# Team Based Learning Model to Improve Student Collaboration and Communication through Lesson Study

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**A R T I C L E   I N F O**

**A B S T R A K**

*Kompetensi yang harus dikuasai siswa antara lain komunikatif, berpikir kritis, kreatif, dan kolaboratif. Namun, dua dari empat kompetensi tersebut masih lemah. Hal ini terlihat dari observasi pada saat perkuliahan, kerjasama mahasiswa dan komunikasi pada saat berdiskusi yang didominasi oleh mahasiswa tertentu. Oleh karena itu, penelitian ini bertujuan untuk menganalisis implementasi penerapan model pembelajaran TBL dalam meningkatkan kolaborasi dan komunikasi siswa pada mata kuliah Evaluasi Pembelajaran Bahasa Indonesia melalui Lesson Study. Metode penelitian yang digunakan adalah deskriptif kuantitatif. Subjek penelitian adalah dosen Mata Kuliah Evaluasi Pembelajaran dan 36 mahasiswa semester III Program Studi Pendidikan Bahasa dan Sastra Indonesia. Pengumpulan data dilakukan melalui observasi. Analisis data dilakukan oleh pengamat dengan memberikan skor pada setiap indikator kerjasama dan komunikasi siswa. Data yang diperoleh dianalisis secara deskriptif kuantitatif yang kemudian menjadi dasar perbaikan pembelajaran. Hasil penelitian menunjukkan penerapan model TBL dapat terlaksana dengan baik dengan skor yang diperoleh pada pertemuan pertama sebesar 86,5 dan 91,1 pada pertemuan kedua. Begitu pula dengan kemampuan komunikasi dan kolaborasi siswa yang mengalami peningkatan yaitu siswa berkontribusi aktif dalam pembelajaran, bekerja secara produktif, menunjukkan fleksibilitas dan kompromi, menunjukkan tanggung jawab dan menunjukkan rasa hormat antar teman. Nilai rata-rata keterampilan komunikasi dan kolaborasi siswa sebesar 72,55 pada pertemuan pertama dan 88,5 pada pertemuan kedua. Hal ini menunjukkan bahwa penggunaan TBL efektif dalam meningkatkan kolaborasi dan komunikasi siswa di kelas.*

**A B S T R A C T**

Competencies that must be mastered by students include communicative, critical thinking, creativity, and collaborative. However, two of the four competencies are still weak. This is evident from observations during lectures, student collaboration and communication during discussions dominated by certain students. Therefore, this study aims to analyze the implementation of the application of the TBL learning model in improving student collaboration and communication in the Indonesian Learning Evaluation course through lesson study. The research method used is quantitative descriptive. The research subjects were lecturers of the Learning Evaluation Course and 36 third semester students in the Indonesian Language and Literature Education Study Program. Data collection is done through observation. Data analysis was carried out by observers by giving scores for each indicator of student collaboration and communication. The data obtained is analyzed quantitatively descriptively which then becomes the basis for improving learning. The results showed that the application of the TBL model could be carried out well with scores obtained at the first meeting of 86.5 and 91.1 at the second meeting. Likewise, students' communication and collaboration skills have improved, namely students contribute actively to learning, work productively, show flexibility and compromise, show responsibility and show respect between friends. The average score of students' communication and collaboration skills was 72.55 at the first meeting and 88.5 at the second meeting. This shows that the use of TBL is effective in improving student collaboration and communication in the classroom.

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## 1. INTRODUCTION

The competencies that students must master in the 21st century are ways of thinking, ways of working, tools for working, and ways of living in the world. The way of thinking includes cognitive domains, namely creative thinking, critical thinking, and metacognitive thinking (Ackerman & Thompson, 2017; Yang et al., 2022). The way of working includes the competencies needed to carry out a project, including cognitive-based etiquette (Inquiry and Problem Solving) and social-based etiquette (Communication and Collaboration). Tools for work include competence in understanding or using tools. Because "information literacy" is the ability to recognize, find, and use information (concepts) needed for a particular context efficiently and effectively. The way of life in the world includes the competence to negotiate a changing world with regard to life, social and cultural responsibilities. In simple terms, the competencies needed in the 21st century are better known as the 4Cs, which are four basic competencies that must be mastered (Puspitasari et al., 2022; Savitri et al., 2021). The four competencies are communicative, critical thinking, creativity, and collaborative. The Education Personnel Education Institution as a producer of prospective educators (teachers) must prepare students to have these four competencies because they will take part in the world of education in real life in society (Miarsyah et al., 2020; Nursulistyo et al., 2021). Critical thinking is needed by students to understand and critique the knowledge they learn, creativity is needed to innovate the application of knowledge that has been mastered and even develop that knowledge more broadly. Communication is needed to convey opinions or convey the results of critical thinking to others, and collaboration is needed so that work can be completed quickly and get maximum results because of the support and help of others (Aslamiah et al., 2021; Sairo, 2021; Yokhebed, 2019).

