

AN EVALUATION OF TEAM-BASED LEARNING APPROACH IN BUSINESS EDUCATION

Penilaian Pendekatan Pembelajaran Berasaskan Pasukan Dalam Pendidikan Perniagaan

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ABSTRACT

Team-Based Learning (TBL) is a student-centered learning approach that effectively improves students' learning outcomes, knowledge, and higher-order thinking skills by promoting active learning in teams, which are strongly required for business education. There is evidence of improved student learning with TBL, but research on how TBL affects learning outcomes among business students is still ambiguous. Therefore, this study was designed to gain knowledge and understanding of TBL implementation in business education in a private university in Sarawak. The purpose of this design-based research is to design and develop a TBL learning environment for business students in higher education and evaluate the approach to examine the students' perception towards TBL and teamwork. Mixed methods were used for data collection among thirty business students from a private university in Sarawak. Data was collected from the students via pre- and post-implementation surveys using the Evaluation of Team-Based Learning Questionnaire that consists of both Likert Scales and open-ended questions. The findings reveal no significant difference ($p > 0.05$) found in the students' perception of TBL and teamwork after implementing the learning approach. There was also no significant relationship ($p > 0.05$) between the student's perception towards TBL and their learning outcomes. However, the students' perceptions towards TBL and teamwork were good. This indicates that the business students positively perceived TBL, and their test scores have improved with TBL implementation. Further studies could be conducted to determine whether TBL is effective for different courses in business education and other subject areas.

Keywords: team-based learning, design-based research, perception, teamwork, business education.

ABSTRAK

Pembelajaran Berasaskan Pasukan (TBL) adalah pendekatan pembelajaran berpusatkan pelajar yang meningkatkan hasil pembelajaran, pengetahuan, dan kemahiran berfikir aras tinggi pelajar dengan mempromosikan pembelajaran aktif dalam pasukan, yang sangat diperlukan untuk pendidikan perniagaan. Terdapat bukti peningkatan pembelajaran pelajar dengan TBL, tetapi penyelidikan mengenai bagaimana TBL mempengaruhi hasil pembelajaran dalam kalangan pelajar perniagaan masih kurang jelas. Oleh itu, kajian ini dirancang untuk mendapatkan pengetahuan dan pemahaman mengenai pelaksanaan TBL dalam pendidikan perniagaan di sebuah universiti swasta di Sarawak. Tujuan penyelidikan berasaskan reka bentuk ini adalah untuk merancang dan mengembangkan persekitaran pembelajaran TBL untuk pelajar perniagaan di pengajian tinggi dan menilai pendekatan untuk memeriksa persepsi pelajar terhadap TBL dan kerja berpasukan. Kaedah campuran digunakan untuk pengumpulan data dalam kalangan tiga puluh pelajar perniagaan dari sebuah universiti swasta di Sarawak. Data dikumpulkan daripada pelajar melalui tinjauan sebelum dan selepas pelaksanaan menggunakan Penilaian Soal Selidik Pembelajaran Berasaskan Pasukan yang terdiri daripada Skala Likert dan soalan terbuka. Hasil kajian tidak menunjukkan perbezaan yang signifikan ($p > 0.05$) yang terdapat pada persepsi pelajar terhadap TBL dan kerja berpasukan setelah melaksanakan pendekatan pembelajaran. Tidak ada hubungan yang signifikan ($p > 0.05$) antara persepsi pelajar terhadap TBL dan hasil pembelajaran mereka. Walau bagaimanapun, persepsi pelajar terhadap TBL dan kerja berpasukan adalah baik. Ini menunjukkan bahawa pelajar perniagaan merasakan TBL secara positif, dan skor ujian mereka bertambah baik dengan pelaksanaan TBL. Kajian lanjutan dapat dilakukan untuk menentukan apakah TBL berkesan untuk kursus yang berbeza dalam pendidikan perniagaan dan bidang subjek lain.

Kata kunci: pembelajaran berasaskan pasukan, penyelidikan berasaskan reka bentuk, persepsi, kerja berpasukan, pendidikan perniagaan.

