



INVESTIGATING THE IMPLEMENTATION OF TEAM-BASED LEARNING IN A UNIVERSITY LEVEL TEACHER EDUCATION COURSE

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ABSTRACT

Team based learning is a popular educational approach in medical and business education, but is less common in other disciplines. This paper first compares team based learning to other similar approaches such as collaborative learning and cooperative learning that have gained a fairly strong following in the teaching of various disciplines. Secondly, it reports on the progress of a year-long research project that examined university student diary entries and questionnaire responses regarding the implementation of team based learning in a teacher-education context. Finally, it will propose rubrics for implementing team based learning at Malaysian institutions of higher education based on student responses received during the project.

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1. INTRODUCTION

Team based learning (TBL) is an educational approach that has gained a following in the teaching of various academic disciplines, especially business and medicine. It is learner centred and instructor-led and has been described as being based on the notion of scaffolding and that people learn from their own experiences as well as the experiences of others (Bresó *et al.*, 2008; Koles *et al.*, 2010). The relevance of TBL to tertiary level education is quite apparent as many professions can expect work to be more effective and efficient when done in teams. Lencioni

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(2002) argues that “it is teamwork that remains the ultimate competitive advantage” (p. vii). As an educational approach, and similar to other approaches such as collaborative learning, cooperative learning and problem based learning, TBL can be influential enough to affect change in learning culture. A clear advantage that team based learning may have over these other approaches, however, is that it is more structured and hence easier for instructors to implement. It is therefore relevant to examine how effectively TBL can be implemented in academic disciplines besides those that have already accepted this educational approach. This paper, hence, describes the implementation of a TBL based approach, referred to in the study as Team Oriented Teaching and Learning or TOTaL, which is specifically aimed for teacher education. It examines the efficacy of TOTaL as a TBL approach according to student responses to the approach and proposes a model to guide the implementation of TBL in teaching university level courses.

2. TEAM BASED LEARNING AND OTHER SIMILAR EDUCATIONAL APPROACHES

The concept of team based learning (TBL) projects the image of a group of individuals working together to achieve a particular objective. This image, however, is also the same image conjured by several other educational approaches, especially collaborative learning and cooperative learning. On closer scrutiny, however, each of these approaches has its own defining features that distinguish it from the other two. While all three approaches involve students working in teams and emphasise student accountability in completing assigned tasks, TBL can be considered more structured in its implementation. Gomez *et al.* (2010), however, concede that TBL and cooperative learning share an “instructor-driven structure of the team process” (p.383) but both these approaches differ from collaborative learning as well as problem based learning - another popular educational approach – because they do not allow for as much student self-organisation. Another defining characteristic of TBL is that it involves more permanent teams as teams tend to work together for an entire semester. In problem-based learning, teams come together only to solve more complex “problem-like” tasks. In collaborative learning, students tend to form teams according to tasks in specific modules.

Michaelsen and Sweet (2008) outline four essential elements of TBL which are the formation and management of teams or groups; student accountability to groups; feedback to students; and assignment design. Similar elements were identified by Koles *et al.* (2010) and Gomez *et al.* (2010), who also highlight the importance of preparation and student readiness in their structured TBL designs. In terms of the formation and management of groups, they stress the importance of overseeing the formation of groups in order to ensure that there is diversity in skills and abilities within the groups. In this respect, they believe that instructors should form the groups as, allowed to choose their own team members, students will naturally tend to select those who are more similar to them and thus create the possibility of forming sub-groups and cliques. Oakley *et al.* (2004) concur, citing studies that laud the benefits of instructor-formed teams, as well as their own experiences that members of self-formed groups may have a higher propensity to cheat and cover for one another (p. 11). Finally, in relation to assignment design, Michaelson and Sweet highlight

the importance of designing activities that are able contribute to the development of the team while the members perform the task required of them.