Based on the author's observations in class so far, especially in the Learning Evaluation course, student competence in two of the four competencies is still weak. This is evident from observations during lectures, student collaboration and communication during discussions dominated by certain students. Even if they speak, the language used is short. When discussion activities are carried out, they are engrossed in themselves and group assignments tend to be done by active or highly capable students in groups. To overcome this, a learning model is needed to improve students' communication and collaboration competencies. The model that the author proposes is the use of a team-based learning (TBL) model. This model is a learning model consisting of five steps, namely 1) reading tasks; 2) individual tests; 3) team test; 4) writing apples; 5) Instructor Feedback. Use of this TBL model *berupa* Readiness Assurance Process (RAP). Through reading activities, students are expected to have knowledge related to lecture material that will be discussed with lecturers in class.

The Team Based Learning (TBL) learning model has several advantages for students, including: 1) Creating interactive discussions about real-world problems (Burgess et al., 2020; Indarta et al., 2022). In TBL education, the teacher acts as a guide, several methods can be applied such as simulation, which is expected to strengthen students' thinking logically and analytically and train students to think about various problems that arise; 2) using real images of the processes occurring at the administrative stage through various types of media, such as audio-visual media, poster media, photo media, gallery mapping, etc.; 3) development of the learning process in groups, which can be done through the method of small group discussion and cooperative learning so that students become familiar with the principles of cooperation and 4) students know how to look for theoretical evidence of some concepts in real events in the field, especially in learning at the end of class time. Therefore, the application of the TBL model is expected to be able to improve collaboration and communication between students. Several studies have proven the effectiveness of the TBL model in improving student learning and communication outcomes because communication is the initial basis of collaboration (Considine et al., 2021; Lewis et al., 2021; Swanson et al., 2019).

Among several previous studies of its kind, no TBL research based on Lesson Study was found. Therefore, the novelty value of this study is the use of the Lesson Study-based TBL model. Lesson study is an activity that can develop the learning process carried out by teachers so that it can improve student learning outcomes. Lesson study can be used to improve teacher collaboration in learning and share experiences when carrying out learning (Coenders & Verhoef, 2018; Khamphaya et al., 2021). It is hoped that this will be able to produce learning methods based on problem solving. Problem-based learning is a learning process that is expected to be able to provide learning experiences for students so that they can produce meaningful learning, learning that has an impact on students' ability to solve life problems in society when entering real life. Previous study explain that lesson study is a way to improve learning processes and outcomes carried out collaboratively and continuously by a group of teachers (Ratnaningsih et al., 2022). Other study states that lesson study activities can contribute to improving the quality of education because they always end with reflection activities that provide input on the results of

the diagnosis of weaknesses when learning is carried out (Pasongli et al., 2021). Other study explained that lesson study is defined as a way to develop and guide teachers or teaching staff who have elements of presenting and modeling the teaching and learning process by collaborating with other teaching staff and it is hoped that efforts will be made to carry it out continuously (Marlina, 2018). Based on this definition, it can be concluded that lesson study is a sequence of activities carried out by teachers collaboratively with the aim of improving the quality of the learning process so as to improve student learning outcomes (Buhungo et al., 2021; Burgess et al., 2020; Rotgans et al., 2019).

The use of the lesson study-based TBL model in learning is expected to improve student collaboration and communication because there is a relationship between lesson study and TBL. Lesson study can provide opportunities for teachers to collaborate, while TBL has the opportunity to increase collaboration between students. Therefore, this study aims to analyze the effectiveness of using the TBL model in improving students' collaboration and communication skills through lesson study. The novelty of this research focuses on observing the TBL model and its relationship with collaboration and communication skills. Currently there are not many studies that examine the use of the TBL model, especially in collaboration and communication skills.

## 2. METHOD

The research method used is quantitative descriptive method. This study describes the data obtained from the implementation of lesson study consisting of two meetings. This research was carried out in the odd semester of the 2022/2023 academic year at the Indonesian Language and Literature Education Study Program IKIP Siliwangi in the class of 2021 A2. The subjects of the study were lecturers in the Indonesian Learning Evaluation Course and 36 students who contracted the course. Data collection techniques are carried out through observation accompanied by video recording activities. The instrument used is an observation sheet. Observations were made on collaboration and communication indicators consisting of five indicators, namely 1) actively contributing; 2) work productively; 3) demonstrate flexibility and compromise; 4) show responsibility; and 5) show respect. Each indicator is assigned a score with a maximum score of 4 for each indicator. The score obtained is calculated based on a maximum score percentage of 20 and then calculated as a percentage. The following is the grid of research instruments used is show in Table 1.

