



## Team-Based Learning for Developing Academic Skills Through Collaboration

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This paper describes the effects of team-based learning (TBL) implemented during the COVID-19 pandemic in in-person and online hybrid learning contexts in tertiary education in Japan. TBL is an educational approach designed to achieve learning goals through collaborative learning. Unlike other small group-based learning, however, TBL adopts a systematic instructional sequence, which is composed of three phases: 1) the readiness assurance phase to prepare students for the class through flipped learning; 2) the application phase to build solid knowledge by applying key concepts; and 3) the assessment phase to synthesize their learning. The researcher used TBL in six content-based yearlong general English courses for 1st- and 2nd-year students (n=155). Classes were conducted on Zoom for a total of 28 weeks. At the end of the courses, the researcher analyzed the students' TBL reflections and found that students enhanced their positive interdependence, collaborative co-teaching/learning, and learner autonomy.

本稿はCOVID-19流行時に、関東にある大学で対面とオンラインのハイブリッド授業で実施したチームベースラーニング (TBL) の効果を詳述する。TBLは、チームの協同学習を活用して学習目標を達成するために練られた教育アプローチで、体系化した学習ステップを採る。まず、(1) 反転授業によるレディネス・アシュアランス・フェーズ、(2) 学習コンセプトを応用して学びを深めるアプリケーションフェーズ、(3) 学習成果を統合する評価フェーズから成る。テーマベース内容重視指導法 (CBI) を採り入れた大学1年生と2年生 (n=155) の総合英語授業で、年間28週間にわたりZoomでTBLを実践した。講義最終日の振り返りアンケートを分析した結果、TBLで学生は良質な相互依存関係を築き、協調して互いに学び合い、自律学習を高めたことが分かった。

The Ministry of Education, Culture, Sports, Science and Technology (MEXT) revised the Courses of Study in 2017, adding the cultivation of logical reasoning skills through engagement in discussion and debate to the four language skills. In line with these goals, I have implemented thematically-oriented content-based instruction in tertiary English education for years. More recently I have utilized group discussion for content learning. Collaborative learning, a broad term for effective small-group learning, in which students engage in active learning, includes cooperative learning (CL) and team-based learning (TBL). CL is a small group educational framework that emphasizes learning from students through interdependent group activities under a spirit of equitable learning (Jacobs et al., 2002). Developed by Michaelsen in the 1980s, TBL is an educational approach designed to take advantage of small-group active learning in large class settings of over 100 students (see the website at Team-Based Learning Collaborative, <http://www.teambasedlearning.org/talk-to-the-experts/larry-michaelsen/>). Unlike CL activities, however, TBL adopts a systematic instructional sequence composed of three phases: 1) the readiness assurance phase to have students learn before the class through flipped learning; 2) the application phase to build a solid foundation of knowledge by applying the key constructs; and 3) the assessment phase to synthesize and demonstrate their learning. Each collaborative learning process entails intra- and inter-team discussions to help build team cohesiveness and learner autonomy.

During the COVID-19 pandemic, the university where I work required teachers to conduct lectures in a hybrid form that connected the in-class face-to-face students (half of the total) and the online participating students at home (half of the total) on the Zoom platform. To ensure students' active participation under the online learning condition, I adopted TBL in my 2021 English courses to teach vocabulary, forms, and logical thinking skills based on thematic unit content. After the end of the courses, I examined the students' reflections on their learning to look into how their attitudes and participating actions changed over the yearlong course, as these play a critical role in successful collaborative learning.



In this paper, I describe some advantages and implications of a TBL approach in EFL contexts based on student reflections and my own observations. First, I review the defining characteristics of TBL, and then I describe details of the steps I took in the English courses. Finally, I summarize the outcomes of TBL. Institutional approval was granted for this report.

### Literature Review

CL and TBL share some principles, though TBL is different from CL. In EFL contexts, CL has developed to engage students in language learning through small group activities (Larsen-Freeman & Anderson, 2011), whereas TBL has developed as a form of active learning in academic subjects in tertiary education in North America (Baepler et al., 2016). To illustrate the features of TBL, I will first review CL and then describe the specifics of TBL.