The benefits of team based learning can be quite obvious as summarised by [Oakley et al. \(2004\)](#) who mention higher grades, learning at a deeper level, retaining information longer, acquiring greater communication skills, and gaining a better understanding of the environment in which they will be working as professionals as among the major advantages (p. 9). Nevertheless, they caution that instructors must create an effective team structure within the classroom in order to enjoy these benefits. Merely placing students into groups may result in students working independently, “pooling their work with no discussion” and causing the students to spend “a great deal of time in conflict over work-related or personal issues” ([Oakley et al., 2004](#)). Clearly, then, team based learning benefits are not automatic and major concerns that may affect student receptiveness towards TBL such as group management, accountability to the team, and the overall outcome of team activity including the final grade received must be addressed.

3. METHODOLOGY

This study was conducted in a Malaysian university located close to the capital of Malaysia with 32 Bachelor of Education students enrolled in a Teaching of English Grammar class as the respondents. The class met for two hours of lecture and two hours of tutorial over a 14 week semester. In this study, the TBL approach was conducted with the aim of helping the students prepare for the individual Micro teaching assignment to be performed by each student during the final weeks of the semester. The approach, referred to in the study as Team Oriented Teaching and Learning (TOTaL), employed the four essential elements of TBL suggested by [Gomez et al. \(2010\)](#), [Michaelsen and Sweet \(2008\)](#) and [Koles et al. \(2010\)](#) described earlier in this paper. The major goals of the study were to assess the students' receptiveness towards a TBL approach and to propose a tentative model for the implementation of TBL.

Members for each team were selected by the instructor according to their current Cumulative Grade Point Average or CGPA. Students were assigned to one of the five teams according to their CGPA standing in order to form mixed ability teams that can be considered generally equivalent based on the academic performance of their members. During the first tutorial session, students were also informed of the importance of being accountable to their teams. They were also briefed regarding how the course will be assessed and reminded of the team dysfunctions to avoid ([Lencioni, 2002](#)) in order to achieve effective teamwork. With respect to feedback to students, teams were required to arrange for consultation with the instructor at various stages of the course. Finally, early assignments were organised in order to facilitate team activities and, in step ladder fashion, were intended to lead up to further and more challenging assignments later in the course. The first assignment, for example, was done individually and required each student to come up with a grammar teaching activity. They would then share this activity with their team members as a means to complete their second assignment which was to video record one of their team members teach grammar for ten minutes. Teams were then required to discuss the recording with the instructor in separate team-instructor sessions. This video recorded assignment relates to the final

project of micro teaching which, although performed individually, would provide bonus marks for each team based on the performance of every member in the team.

Data in this study were collected via a questionnaire and diary entries. The students were required to fill in a questionnaire which, besides providing useful data for the researchers, was also intended to further sensitise the students to the requirements and challenges of team learning. The statements in the questionnaire were adapted from instruments used in various studies (Bresó *et al.*, 2008). The questionnaire consisted of 20 statements related to TBL which were presented in a 5-point Likert scale format with a response of 5 indicating strong agreement to the statement and a response of 1 indicating that the respondent strongly disagrees. The statements elicited the respondents' views regarding 4 aspects of TBL which are group dynamics, benefits of TBL, benefits towards micro teaching, and assessment during TBL.

In addition to data collected from the questionnaire, all students were also asked to keep a diary and have a minimum of twenty entries as part of their course requirements. The students were allowed to write anything they wished regarding the course or the content of the course. The number of responses made regarding working in teams were noted and analysed in terms of whether they expressed positive or negative views towards team learning. Additionally, and whenever possible, themes were formed regarding team based learning. In this paper, some initial findings from both the questionnaire and the diary entries are reported. Based on the initial findings of these two instruments as well as the instructor's own observation of team learning activity taking place in the classroom as well as during consultations, a developing model of TBL implementation for higher education will also be proposed.

4. RESULTS AND DISCUSSION

The results of the study are presented in three sections. The first two presents the results according to the two instruments used in the study and the third will highlight themes or key areas that need to be given attention if TBL is to be successfully implemented.

4.1. The Questionnaire

The frequency and percentages of responses to the statements in the questionnaire as well as the mean response for each statement are displayed in Table 1.