INTRODUCTION

Malaysia's emphasis on developing human capital is reflected in the Malaysian Education Blueprint 2015-2025. Education plays an essential role in developing human capital as Malaysia strives to achieve a knowledge-based economy (Ministry of Education Malaysia, 2012). One of the strategies to achieve this is by enhancing the quality of education and ensuring that Malaysian higher education institutions are world-class (Mosaku & Ghafar, 2010). In the traditional business education class, students are used to a passive learning environment that does not develop the students' active learning and class participation (Ki, 2019). Team-Based Learning (TBL) is believed to develop teamwork skills among business students and ensures their readiness for their workplace (Betta, 2016), that is particularly relevant to business education (Wang & Wang, 2011), and is a skill that potential employers expect business graduates to have (Subir & Jana, 2019). Nowadays, employers require business graduates to have teamwork skills (Gudmundsson & Southey, 2012; Keiper, Sieszputowski, Morgan & Mackey, 2019). However, Harris and Bristow (2016) reported that students struggled with teamwork and were not aware of the importance of effective group work. Although TBL has been conducted among pharmacy, medical, and nursing students (Whitley, Bell, Eng, Fuentes, Helms, Maki & Vyas, 2015; Kim, Song, Lindquist & Kang, 2016; Tweddell, Clark & Nelson, 2016), studies on the effectiveness of this approach have been limited (River, Currie, Crawford, Betihavas & Randall, 2016).

One of the National Key Economic Areas (NKEAs) under the Tenth Malaysia Plan is to increase the contribution of private education to Gross Domestic Production (GDP) by 2 percent in 2015 and to attract 150,000 international students by 2020 (Tenth Malaysia Plan, 2010). The Malaysian Ministry of Higher Education (MOHE) has implemented various strategies such as enhancing educational scholarship, developing world-class educational institutions with world-class leadership, increasing the number of enrolments in higher education, and the number of private educational institutions (Rena, 2010). However, the Malaysian Ministry of Higher Education (MOHE) found a gap in students' expectations, particularly international students' perceptions of the academic staff. International students expect more interaction, engagement, and psychological support from their lecturers (Chong & Amlı, 2013). Nevertheless, the literature shows a lack of study on Team-Based Learning among business students, particularly in the Malaysian context.

LITERATURE REVIEWS

Team-Based Learning

TBL helps students learn collaboratively in small groups of 5 to 7 members (Michaelsen, Knight & Fink, 2002). Barclay (2011) defined TBL as an instructional strategy that combines the traditional face-to-face instruction and social constructivism through a specific instructional sequence that starts with the readiness assurance process to ensure learners' familiarity with the subject, followed by application exercises and eventually evaluation processes. Team-Based Learning Collaborative (2017) defined TBL as an evidence-based collaborative instructional approach used to design modules based on three cycles: preparation, in-class readiness assurance tests, and application-focused exercises. This instructional approach enables active learning by promoting self-regulation and is adaptable to the blended learning environment (Whittaker, 2014). In order to ensure active participation by all members in the group, smaller team sizes are encouraged for accountability of team members (Millis & Cottell, 1998).

Michaelsen and Sweet (2011) proposed the effectiveness of TBL towards students' test performance, attendance, attitudes towards group assessment, satisfaction level towards TBL, and team synergy. Michaelsen was believed to be the pioneer in the TBL teaching approach. In this framework, TBL sequences commenced with a pre-class individual study. This step was then followed by an individual test and a team test to measure the students' understanding after their pre-readings. The team test was answered using an Immediate Feedback Assessment (IF-@) Form. The students fill in an appeal form in teams whenever they are not satisfied with the proposed answers. As a follow-up from the tests, the lecturer would briefly explain the unclear parts to the

students based on their individual and team scores. Eventually, the students were required to complete a higher-order application exercise in teams applying their knowledge to a more complicated case study question. The TBL activities ended with peer evaluations of the team members.