### Cooperative Learning

CL is a pedagogical strategy in which students help each other in small groups and develop a sense of belonging to the community (Jacobs et al., 2002). The CL researchers emphasize a set of principles for creating positive CL environments. The first principle is to promote equal participation, thereby assuring individual accountability of the members. For example, students are encouraged to take on specific roles and alternate them, such as facilitator, timekeeper, reporter, encourager, and questioner in a group discussion so that they are able to experience multiple roles. The second principle is strengthening team-building skills and positive interdependence. This principle encourages students to discover similar likes of other members to build strong trust and share something about their experience.

Davidson and Worsham (1992) suggested that teachers have a crucial role in designing effective CL activities; in other words, they are responsible for carefully structuring the steps. Kagan (1989-90) further denoted the structure of CL, “Structures usually involve a series of steps, with prescribed behavior at each step. An important cornerstone of the approach is the distinction between ‘structures’ and ‘activities’” (p. 12). In principle, CL teachers often prescribe the enactment of the activities. In short, CL puts forward equal participation, individual accountability, and positive interdependence; thus, CL teachers are critically important for designing activities effectively to provide conditions so that learning takes place.

### Team-Based Learning

TBL commonly holds some of the principles of CL; however, methodological designs markedly differ from CL. Michaelsen (2004) designed a systematic instructional sequence, which consists of three phases, each of which requires students to actively discuss how to resolve the questions. Successful TBL often draws on a range of resources of the team members, in that TBL is a student-led, goal-oriented educational approach.

### Instructional Sequence

The first stage is the preparation phase to introduce the fundamental subject concepts. Fink (2004) explains that this phase is for students to be prepared before class, which involves the Readiness Assurance Process or RAP.

RAP uses flipped learning methodology. Students learn introductory concepts before class by completing the reading materials or pre-recorded lecture videos uploaded on the university platform. Then, in class, students take two tests. The first test is an individual test to check their understanding. Students turn in this test, and the score is used as part of their course grade. Second, they take the same test again as a team. Students can resubmit their team test for a written appeal if they have generated better answers. During the team test, students discuss convincing explanations for the answers. Then, finally, the teacher gives corrective feedback. The teacher offers additional comments if necessary, judging from the importance of the concepts. The RAP process aims to equip students with a basic understanding of concepts necessary for the next phase.

The second stage is the application phase, in which students work on more abstract questions and generate credible reasons to justify their answers. They discuss in great detail until all the members agree on their solutions. Then, the teams share their answers in the class to get immediate feedback from the teacher.

The final stage is the assessment phase. Students work on a culminating team project that requires them to synthesize previously learned content and extend their knowledge further through researching and discussing. The questions for such projects are typically problem-based and they must provoke a group discussion to formulate their team ideas on the project. The teacher evaluates team performance from two sources of information. One is the project itself, and the other is peer assessment. Students assess the contributions each teammate made to the team project.

In summary, the TBL framework differs from CL in terms of the structure of activities and student roles. In TBL, students decide how they solve questions flexibly and share their resources to generate workable solutions. By contrast, CL teachers often prescribe



activity types and allocate the roles of students. CL encourages equal participation and avoids competition. TBL, however, appreciates group dynamics and students taking leadership. It acknowledges constructive criticism essential for the growth of teams. Table 1 illustrates the whole sequence of activities. Fink (2004) stated that TBL works effectively if the course contains a significant body of knowledge, which means students need to understand a breadth of subject concepts and apply the knowledge by solving problems.

**Table 1**  
*Team-Based Learning Instructional Sequence*

RAP phase	Application phase	Assessment phase
Readiness Flipped learning	Application of learned knowledge	Reviewing the course content
Assurance Individual & team tests	Elevating from simple group work to more complex group work	Culminating team project
Appeals Team test resubmission		Presenting projects
Corrective feedback		Having intra- and inter-team discussions
		Assessment

Note. Based on a figure presented by Fink (2004).