**Table 1.** Research Instrument Grille

| Criterion | Indicator | Score |
|---|---|---|
| Active Contribution | Students always give ideas or ideas during group discussions. | 4 |
| | Students occasionally give ideas or ideas during group discussions. | 3 |
| | Students provide ideas or ideas during group discussions if requested by other members. | 2 |
| | Students never convey ideas or ideas during group discussions. | 1 |
| Work Productively | Students are involved in working on group assignments according to their roles. | 4 |
| | Students do group assignments but dominate roles. | 3 |
| | Students do group assignments if reprimanded by the teacher. | 2 |
| | Students do not participate in group assignments. | 1 |
| Flexibility and Compromise | Students quickly blend in with all members of the group and communicate well. | 4 |
| | Students mingle with members of certain groups only. | 3 |
| | Students look awkward when mingling and communicating with group members. | 2 |
| | Students do not mingle with other group members. | 1 |
| Responsibility | Students do assignments well and on time. | 4 |
| | Students do well but not on time. | 3 |
| | Students do assignments but are careless. | 2 |
| | Students do not do assignments. | 1 |
| Respectful Attitude | Students show respect for differences of opinion in discussions. | 4 |
| | Students show an attitude of respecting opinions that are in line with their opinions. | 3 |
| | Students show a neutral attitude towards dissent in discussions. | 2 |
| | Students show an attitude against dissent in discussions and consider their opinions to be the most correct. | 1 |

The procedure for implementing Lesson Study at both meetings was carried out in three stages, namely planning (Plan), Do (implementation), and See (reflection). Data collection was carried out using observation sheets by observers. Observers assign scores to each indicator of student collaboration and communication. The validity of the observation instrument is tested through expert opinion. The validity test was carried out by two experts, namely lesson study experts and    expert in the field of Indonesian language learning. The construct validity test carried out by this expert was measured based on relevant theories and content validity was tested by comparing the instrument with the material being taught. According to experts, the results of the instrument validity test show that the observation assessment indicators of students' collaboration and communication abilities can be used without revision. The data obtained are analysed quantitatively descriptively which then becomes the basis for improving learning. An earned value category is show in Table 2.

**Table 2.** Earned Value Categories

| Range of Values | Performance categories |
|---|---|
| 76-100 | Very good |
| 51-75 | Good |
| 26-50 | Enough |
| 1-25 | Less |

## 3.  RESULT AND DISCUSSION

**Result**

The results obtained in this study are in the form of implementation of TBL learning measures and students' collaboration and communication skills. The implementation of lesson study at the first and second meetings begins with a "plan". The implementation of the "plan" at the first and second meetings is carried out three times. The plan begins with analyzing the content of RPS, compiling learning designs, preparing teaching materials, determining learning models, choosing media that are relevant to the learning model used. When the plan was decided that the learning model to be used was the TBL model, the learning media used ppt slides and google slides. The material at the 1st meeting is about the Cognitive Level (LOTS and HOTS), while the 2nd meeting is a continuation of the Cognitive Level in the form of the application of theories that have been learned at the first meeting. "Do" is done for 150 minutes. Details are described in Table 3 and Table 4.

**Table 3.** Plan (Planning Lesson Study) 1st Meeting

| Number | Date | Activity |
|---|---|---|
| 1 | Saturday, 25 September 2023 | Semester Learning Plan Analysis (SLP) |
| 2 | Saturday, 27 September 2023 | Determine learning models, prepare teaching materials and choose learning media |
| 3 | Saturday, 29 September 2023 | Discussing Lesson Design |

**Table 4.** Lesson Study Planning 2nd Meeting

| Number | Date | Activity |
|---|---|---|
| 1 | October 4, 2023 | Set up lesson designs |
| 2 | October 7, 2023 | Prepare teaching materials and choose learning media |
| 3 | Thursday, 10 October 2023 | Discussing Design Lessons again |

Base on Table 3 and Table 4 show the first "Do" meeting will be held on September 30, 2023 with observers consisting of 7 people including the head of the faculty, the head of the study program, two lecturers, and four professional teachers; while the second "DO" meeting will be held on October 14, 2023 with observers consisting of six people, namely the head of the faculty, the head of the study program, two lecturers and two professional lecturers. The learning steps consist of five steps with three main steps: namely 1) Pre-class Stage; students are given reading material consisting of five articles about LOTS and HOTS submitted through Spada (campus LMS) the day before the lecture; 2) Readiness Assurance, students are given an initial test to check their understanding of the material that has been assigned.