Perception towards Team-Based Learning

TBL was shown to effectively improve the performance of undergraduate hospital management students as most of the students preferred TBL to the traditional lectures (Rita, Neda & Nasrin, 2016). Teamwork enables business students with different backgrounds to produce high-quality assessment tasks (Avolio, Benzaquen & Pretell, 2019). However, there has been little research on students' reactions and perceptions towards TBL in tertiary education (Schmid, 2008). In addition, a cross-sectional study was conducted by Gryka, Kiersma, Frame, Cailor & Chen (2016) to identify the differences in Pharmacy students' perceptions and confidence of Biochemistry concepts using TBL format compared to the traditional lecture method. The respondents were required to complete the Biochemistry Questionnaire in the pre-and post-semester. The findings revealed that TBL was well accepted by the Pharmacy students in which they felt that TBL could enhance their confidence in learning Biochemistry subject.

Additionally, a survey on students' receptiveness towards TBL was done in Malaysia for implementation in a university-level teacher education course (Arshad, Hawanum, Juridah, & Sharifah Zainab, 2015). The results revealed that TBL was positively accepted among teacher trainees. Moreover, Remington, Bleske, Bartholomew, Dorsch, Guthrie, Klein, Tingen & Wells (2017) assessed the students' perceptions and attitudes towards TBL using the written self-reflection method and narrative questions. They reported that TBL effectively enhanced lifelong learning, teamwork skills, and the knowledge and application of the Pharmacotherapeutics Course.

Furthermore, Fatemeh and Ferdos (2016) also conducted Team-Based Learning among 20 nurses who attended a nursing documentation workshop in Iran. The respondents' experiences and perceptions about Team-Based Learning were examined by using both interviews and observations methods. The nurses' respondents were satisfied with the Team-Based Learning activities and viewed Team-Based Learning as an effective strategy to improve their skills and knowledge. Besides, 19 pharmacy educators were chosen to participate in a series of individual semi-structured interviews to investigate their perceptions and experiences in Team-Based Learning (Tweddell et al., 2016). The participants perceived Team-Based Learning as a practical approach to benefit students' learning, especially in developing transferable skills.

Learning Outcomes and Team-Based Learning

Harker and Harker (2007) suggested that team interaction could enhance students' learning outcomes. Kim et al. (2016) described TBL as a learner-centered approach that effectively improves students' academic performance, problem-solving and critical thinking abilities through active learning in teams. Bleske, Remington, Wells, Klein, Guthrie, Tingen, Marshall & Dorsch (2016) supported the findings, who also found that TBL could improve students' learning outcomes, particularly in performing higher-order tasks. Generally, Sisk (2011) reported a positive relationship between the students' participation and academic performance in TBL. Nevertheless, River et al. (2016) reported that the study and evidence regarding the effectiveness of TBL in enhancing the students' preference and learning outcomes were minimal.

Subsequently, Rita et al. (2016) also indicated that TBL could effectively improve hospital management students' performance, in which most of the students prefer TBL sessions than a traditional lecture, which was deduced from their test scores. There was a significant improvement in their test scores after the TBL sessions compared to the traditional lecture sessions. Furthermore, Woerkom and Croon (2009) were surveyed among 1107 respondents to investigate the relationships between team-based activities and team performance. However, the survey failed to conclude the causality between the variables. On the other hand, Bleske et al. (2016) found that students' abilities in solving higher-order and critical thinking tasks increased with TBL sessions.

Huang and Lin (2017) carried out mixed-methods research by incorporating TBL in business education

for Human Resource Management subject. However, the richness of qualitative data was limited as it was only conducted to confirm the quantitative results. Positive relationships were found among the learners' academic performance and their perceived team members' contributions. The study reported that the students' learning outcomes could be improved by increasing the effectiveness of TBL in the classroom. However, there is still a lack of study on Team-Based Learning among business students, particularly in the Malaysian context.

OBJECTIVE OF THE STUDY

Generally, the objective of this study was to determine the effectiveness of the TBL approach for a content-intensive subject such as business education. Specifically, this study investigates private higher education institutions' business students' perception of TBL practice and whether there is a relationship between their perception and learning outcomes.

RESEARCH HYPOTHESES

There were two research questions in this study. The first Research Question was: *How do business students in a private international higher education institution perceive the practice of Team-Based Learning?* In order to answer this, a null hypothesis was developed:

H01: There is no significant difference in the students' perception of Team-Based Learning before and after the implementation of Team-Based Learning in a private international higher education institution.

