



To adopt or not to adopt innovation: A case study of team-based learning

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ABSTRACT

Evidence of the benefits of an innovation is a necessary but not sufficient condition for its adoption in higher education. This paper reports an investigation of decision making to adopt team-based learning (TBL), an innovation for structuring collaborative small-group learning that has been acclaimed over recent decades. In this study two sets of respondents were asked to reflect on the adoption process, using Rogers' (2003) diffusion of innovation model (with modifications) to frame both the questions and responses. Despite TBL's relative advantages, the results show a crucial factor affecting adoption of TBL is its compatibility with the would-be adopter's teaching approach and with the dominant organisational culture; other factors are TBL's visibility, trialability, and complexity. In the ensuing discussion, strategies for addressing the apparent chasm between the mainstream majority and early adopters of innovation are outlined.

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1. Introduction

Why do some academics embrace educational innovations, whereas others resist it despite compelling evidence of the innovation's benefits (Elton, 2003) and concerted efforts to persuade academics to adopt (Greenhalgh, Robert, Macfarlane, Bate, & Kyriakidou, 2004)?

This paper explores the adoption of team-based learning (TBL), an innovation that seeks to harness collaborative small-group learning and technologies. Researchers claim that TBL offers the following outcomes:

- improved learning outcomes (Koles, Stolfi, Borges, Nelson, & Parmelee, 2010)
- deeper student engagement (Haidet et al., 2012)
- improved problem-solving skills (Kelly et al., 2005)
- better communication and teamwork skills (Thompson et al., 2007)

TBL has been adopted in various countries and contexts, particularly in business and medical schools within higher education and where problem based learning was previously used (Abdelkhalek, Hussein, Gibbs, & Hamdy, 2010); yet, according to Haidet et al. (2012), its potential for curriculum reform has not been fully realised – hence the need for more research on innovation adoption. In their study of factors that influenced the adoption of TBL in 10 medical schools, Thompson et al. (2007) also called for further research into the adoption process. In taking up this recommendation, the author investigates the adoption of TBL in two data sets – one from a case study in a business school close to home, the other through a survey of TBL users in a more global context. In the analysis of both sets of data, the author has used an adapted form of Rogers' (2003) diffusion of innovation model.

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For the benefit of readers who are unfamiliar with TBL, the main body of the paper begins with a thumbnail sketch of TBL – how it is supposed to work and why it is highly regarded. This is followed by a literature review, which concentrates on research about the adoption of innovation, including the work in which the afore-mentioned Rogers (2003) model has been used. The next section describes the research methods, and hard upon this is the results section – structured according to the seven factors identified by Rogers and others. The discussion that follows goes beyond summarising the findings to outline strategies for breaking down the resistance to adoption of TBL.

2. Team-based learning

Team-based learning (TBL) was first developed during the late 1970s to support classroom learning in the US (Michaelsen, Knight, & Fink, 2004). The growing interest in TBL worldwide is evidenced by an active listserv, an annual conference, a rich website (www.teambasedlearning.org), and a considerable amount of published research (Haidet et al., 2012). TBL proponents claim that this teaching–learning approach can be adopted by individual academics in a single course through to multiple academics systematically teaching across an entire program or school; an example of the latter is the Duke-NUS Graduate Medical School Singapore (Krishnan, 2011).

TBL involves students working intensively in small groups and, if all goes according to plan, the groups become transformed into effective learning teams. The following are the guiding principles for this transformation (Haidet et al., 2012; Michaelsen et al., 2004):

- teams are formed from within each class to ensure capabilities and assets are fairly distributed
- membership of teams is sustained for the entire duration of the course
- teams do the overwhelming majority of their group work in class
- learning and assessment activities are structured so that students make increasingly difficult decisions
- relevant and timely feedback is given (preferably immediately), primarily by peer team members and other teams undertaking the structured activities
- technologies and resources are used to support feedback quality and timeliness
- assessment is a combination of individual and team performance
- peer review is an essential element in assessment of each student's performance

TBL incorporates three phases of activities for each learning module: readiness (also known as preparation), application, and assessment. A description of each follows.

In the *readiness phase*, students: a) before class, read assigned material; b) on arriving in class, take an individual multiple-choice test on foundational concepts (known as an individual readiness assurance test or IRAT); c) in pre-assigned teams, answer the same IRAT questions collaboratively in the team readiness assurance test (TRAT); d) as a team, consider each member's IRAT choice until they can commit to an agreed team answer; e) receive feedback on answers via an immediate feedback assessment technique (IFAT) card; f) in the event of a wrong answer, the team continues to debate until members reach consensus and identify the correct answer; struggling to reach a consensus decision on each answer promotes peer teaching and learning; g) when the TRAT activity is completed, teams can write an appeal, basing their justification on assigned readings. At this point students receive feedback from academics, who clarify any remaining learning gaps (from test results and their observations of intra-team discussion).

Teams then move into the second or *application* phase when team members apply previously learnt concepts to decide on the best solution to difficult and authentic problems. Provided problems satisfy four conditions, this phase is a haven for intense debate, triggering peer teaching and substantial feedback for learning. The (4 Ss) conditions are: the problem is *significant* in terms of difficulty and interest to engage students; each team must make a *specific* choice between a limited set of realistic solutions; teams address the *same* problem and report their decision *simultaneously*. Debate is encouraged, first within each team as the team reaches consensus, then later in the whole-class context as teams defend their decisions following the simultaneous revelation of preferred team choice.

In the *assessment* phase, students: demonstrate learning acquired from individuals' preparation for IRATs, peer teaching during TRATs, and team-based practice applications in various summative assessment tasks such as exams. Individuals' contribution to team performance and maintenance is taken into account in the overall assessment (based on peer review), with academic moderation as appropriate.

Several key characteristics of TBL stand out:

- there is a deliberate focus on students experiencing the learning
- academics are facilitators rather than dispensers of information
- in class time the focus is on students using concepts to solve authentic problems, rather than simply remembering key concepts presented
- as team members, students take responsibility for their learning, with an emphasis on their decision making, aided by provision of immediate feedback

Admittedly, the above account is an idealised one. Readers can examine the credibility of the following claims in the literature:

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