All except 4 of the statements are presented as positive statements. The four that were presented as negative statements were reverse coded when analysed and the means after reverse coding are presented in parentheses in the final column in Table 1 above. The mean scores for the statements indicate a generally positive view towards TBL as almost half the statements (9) have a mean response of 4.00 or higher and, except for three statements with mean responses of between 2.00 to 2.20, the mean responses to the remaining statements were between 3.5 to 4.0.

The consistency of responses to the statements for the constructs of group dynamics, benefits of team learning, benefits towards micro teaching, and assessment as measured by Cronbach's alpha were 0.839, 0.788, 0.666, and 0.281 respectively. These values represent strong consistency in the measurement of the first three constructs. The lack of consistency in the responses towards assessment reflects uncertainty towards this aspect of TBL. This is further corroborated by the

responses to individual statements on assessment where the highest percentage of undecided responses (between 24.1 to 48.3 percent) among all the 20 statements could be found.

Table-1. Frequency, Percentage and Mean of Responses to Statements in Questionnaire

		SA 5	A 4	U 3	D 2	S D 1	Mean
1	A task or assignment can be completed more effectively (B)	8 (27.6)	18 (62.1)	1 (3.4)	1 (3.4)	0 (0)	4.18
2	Team members will share knowledge (B)	10 (34.5)	16 (55.29)	2 (6.9)	1 (3.4)	0 (0)	4.21
3	Team members will help each other improve (B)	7 (24.1)	17 (58.6)	3 (10.3)	2 (6.9)	0 (0)	4.00
4	Everyone's opinion will be taken into consideration (Dy)	5 (17.2)	11 (37.9)	13 (44.8)	0 (0)	0 (0)	3.72
5	There will be members who will not pay attention in discussions (Dy) REV	5 (17.2)	18 (62.1)	4 (13.8)	1 (3.4)	1 (3.4)	3.86 (2.14)
6	Students who normally get good grades will get lower grades (G) REV	1 (3.4)	1 (3.4)	10 (34.5)	14 (48.3)	3 (10.3)	2.41 (3.59)
7	Team members will discuss suggestions and opinions thoroughly before making a decision (Dy)	6 (20.7)	20 (69.0)	2 (6.9)	1 (3.4)	0 (0)	4.07
8	All team members will receive the grade that they deserve (G)	4 (13.8)	14 (48.3)	7 (24.1)	3 (10.3)	1 (3.4)	3.59
9	There will be members who will not contribute to the discussions (Dy) REV	4 (13.8)	19 (65.5)	6 (20.7)	0 (0)	0 (0)	3.3 (2.06)
10.	Students who are weak will get a better grade (G)	3 (10.3)	13 (44.8)	8 (27.6)	4 (13.8)	1 (3.4)	3.45
11.	Different points of view will be respected (Dy)	6 (20.7)	16 (55.2)	6 (20.7)	1 (3.4)	0 (0)	3.93
12.	The effort that I put into the team will be reflected in the grade that I get (G)	10 (34.5)	10 (34.5)	7 (24.1)	1 (3.4)	1 (3.4)	3.93
13.	I will feel responsible in producing my best teaching for my team and team members (B-T)	16 (55.2)	13 (44.8)	0 (0)	0 (0)	0 (0)	4.55
14.	Team members will learn from each other (B)	10 (34.5)	18 (62.1)	0 (0)	1 (3.4)	0 (0)	4.28
15.	Team members will be able to receive constructive criticism (Dy)	3 (10.3)	16 (55.2)	8 (27.6)	1 (3.4)	1 (3.4)	3.66
16.	Some team members will dominate the team activities and discussion (Dy) REV	4 (13.8)	21 (72.4)	4 (13.8)	0 (0)	0 (0)	4.00 (2.00)
17.	Team members will be able to give constructive criticism (Dy)	2 (6.9)	21 (72.4)	3 (10.3)	3 (10.3)	0 (0)	3.76
18.	Feedback from team members can improve my teaching (B-T)	12 (41.4)	16 (55.2)	1 (3.4)	0 (0)	0 (0)	4.38
19.	I will get encouragement from my team members to teach well (B-T)	11 (37.9)	13 (44.8)	5 (17.2)	0 (0)	0 (0)	4.21
20.	I will get new ideas on teaching from my team members (B-T)	10 (34.5)	17 (58.6)	2 (6.9)	0 (0)	0 (0)	4.28