The second Research Question was: *What is the relationship between the students' perception towards Team-Based Learning and their learning outcomes among business students in a private international higher education institution?* To answer this, the null hypothesis was:

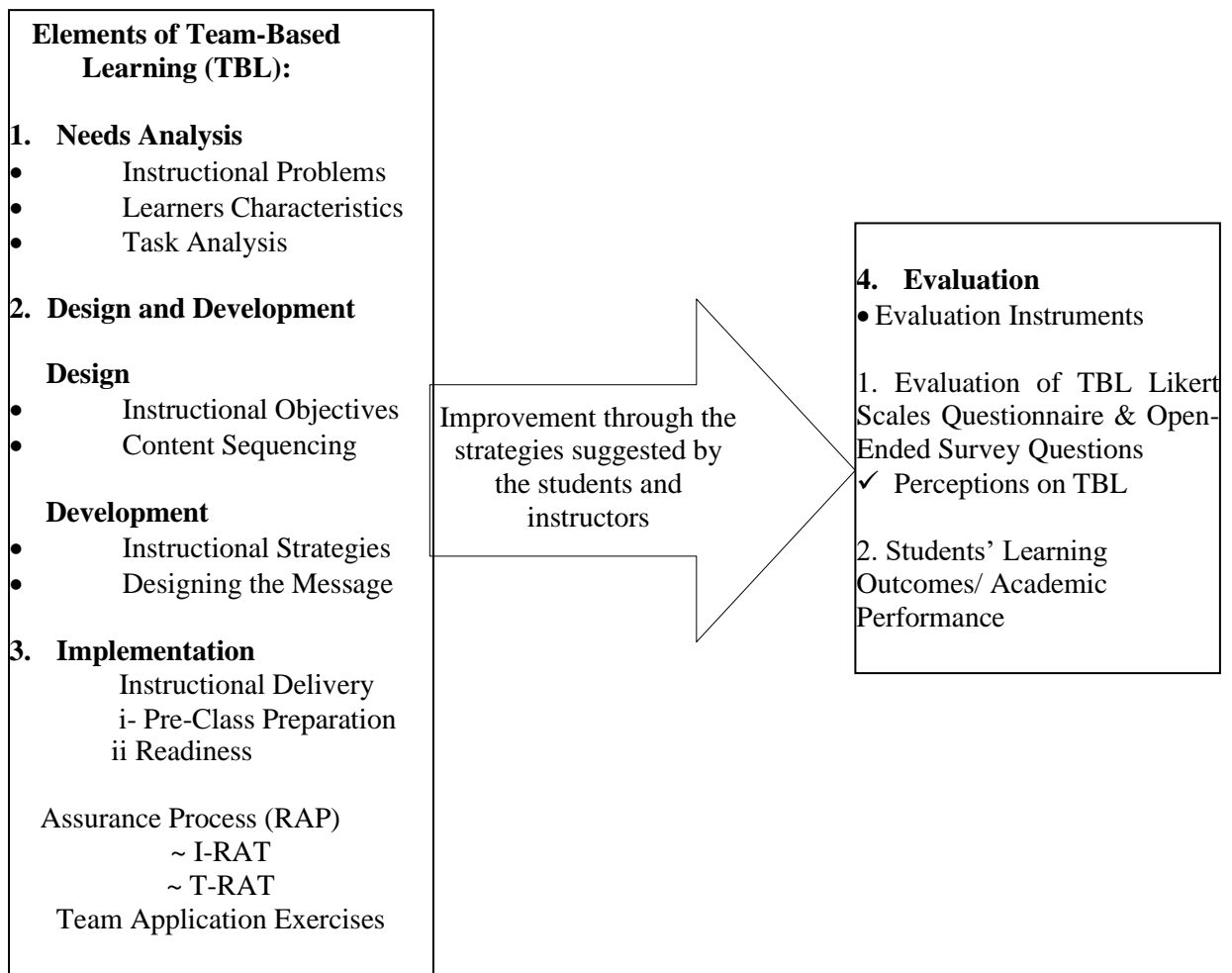
H02: There is no significant relationship between the students' perception towards Team-Based Learning and their learning outcomes among business students in a private international higher education institution.

