

## Teaching Psychology Using Team-Based Learning

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**W**ouldn't it be terrific if we could require all our students to apply their knowledge of psychology to complex, real-world issues? Sure, if all your classes were small-enrollment, upper-division courses. But many instructors also teach larger enrollment, lower-division classes (e.g., Introductory Psychology) where it can be challenging to go beyond simple "learn and remember" course objectives. In this article, we outline a technique that allows teachers to conduct even large-enrollment, general education courses like a small-enrollment senior seminar: Team-based learning.

Team-based learning (Michaelson, Knight, & Fink, 2004) is a teaching paradigm in which students are assigned to permanent teams and students' grades are based on their performance on individual and team tasks (see <http://www.teambasedlearning.org/>). A given unit begins with a short, multiple-choice Readiness Assessment Test to ensure that students understand basic concepts from the textbook. The rest of the unit is used to complete in-class activities that require students to apply their knowledge to complex problems. Teammates are held accountable for contributing positively to team performance via end-of-term peer evaluations that become part of students' final grades.

The team-based course structure yields a number of positive outcomes. Students must learn basic information from the textbook without the aid of lectures, a skill that is important to life-long learning. They must share their knowledge with their teammates, improving their meta-cognitive and communication skills and increasing their learning (teaching is one of the best learning tools). Teams provide social support and personal connections that can aid in student retention, especially of first-year and first-generation students. In addition, team-based learning requires that students hone their ability to work with other people, one of the "critical competencies" required for personal success (Gardiner, 1994).

Team-based learning allows students to "do psychology" even at the introductory level. For example, because they have the full resources of their team, even students in a fairly large ( $N = 100$ ) Introductory Psychology class can successfully design an experiment. First, teams complete a series of in-class activities to practice the basic elements of experimental design (e.g., sampling, defining variables). After these practice activities, each team designs an original experiment to test a realistic hypothesis about human behavior. This assignment is both a learning assessment and a learning event; by the end of the activity, virtually everyone understands how to design an experiment.

Team-based learning works especially well with assignments that require students to practice higher-level cognitive skills (c.f. Bloom, 1956). For example, in Introductory Psychology a unit on Drugs and the Brain ends with an activity in which each team decides which of the many recreational drugs is the most dangerous. To do so, teams articulate a set of criteria they think are a reasonable way to assess "danger" (e.g., the drug is highly addictive, the drug is readily available) and decide which drug best meets each criterion. Teams then use that information to justify their choice as the most dangerous drug. This assignment requires considerable higher-level thought; students

must consider various ways of defining "dangerous," compare the characteristics of several recreational drugs, and then decide how to combine the criteria to make their choice.

Other units in Introductory Psychology feature similar assignments. The unit on psychological disorders concludes with an activity in which teams evaluate which of the major psychological disorders are the most and the least debilitating. The last activity in the unit on memory and information processing requires teams to decide which cognitive phenomenon best explains people's failure to engage in preventative or maintenance behaviors (e.g., rotating tires, flossing teeth daily). The semester culminates in an activity in which teams decide which single concept from the course is the best explanation for why people perform maladaptive behaviors and fail to perform adaptive behaviors.

By now, you might find team-based learning appealing but may be reluctant to try it because of the negative experiences you may have had with group assignments. Many of those negative experiences are attributable to poor group formation, poor activities, or both. Team-based learning provides explicit guidelines to overcome both problems.

Proper team formation avoids a number of common problems with group work. The instructor should form teams of 5-7 students at the beginning of the term with the express goal of maximizing the differences among students within each team. Although this guideline might seem counter-intuitive, think about working with a team of your clones. The team would have exactly the same strengths and liabilities as the individual. Instead, teams comprising individuals with different skills, experiences, and backgrounds will have a wider range of resources and a smaller set of shared liabilities than any given individual.

We form teams by asking students to join a single line using criteria that are relevant to success in the course or in academics generally (e.g., Have you taken a psychology course before? Are you bilingual?). Having formed the line, the students count off in rounds of however many teams there are to be: If there are to be six groups then the first six people in the line are the first members of each of those teams. This procedure effectively separates students who share a particular characteristic into different teams.

Well-constructed team activities are also critical because, in many ways, the quality of team activities determines the quality of team interactions: Good activities foster team cohesion, require students to work together (rather than subdividing a task), and require students to apply course material to challenging problems. In general, good assignments have the three characteristics outlined next.

### Same Question

Every team should work on the same question or problem concurrently. For example, instead of having different teams design an experiment to test different hypotheses, all the teams should test the same hypothesis. Whether they converge on different solutions or the same solution via different routes, teams will be better able to critically discuss each other's work if they are working on the same thing.