Note. B = Benefits, Dy = Group Dynamics, G = Grades/Assessment, B-T= Benefits to Micro Teaching

The mean scores for these four constructs were 4.35 for benefits towards micro teaching, 4.17 for benefits of TBL, 3.64 for assessment and 3.17 for group dynamics. These mean scores indicate

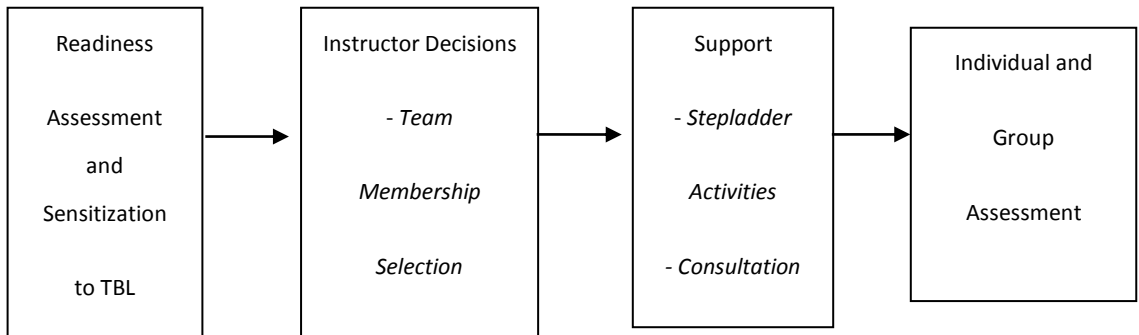
that the respondents tend to view TBL as a positive experience, especially in terms of the benefits that it brings both in general and, more specifically, towards the final project of micro-teaching. Their perception of TBL in terms of assessment and group dynamics, however, was less positive. The respondents were somewhat sceptical of the ability of their course mates to work effectively in teams. Their responses to some of the individual statements that represent group dynamics are especially telling with 79.3 percent either agreeing or strongly agreeing that there will be members who will not contribute to discussions, 79.3 percent who feel that there will be members who will not pay attention during discussions, and 86.2 percent who feel that some team members will dominate the team activities and discussions.

4.2. The Diaries

Diary entries were analysed in terms of the frequency and percentage of entries that refer to TBL as well as the nature of the comments made regarding TBL. Of the 99 entries made after the first 4 weeks of the semester, 27 (27.27%) were comments related to team based learning. Of these 27 references, 16 (59.26%) were non-judgmental of TBL, 8 (29.63%) were generally positive comments regarding TBL, and 3 (11.11%) can be considered negative towards the approach. Examples of the positive entries include, in verbatim, “We ask questions and clear all the confusions that we have with the help of each other. Basically, we will help each other to understand more on what to do regarding the assignment”, and “The group discussion was fun and exciting”. Negative entries, in contrast and cited in verbatim, included “I have never work with some of my group member because they are passive and very silence” and “Guess what? I am voted as the teacher. Sometimes I wish people would pick on someone else instead of me all the time”. In these examples, both the positive and negative comments reflect concerns related to the dynamics within the teams, with positive statements indicating relief at having team members who seem committed and negative statements expressing anxiety regarding how the team would function.

4.3 Areas to be Given Attention

Two of the more prominent themes that emerged while conducting this study are the students' concerns regarding group dynamics and the accuracy of course assessment. Both these concerns are not completely surprising as they have often been mentioned as issues in TBL. These concerns also consolidate what the writers anticipated at the outset of the project and which they have tried to accommodate into the design and implementation of TBL in their Team Oriented Teaching and Learning or TOTaL project. In retrospect and in light of the responses obtained from the questionnaire and the diaries, Figure 1 illustrates four key areas that need to be given due consideration when implementing TBL in university level courses in Malaysia.