### This Study

The university has two required English courses for 1st- and 2nd-year students, one is Reading and Writing, and the other is Listening and Speaking. The yearlong courses met for 14 weeks for each term. I adopted TBL in 1st- and 2nd-year student Reading and Writing courses in 2021. The textbooks were *World English 2* (Johannsen & Chase, 2020) for first-year students and *World English 3* (Lee et al., 2020) for second-year students. The number of classes was six (three classes for 1st-year and three classes for 2nd-year student courses), with around thirty students in each class, totaling 155.

The English levels of the participating students were around the A2 and B1 levels on The Common European Framework of Reference for Languages (CEFR); they appeared to have a relatively good knowledge of grammar and vocabulary but were not strong speakers. Teams consisted of around five students. The section below shows an example

of the TBL sequence used for 2nd-year students, but I used the same sequence with 1st-year student classes.

### The RAP Phase: Preparation, Assurance, and Process

The textbook *World English 3* adopts content-based instruction, and I created self-home study materials for the students to complete before the class, which included: 1) grammar instruction files, 2) pre-recorded pronunciation practice videos and reading comprehension videos, and 3) TED Talk videos. Excerpts of the materials for environmental issues in Unit 3 are shown in Figures 1, 2, and 3.

**Figure 1**  
*Grammar Instructions*

## Passive voice

説明文で要因と結果を話す用法：

受動態「～が起きた、もたらされたなど」で状況を説明する。

次に、接続詞、前置詞句 so 「従って」、because, as a result 「なぜなら、その結果など」 が頻用される傾向がある。

接続詞                      受動態

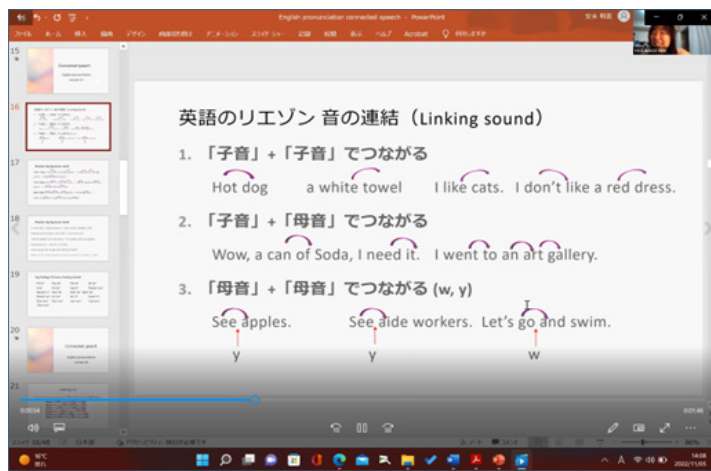
E.g.) In Africa, because people's farm animals were killed by lions, some farmers killed lions to protect their livestock. As a result, the number of lions have decreased these days.

副詞句

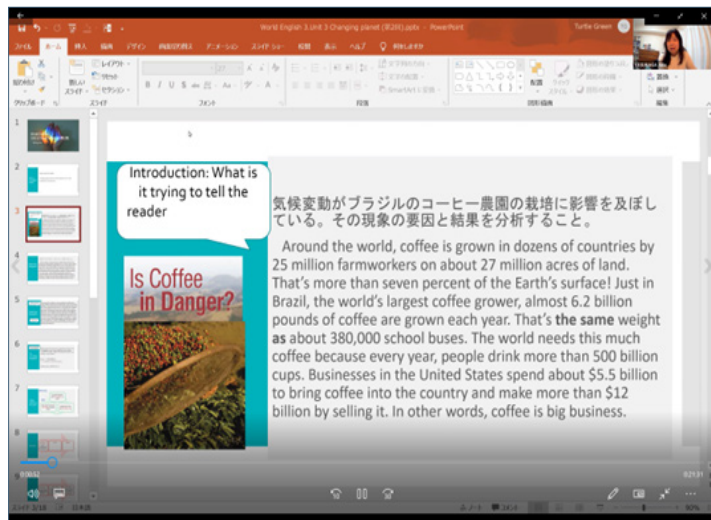


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**Figure 2**  
*A Pronunciation Instruction Video*



**Figure 3**  
*A Reading Comprehension Video*



*Note.* Students watched and read one material per week before class, and they took an individual test based on the instructional points of the materials.