RESEARCH METHODS

A Design-Based Research (DBR) methodology was used to develop the TBL modules for Business education with input from the subject-matter experts based on the framework proposed by Michaelsen and Sweet (2011). The researcher, who was also the designer, worked closely with the subject-matter experts to determine accurate and detailed information for use in designing and developing the instructional unit (Morrison, Ross & Kemp, 2007). The unit contents and task components were identified based on the syllabus and curriculum set by the university. The conceptual framework of this study is shown in Figure 1. Quantitative methods were employed to examine how the business students in a private international higher education institution perceive the practice of TBL using the Evaluation of TBL Questionnaire and the relationship between the students' perception towards TBL and their learning outcomes. Qualitative data was also collected via the open-ended survey questions to gain more insights regarding the students' perception of TBL.

Figure 1

Conceptual Framework of Team-Based Learning (TBL)



RESEARCH SAMPLES

The participants were invited from 36 students enrolled in a business management unit in Sarawak, Malaysia's private international higher education institution. However, only 30 students agreed to participate as respondents in this study voluntarily. As most studies recommend a sample size of 30 or more (Roscoe, 1975; Gay & Diehl, 1992; Hill, 1998), the minimum sample size of 30 was just sufficient for a correlational study. This business subject was chosen because it has a simulation component of a business environment that requires students to apply the knowledge to different contexts. This subject involves team assessments and requires the students to integrate their prior knowledge learned in previous subjects to master the learning content of this unit.

RESEARCH INSTRUMENTS

The instruments used for data collection were an Evaluation of Team-Based Learning Questionnaire and open-ended survey questions to answer Research Hypotheses 1. The Readiness Assurance Process (RAP) Tests and Team Application Exercises answered Research Hypothesis 2. These instruments were reviewed and validated by an advisory panel of prominent instructors who are experts in the field of business

management. Both instructors satisfied the selection criteria set by the researcher. The four criteria of selection are indicated below:

- (1) The instructors should have taught in this university for more than ten years and are considered as experienced and experts in the area of business;
- (2) The instructors should be experienced in teaching Human Resource Management (HRM) units so that they can comment on the instructional issues faced by their students in learning the HRM unit studied in this research,
- (3) The instructors should be experienced in conducting the Team-Based Learning approach so that they can share their suggestions on how to further improve this approach in the design and development phase, and;
- (4) The instructors should be able to provide full cooperation and genuine responses throughout the study.

The Readiness Assurance Process (RAP) Test and Team Application Exercise (TAE) were conducted after each class's completion. Three RAP and TAE tests were carried out continuously throughout the semester to assess the progress of students' performance. Learning outcomes in this study refers to the students' total scores for the Individual Readiness Assurance Process (I-RAP) tests, Team Readiness Assurance Process (T-RAP) tests, and the Team Application Exercises for the subject.

The learners' perception towards TBL practice was determined using an Evaluation of Team-Based Learning Questionnaire and open-ended survey questions, which were adapted from Nagaswami, Defouw & Compton (2009), with high validity and reliability. The researcher was substantially modifying some questions to fit the purpose of this study better.

DATA ANALYSIS

The quantitative data collected via the Evaluation of Team-Based Learning Questionnaire was analysed using the Statistical Package for the Social Sciences (SPSS) Version 23.0 by comparing the overall mean and standard deviation before and after the TBL activities to identify the business students' perception towards TBL. Subsequently, paired sample t-test was also conducted to determine whether there was a significant difference in the before and after scores of students' perception towards TBL. Additionally, Pearson Moment Correlation Analysis was carried out to determine the relationship between the students' perception towards TBL and learning outcomes.

On the other hand, the qualitative data obtained from the open-ended survey questions was analysed through three main stages: producing themes to cluster the data and constructing the main ideas to conclude the points expressed by the respondents. Finally, make a cross-analysis of the data to form a consistent category between respondent.

FINDINGS

Research Hypothesis 1

The Evaluation of Team-Based Learning Questionnaire was intended to evaluate the respondents' perception of TBL. The t-test analysis results for the overall pre-implementation and post-implementation surveys are presented in Table 1.