### Specific Choice

The product of any assignment should be a specific choice (e.g., Which recreational drug is the most dangerous?) rather than something more extensive (e.g., Compare and contrast the physiological and psychological effects of cocaine, methamphetamine, and heroin). In other words, assignments should maximize the amount of processing the team must do but minimize the size of the final product. Assignments that require a large

final product (e.g., a paper or oral presentation) invite teams to subdivide the task rather than to work interdependently. Also, large products can tempt students to plagiarize or try to disguise poor quality with quantity. In contrast, assignments that require a specific choice (along with some justification, of course) encourage teammates to work together, wrestling with whatever information they deem relevant in order to make a well-reasoned choice. Specific choices also facilitate the use of higher-order thinking skills (e.g., evaluative decisions like "most," "least," "worst," and "best") and real-world problems for which there may not be a "right" answer. Happily, this approach minimizes grading as well. Instead of grading 100 term papers from each student or even 20 team papers, instructors can grade 20 team choices, supported by one paragraph of justification.

### Simultaneous Responses

Teams should make responses all at once rather than taking turns. Simultaneous reporting can be facilitated with classroom response systems (i.e., "clickers"), color-coded index cards, or a simple show of hands. Simultaneous responding has several advantages. It forces all the teams to have a considered answer prepared at the same moment, eliminating the temptation to simply conform to earlier answers. It also allows the instructor to get feedback from all the teams (even in a large class) without a roll call of 20+ teams. More importantly, simultaneous reporting encourages class discussion when teams arrive at different, but equally valid, conclusions. Discussion can focus on the information and reasoning processes used by different teams, nicely illustrating the complexity of making decisions in settings where there isn't a single "right" answer.

We may have convinced you that good assignments and proper team formation can overcome some of common problems with group work; however, we can hear the worried voice in your head: "I have to lecture because I can't rely on my students to do the reading." In team-based learning, the Readiness Assessment Tests (RATs) mentioned earlier free the instructor from having to "cover the material" in lecture. Because they occur at the beginning of a unit, RATs hold students accountable for reading the text; students can't rely on the course instructor in lieu of reading.

Although traditional reading quizzes would also hold students accountable for reading, RATs offer advantages that traditional reading quizzes do not. To understand why, we need to describe two ways in which RATs differ from traditional reading quizzes. First, students complete a RAT both as an individual and as a team. After each student in a team completes the RAT on their own, students answer the same questions together as a team. The team records their answers on an answer sheet that works like a lottery ticket; students scratch off answers until they find the correct one (i.e., Immediate Feedback Assessment Test; see <http://www.epsteineducation.com/>). Teams earn more points if they find the correct answer in fewer scratches. Students' individual scores and their team scores become part of their final grade.

Second, the individual and team tests are structured so that students can allocate points among different response options. For instance, if I think the correct answer is either B or C but have more confidence in B, I could allocate three points to B and one point to C. If B is the correct answer, I earn three points; if C is the correct answer, I still earn one point.

This procedure may seem cumbersome, but it offers a number of advantages over traditional testing. The team portion of the RAT gives teams the opportunity to work together on a common task, an important building block of team cohesion. By allowing students to provide more than one answer to each item, RATs help students practice their meta-cognitive skills. The team RATs also reward students for communicating

effectively with their teammates and for successfully negotiating any differences of opinion regarding the correct answer.

"But," your worried voice retorts, "my students hate group work." Given typical student experiences of working with others, this concern is not at all unreasonable. However, what students really hate is doing other people's work for them without a mechanism for holding slackers accountable.

Both of these concerns are dealt with in team-based learning: Assignments are designed such that they require interdependence of students' efforts - they should not be achievable by subdividing the task. Thus, the team is never left hanging when a teammate fails to complete his or her portion of the task or doesn't attend class. In addition, permanent teams benefit from cohesiveness built over the term. Unlike ad hoc or temporary groups, students in permanent teams learn how to work with each other successfully. Also, the peer evaluations mentioned earlier builds accountability into the final grade. If team members do not make a good faith effort to contribute to their team's success, their teammates' peer evaluations will reflect that fact.

The bottom line? Team-based learning can revolutionize your teaching and your students' learning. Students clearly enjoy assignments that require them to discuss important and controversial issues rather than listening to "the sage on the stage." Class time is punctuated by vigorous conversations, provocative questions, insightful observations, and plenty of laughter, all initiated by the students themselves. We invite you to give team-based learning a try in your classes.

### References

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