Students took a test twice, an individual test and a team test, which consisted of a short multiple-choice quiz of around 15~20 items of grammar, vocabulary, and concept check questions for each unit as part of their grades. After they turned in individual tests, they took the same test as a team. They discussed their answers and shared what they knew with each other to clarify the meaning of the vocabulary and forms. After the team test, students received corrective feedback and checked whether they understood correctly or not. Examples of quiz questions are in Table 2.

**Figure 4**  
*Example Questions of the Individual Quiz*

Quiz types	Questions
<b>Grammar quiz</b>	<p>Instructions: Choose the best answer to match the meaning of the sentence.</p> <p>Learning English is important in today's world. David Crystal, a linguist, who studies the English language, believes that English has become a global language, although it is not an official language in many countries. According to Crystal, no other language l. _____ in so many countries and by so many speakers. Currently, over 275 million people 2. _____ English as a first language around the world, and in addition to it, it 3. _____ as a second language by about one billion people.</p> <p>1. a. used                      b. are used                      c. has been spoken                  2. a. speak                      b. have been spoken                      c. speaks                  3. a. is spoken                      b. speaks                      c. spoken</p>
<b>Concept quiz</b>	<p>Choose the best answer.</p> <p>1. One example of an extreme weather event is                  a. snow in Canada in January                  b. rain that lasts long in the desert                  c. rain shower in the rainforest</p> <p>2. Extreme weather events mostly happen _____.                  a. in the north and south poles                  b. in North America                  c. everywhere</p>



### The Application Phase

The application phase required students to apply their previously learned concepts to a new context so that they could understand more clearly. Part of the discussion questions was in the reflection sheet for them to complete and turn in after completing the unit. I encouraged the students to explain the grounds of their ideas, compare them, and discuss them until they could reach a conclusion. They also discussed appropriate sentence structures for the questions. The students spent around one-fourth of class time discussing their thoughts. Table 3 shows sample questions after they learned about environmental issues. For example, the students summarized specific causes that affected the climate and the writer's suggestions for addressing the problem.

**Figure 5**  
*Example Questions in the Application Stage*

Focus points	Questions
<b>Grammar</b>	下記の英文を訳しなさい。(Translate the following sentences in Japanese.) In addition, diseases such as coffee rust, a disease <u>that</u> causes the tree to lose its ability to produce berries/beans, become more common when the weather is hotter and wetter. 下線の“that”の文法用法が非限定もしくは限定用法なのか説明しなさい。 (Examine the underlined subject relative pronoun “that” and explain if the pronoun is identifiable or not.)
<b>Reading skills</b>	Answer the following questions. 1. What information does the writer try to tell in the introduction paragraph? 2. What is the main idea? 3. According to Paragraph 2, why is climate change a threat to coffee production?

### The Assessment Phase

Michaelson and Knight (2004) advised that project questions should have students decide on the solutions from multiple possibilities and should ignite intra-team discussions to agree on their conclusion. Hence, the culminating project of this study asked students to research environmental phenomena and to explain the points logically based on relatable causes and effects. They had to collect credible sources for their reasons, based on which they shaped team ideas. The project required all the members to contribute to the production process, from idea generation to drafting, speaking, and creating PowerPoint slides. The length of the draft was a minimum of 800 words. In the latter half of the course, the teams spent time on the team project during each class, and near the end of the term, the teams presented their projects to the whole class on Zoom.

The individual grades included the team projects, and the component of the project assessment included the following: 1) the delivery of the speech with appropriate intonation and pitch; 2) the use of metadiscourse and transitional markers; 3) the production of the visuals (PowerPoint slides); and finally, 4) the logical development of the content. The teams received feedback on the points after their presentation. At the end of the course, I asked all the students to report the names of their teammates who had significantly contributed to their teamwork, and I added these peer assessments to the individual grades. Table 4 shows an excerpt of the project instructions.

