consist of a four-step process that takes place at the beginning of each course unit:

- Preparation by students outside of class selected readings, videos, podcasts, and so on.
- <u>Individual readiness assurance test (iRAT)</u> short, basic, multiple-choice test over preparation materials
- <u>Team readiness assurance test (tRAT)</u> once they turn in their individual tests, students then take the exact same test again, and must come to consensus on their team answers. Teams must get immediate feedback on their performance, currently best achieved using "scratch off" forms called IF-ATs. Students teach each other a tremendous amount in this phase.
- <u>Appeals</u> When teams feel they can still make a case for their answers which were marked as incorrect, they can pull out their course materials and generate written appeals, which must consist of (a) a clear statement of argument, and (b) evidence cited from the preparation materials.

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Team-Based (Repeated for each maj	d Learning Sequence or instructional unit, 5-7 per course))				
Readiness Assurance 45-75 minutes of class tim	e Applica	Application of Course Concepts 1-4 hours of class time				
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"Group projects" can have a structural flaw – Assignments like papers and presentations require a group to produce a complex product. The most rational approach to this task is to segment and distribute the work among group members. This divergent task too-often results in an inequitable and low-quality experience. A better task structure for a learning group is a convergent task, similar to that of a courtroom jury: given a tremendous amount of complex information, they must produce a <u>choice</u>, and perhaps a very short rationale.

For example:

- Given a set of financial data, should the company buy, lease, or rent their trucks?
- Given an article, which paragraph would Marx find most disagreeable?
- Give a collection of pictures, which are normal vs. abnormally-developed infants?
- Which moment in a given film is the best example of family system dynamics?
- What's the best rank-order of pieces of evidence from strongest to weakest?



Student peer evaluation: both mid-course and end-of-course team-mate feedback is processed through the instructor and returned to the students with names removed. In many cases, this takes the form of students listing for each of their team-mates one thing they <u>Appreciate</u> about that team-mate and one thing they <u>Request</u>. Must contribute to student grade. A free, online system called TEAMMATES (<u>http://teammatesv4.appspot.com</u>) now makes this very fast.

THE RESEARCH

A meta-analysis of 38 quantitative studies found that TBL produced learning outcomes nearly half a standard deviation higher than comparison teaching approaches (Liu & Beaujean, 2017). Further, Comeford (2016) incorporated TBL into a first-semester general chemistry course and reduced attrition from 31% to 19%.

These additional findings were assembled by Sisk (2011):

- 1. High student satisfaction is reported in introductory medical courses (Abdelkhalek, Hussein, Gibbs & Handy, 2010), second year medical courses (Parmelee, DeStephen & Borges, 2009), economics courses (Espey, 2010) and psychotherapy courses (Touchet and Coon, 2005). Sisk notes that the highest academic achievers seemed to be less positive about TBL.
- 2. High student engagement is reported in medical courses (Kelly, et al, 2005), clinical nursing courses (Feingold, et al. 2008), and case management courses (Clark, et al. 2008). Sisk notes that this higher level of engagement is to be expected because students in TBL courses are required to work together as student engagement is part of the process of delivering instruction.
- 3. Higher examination scores are reported in microbiology courses (McInnemey and Fink, 2003), organizational/industrial psychology courses (Haberyan 2007), medical elective courses (Wiener, Plass and Marz, 2009), and medical pathology courses (Koles, et al., 2010). Sisk notes that many exam-score studies are pre-TBL/post-TBL comparisons without simultaneous control groups.