Table 1

Paired t-test Analysis Results for the Overall Pre-Implementation and Post-Implementation Surveys Scores for Perception

Survey	Paired Differences (n= 30)					
	Mean	N	SD	T	df	Sig (2-tailed)
Pre- Implementation	3.91	30	0.389	-1.381	29	0.178
Post- Implementation	4.09	30	0.591			
Gain*p < 0.05	0.18					

Null hypothesis 1 states that there is no significant difference between the scores of the overall pre-implementation and post-implementation surveys before and after implementing the TBL approach. The Paired t-test analysis shows there was no significant difference in the overall scores obtained for pre-implementation survey (Mean= 3.91, Std. dev= 0.389) and post-implementation survey (Mean= 4.09, Std. dev= 0.591) conditions; $t(29) = -1.381$, and $p = 0.178$. Hereafter, the null hypothesis is not rejected. There were no significant differences in the respondents' perception of TBL after TBL implementation, even though there was a marginally increase in the overall mean scores.

It can be concluded that TBL was well-perceived by the students enrolled in business courses in this private international higher education institution. The overall mean scores for both pre-implementation and post-implementation surveys are considered to be high. These findings indicate that the students positively perceived TBL and Teamwork in TBL even before implementing this approach.

The qualitative findings obtained from the open-ended survey questions of the students' perception towards TBL are summarised in Table 2.

Table 2

Summary of the Qualitative Findings for the Students' Perception towards Team-Based Learning and Teamwork in Team-Based Learning

Students' Perception towards Team-Based Learning (TBL)
<ol style="list-style-type: none"> 1. TBL corrects their mistakes. 2. TBL improves their understanding of the course concepts. 3. TBL increases their self-efficacy to pass the unit. 4. TBL enhances their understanding of the course learning materials. 5. Majority of them prefer TBL assessment to traditional final examination method.
Students' Perception towards Teamwork in Team-Based Learning (TBL)
<ol style="list-style-type: none"> 1. TBL further enhances team cohesiveness among team members. 2. There was mutual respect among team members during team discussions. 3. Diverse team members contribute new ideas and accurate answers for the team tests. 4. Diverse teams establish communication skills among the team members. 5. Solving problems in teams is an effective way to learn. However, the task period was too short.

These qualitative findings substantiate the quantitative data gathered using the Evaluation of Team-Based Learning Questionnaire. Generally, the students perceived that they could correct their mistakes and improve their understanding of the course concepts through TBL. However, there are no significant changes in the students' perception after implementing the

TBL approach in such a short timeframe, even though there was a marginal increase in the overall mean scores.

Research Hypothesis 2

Table 3 shows the results of Pearson correlation analyses for the relationship between the students' perception towards TBL and their academic performance.

Table 3

Pearson Correlation Analysis Results (n= 30)

Students' Perception of TBL	Learning Outcomes Scores	
	r	p-value
Note. r = Pearson Correlation Coefficients	0.270	0.074

*Correlation was significant at the 0.05 level

Null hypothesis 2 states that there is no significant relationship between the students' perception towards TBL and learning outcomes among university business students. The results in Table 3 showed that the null hypothesis is not rejected ($r= 0.270$, $p > 0.05$). The p -value in this study is greater than 0.05, and the strength of the relationship between the variables is relatively weak. Thus, null hypothesis 2 is not rejected as there is no significant relationship between the students' perception towards TBL and learning outcomes among business students at a private higher education institution in Sarawak, Malaysia. The students' perception of TBL does not significantly affect the learning outcomes among university business students.