Figure-1. Areas to be Addressed in the Design and Implementation of Team Based Learning

First, team members must be made aware of their roles and responsibilities in a team as well as the kind of relationship between team members that is required in order for TBL to succeed. Readiness and sensitization can help students to be more receptive to TBL and subsequently become more effective team members. In the TOTaL project, readiness and sensitization were achieved in two ways. First, team members were told of various ways how teams fail by referring to the comments on the subject by [Lencioni \(2002\)](#). Secondly, and more indirectly, it was felt that team members would also be sensitized to the needs of TBL by completing the questionnaire on TBL given at the beginning of the course.

As TBL is relatively more instructor led than several other educational approaches such as problem based learning and cooperative learning, it was felt that TBL should also focus on the kinds of decisions the instructor should make. In the TOTaL project, instructor decision was most obvious in team membership selection. The advice regarding self selected teams being hampered by cliques and prone to laziness and cheating among members should be taken seriously. In the Malaysian context, the multi cultural and multi religious nature of Malaysian society dictates that groups should also reflect this mix in order to be consistent with post graduation work situations. Instructor made decisions should therefore be an integral part of TBL and should be constantly assessed in order to realise a greater part of the potential of TBL.

The third key area that was addressed was the provision of support to the students in TBL. The TOTaL project provided students with support in TBL through step ladder activities. These activities are essentially activities that are designed in such a way that an earlier activity would lead up to and provide information for a subsequent activity. In courses where a major activity is required, such as the micro teaching activity in this course, step ladder activities would be especially appropriate and beneficial. Students can become better prepared to perform in their final micro teaching activity not only through the assistance provided by their team members, but also the progressively more challenging activities that lead up to the micro teaching activity. Another form of support was the instructor-team consultation done separately with each team. This activity allowed the instructor to gauge the extent of team work for each team and attend to matters within each team without involving the other teams.

Finally, the issue of assessment must also be addressed. In the TOTaL project, both individual and team assessment make up the overall assessment of the students. Although TBL proposes that students work in teams throughout the semester, students were also assessed according to their

individual performance. Individual assessment was considered necessary in the TOTaL project due to it being a more familiar assessment format in Malaysian education. However, it is certainly possible to minimize individual assessment in favour of group assessment in the future when group assessment has become more familiar to the students. In addition to these two forms of assessment, some form of peer assessment may be also included, although this too should be implemented carefully because of its novelty among Malaysian students. In this TOTaL project, peer assessment is conducted in the form of bonus marks and serves the dual purpose of providing feedback to the instructor regarding the effectiveness of the teams.

5. CONCLUSION

This study is an initial foray by the writers into the implementation of team based learning in teacher education courses at Malaysian universities. The experience in trying to implement the approach has been insightful and has highlighted the need to carefully construct an effective team structure within the classroom. This need is especially important due to the structured nature of TBL which places a high level of responsibility on the shoulders of the instructor. The results of this study indicate that although the respondents are generally positive towards TBL, they exhibit some tentativeness towards the approach. Two major areas of concern are group dynamics as well as the accuracy of assessment. This indicates that classroom team structure that needs to be established must address both these areas of concern. In this paper it is proposed that four courses of action, involving student sensitization to working in teams, team selection, provision of support as well as a balanced individual and team assessment format can be effective in ensuring the efficacy of TBL.

In conclusion, although TBL is not a common educational approach in teacher education, it is still a feasible option provided both the students and the instructor play their part. The generally positive perception of working in teams expressed by the respondents in this study is a good first indicator of the efficacy of TBL in teacher education courses. The second step will require the instructor to carefully design a team structure in the classroom - bearing in mind the comments received in this study regarding readiness, instructor decision, assessment and student support - so as to reap the full benefits of TBL.

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