**Figure 6**  
*An Excerpt of the Team Project Instructions*

Topic	Instructions
<b>Team project</b>	Describe one example that has negative consequences on the Earth or our lives because of climate change. Describe the phenomenon and its causes and effects. Follow the cause-and-effect structure. 深刻な現象は何で(topic)、そしてその要因は何なのか、どのような影響を及ぼしているのかをまとめて発表してください。 First, describe the topic or issue, then explain the chain of causes and effects. Useful phrases: <i>Climate change is causing... This is largely due to... Because of... As a result,... As a consequence of...</i>





## Student Reflections

Students' active participation in learning is a central concern for successful TBL, and the student reflections provided crucial information of their developmental milestones in TBL processes. The students submitted their reflection sheets as part of the course assignment, in which they wrote their reflections in each unit with a total of four reflection sheets (one sheet per unit) in each term. In the first term, however, the students wrote in English, which made the information scant to analyze, so in the second term, they wrote in Japanese, which produced dense information to follow their trajectory. The students rearranged teams and worked with new members in the second term. Out of 155 registered students, 147 turned in their reflections. I analyzed those reflective episodes and compiled them according to common semantic features. Below are the reflection questions:

**Figure 7**  
*Reflection Sheet Questions*

Each unit reflection asked:

1. チームパフォーマンスを上げるためにどのように貢献したのか振り返り、またどうすればチームパフォーマンスをさらにあげられるのか考え、日本語で書きなさい。チームで協働して取り組む利点や、逆に問題点を書いてください。(Reflect on how you contributed to your team activities and describe in Japanese how you think you could improve your group performance. Describe advantages and problems of TBL, if any.)

Post project reflection asked:

2. チームでの協同作業、調査内容をまとめる過程で得られた点や難しかった点など、簡単な理由を添えて書いてください。(Describe briefly with reasons what you learned through your collaborative team activities and the process of researching and organizing data.)

## Implications of TBL

The analysis found that the students experienced significant psychological changes contingent on the sequence of the TBL progression. I grouped the episodes by similar semantic codes: 1) the initiating stage, having a collaborative mindset; 2) the progressing

stage, accruing subject knowledge through TBL; and 3) the culminating stage, reflecting on their achievement.

### The Initiating Stage

This stage is at the beginning of collaborative work. The students showed consideration for others and tried to sustain a collaborative atmosphere on Zoom, which might ensure their physical and emotional safety. They considered social connection, a feeling of connectedness to others or of shared mutual trust, important.

The episodes below illustrate their mindset:

1. “I tried to create an atmosphere where all the members are comfortable to speak up.”
2. “I tried to speak actively and ask others to repeat their comments whenever the voice was incomprehensible.”

### The Progressing Stage

In this stage, they accrued positive experiences and envisaged better strategies for leading discussions productively. They discussed and co-taught with each other and perceived the experience as positive. The students could broaden their views through other students who presented different angles to the question. They also hypothesized what could work better and what must have been done differently. It was at this stage that they realized positive interdependence, but at times, they felt disappointed in their results. The episodes are grouped below.

Co-teaching:

3. “I wrongly answered the questions about the use of pronouns, for example, what ‘this’ or ‘those’ referred to in a complex sentence, and others suggested a range of different ideas and taught me how to find the nouns in the sentence.”
4. “I could solve the questions by discussing them with others; otherwise, I could not solve them alone, and I could view the problems from a broader perspective.”
5. “When we discussed happiness in life in the group, I learned a range of different values and beliefs about the concept from others.”

Developing discussion skills:

6. “I thought that opposing viewpoints are beneficial. Critical comments do not simply mean to reject the idea, but they look into the reliability of the ground and add some credibility to it.”



Struggles and difficulties:

7. “Although it is good to have many ideas, they were in disarray, so the problem was that it was difficult to shape a unified viewpoint.”
8. “I regret that some students have never spoken up or participated in group work.”

### The Culminating Stage

The final project was a compilation of the group work. They reflected on what they had learned during and after their teamwork. They put shared efforts into their goals, which brought about positive sentiment, as categorized below.