DISCUSSION

The findings obtained from the one group pre-implementation and post-implementation surveys design-based research showed that TBL was well-perceived by students generally. These findings showed that the null hypotheses were accepted. Hence, there was no significant difference in the mean scores between the pre-implementation and post-implementation surveys concerning the students' perception of TBL following the TBL activities' implementation. Even though the difference between the mean scores for pre-implementation and post-implementation surveys was not significant, but the overall mean scores for both pre-implementation and post-implementation surveys are considered high. These findings indicate that the students positively perceived TBL even before the implementation of the TBL approach. This showed that the students were having high expectations towards TBL approach. These results reflected those of the previous studies, which also found that TBL was well perceived by the Pharmacy students (Gryka et al., 2016) and nursing students in Iran (Fatemeh & Ferdos, 2016) as shown through the pre-and post-implementation surveys. In the Malaysian context, TBL was positively accepted in teacher education of Malaysian universities (Arshad et al., 2015). The students revealed a good perception towards successful interpersonal relationships within groups. One of the reasons why there was no significant difference in the mean scores between the pre-implementation and post-implementation surveys and students' perception of TBL and Teamwork might be due to time and human factors. The TBL intervention was only implemented for about nine weeks, which might be insufficient to change a person's perception. Time matters in changing how a person selects organises, and interprets information to make sense of the world around them (McShane & Von Glinow, 2010). Besides, there might also be counterproductive work behaviours that risk directly or indirectly harming the team. Their behaviours include abuse

of others via insults and nasty comments, threats, work avoidance, and work sabotage by doing work incorrectly.

The findings gathered in the second part of this study showed no significant relationship between the students' perception of TBL and learning outcomes among university business students. The findings are similar to previous research findings. A study done by Woerkom and Croon in 2009 failed to show a positive relationship between TBL and team performance. In addition, the research conducted by Razzouk in 2011 with an undergraduate educational psychology course also suggested that there was no strong evidence showing the differences between the students' examination scores and the TBL environment. Only a weak positive relationship was found between the students' learning outcomes of examination scores and self-regulated TBL activities (Whittaker, 2014). The findings of this study indicated that the high achieving students might not necessarily have a good perception towards TBL and vice versa. This is because high-achieving students are used to active learning and are self-motivated to learning (Nagaswami et al., 2009). In this study, 23.3% of the respondents are Accounting major students who are academically excellent. In short, their academic performance is not necessarily due to their satisfaction level and perception of the TBL approach. These findings are also coherent with the social loafing problem when a student usually performs at a lower level by employing less effort when working in teams than when working alone. The social loafing issue would be reduced when the tasks are more interesting, each team members' performance is measured individually, the team members value the team membership, and by reducing the team size (McShane & Von Glinow, 2010).

IMPLICATIONS

This study contributed to the limited literature on theoretical aspects of TBL, particularly for business education, particularly in the Malaysian context. This study contributed to increasing clarification of conceptualization of TBL. This research would also be beneficial to business students in higher education. They would be motivated to use TBL and create a new learning experience for the students in higher education. The suggested methods and strategies to improve the TBL approach in the evaluation phase should be considered by future researchers to be incorporated in the framework of TBL and relevant instructional design model. Furthermore, this study also affirmed the instructors' awareness of the essential role of assessment in well-planned curriculum design. This research has made a methodological contribution to the research of TBL in Malaysia. This study contributes to the limited literature on the TBL approach in learning, especially in the Malaysian context, particularly at the university level's business subject and Asian context in general. The design-based research methodology used to collect data for this research could support previous research in the area of TBL education. Besides, both quantitative and qualitative approaches were used in this study. The methods could enhance the existing method regarding the study and guide future research on how the data is to be collected and give a better understanding to the readers regarding the findings of the study.

CONCLUSION

In conclusion, Team-Based Learning has assisted business students in higher education to improve their academic performance and learning outcomes. The findings showed that the TBL approach and teamwork were well-perceived and accepted by the student's respondents. Based on the findings of this study, it is highly recommended that the TBL approach should be implemented in universities and colleges among business students to increase the quality of their learning. For future studies, it is recommended to include more students as samples to increase the validity and reliability of the findings. It was also suggested to include students from public universities, off-campus and online students, and even rural areas. Furthermore,

it was proposed to conduct quasi-experimental research involving both experimental and control groups of students to determine the underlying relationship between variables by manipulating an intervention or treatment. On top of this, the time-series design was also recommended to be incorporated in the experimental research to learn about the changes in students' perception of TBL and Teamwork over time. It was also advised to study the effect of TBL on the students' learning outcomes over a longer term. The role of team leaders to promote good teamwork among the members in TBL could also be an interesting dimension for future investigations. Lastly, future research should also examine the relationship between the technology-assisted TBL approach and students' performance.

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