Twelve tips for doing effective Team-Based Learning (TBL)
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Team-based learning (TBL) in medical education has emerged over the past few years as an instructional strategy to enhance active learning and critical thinking – even in large, basic science courses. Like Problem-Based Learning, TBL engages students with the kinds of problems they will encounter in medical practice. However, the major emphasis in TBL is on concept application, and the processes through which students learn both the content and the applications are specifically designed so that student groups develop into self-managed learning teams.

Although TBL consistently improves academic outcomes by shifting the instructional focus from knowledge transmission to knowledge application, it also addresses several professional competencies that cannot be achieved or evaluated through lecture-based instruction. The authors offer 12 tips (below) with a set of specific recommendations which, if followed, will ensure the successful design and implementation of TBL for a unit of study.

1. Start with a good course design: TBL is an instructional strategy that works best when it is tightly integrated into the course design. It can be the primary mode of instruction or work alongside other learning activities, e.g., focused lecture, service learning, self-directed online tutorials. Often times, instructors will try out a TBL module or two in an existing course, either replacing a set of lectures or small group sessions that had required recruiting many faculty members.
2. Use a 'backwards design' when developing TBL courses and modules: Start by asking yourself, "What do I want my students to be able to DO by the end of this unit of study?"
3. Make sure you organize the module activities so that students can reach your learning goals and you (and they) will know that they have done it: Once you have decided what you want students to be able to do and how you will assess whether or not they can do it, start by identifying content elements that need to be mastered before students are ready to solve the problems and then write questions for a Readiness Assurance Test (RAT).
4. Have application exercises that promote both deep thinking and engaged, content–focused discussion: The most important aspect of successfully implementing TBL is what the assignments require students to create. By using well-designed assignments, students will both learn from each other and develop a great deal of confidence on the value of working in a team. The key to designing effective assignments is ensuring that what students are asked to do is characterized by 4 S's (Significant Problem from "real life," Same Problem for all the groups, Specific Choice to answer a very specific question, and Simultaneous Report from all the groups) at each of the stages in which they engage with the course content—working alone, working within their team, and working across teams (i.e. whole class).
5. Do not underestimate the importance of the RAP (Readiness, Assurance, Process): It is designed to link students advanced preparation to group application exercises and provides an opportunity for individual feedback and peer teaching.
6. Orient the class to why you are using TBL and how it is different from previous experiences that they may have had with learning groups: Some ways to help would be to give the class a practice RAT, engage them in the process of determining a grading system for the course, and continue to remind the students about the benefits that they will experience along the way.

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7. Highlight accountability as the cornerstone of TBL: Students are accountable for coming to class, prep before coming to class, and investing time and effort into their team. Instructors are held accountable for providing students the cognitive foundation that they will need to be ready to tackle the kinds of problems they will face in medical practice and giving them the opportunities to practice developing their application skills.
8. Providing a fair appeals process will inspire further learning: Inevitably, some students will disagree with your selection of a best answer on a RAT question. The appeals process provides the opportunity, preferably while they are still in class, to either re-write a question they feel was poorly written or articulate, in writing, why they feel their answer was better; using references if appropriate. Allow students to write appeals in class, from within their teams only. Credit is then rewarded to only the appealing team (s).
9. Peer evaluation is a challenge to get going, but it can enhance the accountability of the process: There are several ways to set up a peer evaluation process for the course, and it may take some trial and error before you find the way that best fits your course. When using peer evaluations, students are accountable to the members of their team and they learn how to give and receive constructive feedback.
10. Be clear and focused with the advanced preparation: Doing so allows students to go beyond the minimum preparation since that will only help the individual part of the RAP and allow them to master a topic.
11. Create the teams thoughtfully: Make the process transparent, distribute resources as evenly as possible, and strive for groups with a diverse composition.
12. Several low-budget 'props' facilitate the implementation of a good module: For example, prepare folders for each team, color code the components to make the sequence of activities clear, collect everything so that you won't have to start 'de nova' every year.

Implications for TUSM

As part of our Educational Strategic Plan, we have been discussing the need to change traditional ways of teaching to promote active learning and critical thinking through knowledge application rather than pure memorization of knowledge through knowledge transmission. We also discussed the challenge of recruiting enough faculty to promote knowledge application in small groups. TBL offers faculty a teaching strategy that promotes such teaching and learning and is applicable to large class sizes with minimal faculty involvement.

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