A sense of fulfillment:

9. “The issue was difficult ... However, as a team, we got diverse ideas from others, which helped us produce our project. I realized the power of collaboration.”
10. “Seeing other groups presenting PowerPoint slides, I could learn better ways to present, which are easier to understand.”

Positive interdependence:

11. “I learned the importance of contributing our resources to the team project. After the speech, I grew more confident in formulating English sentences, organizing information, and presenting.”
12. “When we wrote a draft together, I realized that I must fulfill responsibility for my task. The project could not be successful even if only one person pulled back from his task.”

Through my observation in the class, the students appeared to begin slowly; however, in this silent stage, the episodes in the initiation stage suggested that they were trying to set their collaborative mindset before the discussion (See, The Initiating Stage, episode 1). Because they interacted online, they responded heartily to others and tried to keep the talking time longer. At this stage, they tried to forge a social bond in their team, a mutual ground where they could exchange ideas.

In the next progressing stage, the students had enhanced learning experiences. The episodes indicate what they could learn and how they stretched their learning further. Episodes 3, 4, and 5 illustrate their learning experience of broadening their perspectives by discussing and co-teaching with others. They also honed their discussion skills, such as suggesting different viewpoints and maintaining the directions of their discussion, as

seen in episode 6. The students commented that critical views and ideas could help shape reliable grounds. Others also suggested that they needed to decide on the initiator and moderator first to maintain the direction of the discussion.

However, at times, some students still struggled and had difficulty communicating. A few students felt it hard to reach a consensus among the members if their ideas were in disarray, as seen in episode 7 above. Only a few students were discouraged because some peers never participated in the discussion, which indicates that working with inactive learners hurt others on the team.

In the culminating stage, most students consistently expressed their sense of achievement and appreciated their academic growth through collaborating with others. They value using various resources the members provided, and they perceived that working together would be better for achieving a group’s shared goal, which is defined as positive interdependence (Jacobs et al., 2002). They produced tangible team products and presented them, so they expressed a sense of accomplishment and fulfillment, as seen in episodes 11 and 12. To summarize, TBL in tertiary education had a positive impact on students’ learning. Firstly, TBL provided the students with multiple resources and opportunities for co-teaching/learning. The effects of collaboration were far-reaching; they could learn linguistic forms and vocabulary, rhetorical organization, academic discussion skills, and all the resources team members had accumulated in the past. Secondly, by increasing the complexity of the tasks, they worked hard and likely helped develop group autonomy and cohesiveness. Thirdly, social contexts where they were comfortable speaking freely were integral for successful TBL.

### Conclusion

This paper presented the TBL methodology and examined its impact on content-based language teaching English courses. The study was conducted in an online hybrid learning environment during the COVID-19 pandemic in 2021. The online environment added a psychological burden on collaborative discussion; however, most students who participated in the TBL activities reported positive learning experiences. Firstly, through flipped learning, a significant part of the class time, about one-fourth, could switch to team discussion; secondly, students made great efforts to accomplish their team assignments, which led them to collaborate and co-teach within the team. Finally, students could enhance various skills through the resources of their team members, ranging from metalinguistic knowledge to discussion skills and content knowledge.

Though TBL is not very popular in English language teaching, as it is more in use in



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STEM courses, language teachers can effectively apply TBL in project-based learning that requires student-centered and student-led active learning. TBL fits well in courses where students must research and synthesize information learned in the subjects.

Through this classroom practice, it was found that connectedness between team members was critically important for successful teamwork. Language teachers who try to implement the TBL approach should pay attention to creating comfortable environments for students to speak up. In addition, as TBL sessions account for a significant portion of class time, language teachers should reserve rich linguistic interactions with students in the whole class sessions. It should also be noted again that this classroom research was conducted via Zoom, so TBL may have different outcomes if done in-class face-to-face contexts.

### Bio Data

**Akie Yasunaga** has researched content-based language instruction for decades and is currently expanding her area of research into biliteracy education. She can be contacted at <naga0810@mail.dendai.ac.jp>

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