Furthermore, students gather in groups that have been formed by lecturers to discuss tests and draw conclusions based on the results of the discussion. Furthermore, each group presented the results of its discussion and was given feedback by the lecturer. In this second stage there are two tests, namely individual tests and team tests; 3) Application of concepts, students are given practice in compiling LOT questions and HOTS questions. The third step in lesson study is "seeing" (reflection). "See" (reflection) is done after the learning takes place. After reflection, an improvement plan was made for the implementation of learning for the next meeting. Reflection recommends further learning by improving the division of tasks in TBL measures based on input from observers.

Based on the results of the observer's assessment during implementation presented in the third stage of learning, students' collaboration and communication skills are listed in Table 5.

**Table 5.** Results of Student Collaboration and Communication Observations at Meeting 1

| Group Number | Contribute actively | Indicators of collaboration and communication | | | | | Score Total | Final Class |
|---|---|---|---|---|---|---|---|---|
| | | Work productively | Show flexibility and compromise | Show responsibility | Show respect | | | |
| 1 | 2 | 2 | 2 | 2 | 2 | 10 | 50 |
| 2 | 3 | 3 | 3 | 3 | 3 | 15 | 75 |
| 3 | 2 | 4 | 2 | 4 | 2 | 14 | 70 |
| 4 | 4 | 4 | 3 | 4 | 2 | 17 | 85 |
| 5 | 3 | 2 | 2 | 2 | 2 | 11 | 55 |
| 6 | 4 | 4 | 4 | 4 | 3 | 19 | 95 |
| 7 | 4 | 4 | 4 | 3 | 4 | 19 | 95 |
| 8 | 2 | 2 | 2 | 2 | 2 | 10 | 50 |
| 9 | 3 | 3 | 3 | 3 | 3 | 15 | 75 |
| **Average** | | | | | | | **72.5** |

Based on Table 5, student collaboration and communication that occurred at the first learning meeting, the data showed that group six and group seven were the two highest groups in collaboration and communication, namely getting a score of 95, while group 4 got a score of 85, followed by group two and nine groups got a score of 75, while group three got a score of 70,  and groups one and eight scored 50. The grade point average at the first meeting was 72.2 which was in the good category. The results of student collaboration observations at the 2nd meeting are show in Table 6.

**Table 6.** Results of Student Collaboration Observations at the 2nd Meeting

| Group Number | Contribute actively | Indicators of collaboration and communication | | | | | Score Total | Final Class |
|---|---|---|---|---|---|---|---|---|
| | | Work productively | Show flexibility and compromise | Show responsibility | Show respect | | | |
| 1 | 4 | 4 | 4 | 4 | 3 | 19 | 95 |
| 2 | 4 | 3 | 3 | 3 | 4 | 17 | 85 |
| 3 | 3 | 4 | 3 | 3 | 3 | 16 | 80 |
| 4 | 3 | 4 | 3 | 4 | 4 | 18 | 95 |
| 5 | 4 | 4 | 3 | 4 | 4 | 19 | 95 |
| 6 | 2 | 3 | 4 | 4 | 4 | 17 | 85 |
| 7 | 4 | 3 | 3 | 3 | 3 | 16 | 80 |
| 8 | 4 | 4 | 3 | 4 | 3 | 18 | 90 |
| 9 | 4 | 4 | 3 | 4 | 3 | 18 | 90 |
| **Average** | | | | | | | **88.3** |

Based on Table 6, student collaboration and communication improved from the first meeting to the second meeting. A detailed comparison of students' communication and collaboration skills can be seen in Table 7.

**Table 7.** Comparison of Student Collaboration and Communication Skills Scores from Meeting 1 and Meeting 2

| Group Number | 1st Meeting Value | 2nd Meeting Value |
|:---:|:---:|:---:|
| 1 | 50 | 95 |
| 2 | 75 | 85 |
| 3 | 70 | 80 |
| 4 | 85 | 95 |
| 5 | 55 | 95 |
| 6 | 95 | 85 |
| 7 | 95 | 80 |
| 8 | 50 | 90 |
| 9 | 75 | 90 |
| **Average** | **72.2** | **88.3** |

Base on Table 7 showed that there was a significant increase in communication and collaboration in groups 1, 2, 4, 5, 8 and 9, while there was a decrease in groups 3, 6 and 7. However, overall there was an increase in the average student communication and collaboration from 72.2 (good category) to 88.3 which was in the very good category.

**Discussion**

Based on the results of observers' assessment of the implementation of TBL measures, the following average data were obtained: at the first meeting the implementation of TBL measures was obtained with a score of 86.5, while at the second meeting a score of 90.1 was obtained. This data shows that there is an increase in assessment of the implementation of TBL learning steps in learning. This is an achievement in the implementation of lesson study in classroom learning. These results are in line with several previous studies, there is study state improving the culture of collaboration and collegiality through lesson study among lecturers (Gayatri et al., 2015), moreover there is study state lesson study based learning on teacher pedagogic competence and science process skills (Murtisal et al., 2017), lesson study increases students' active participation in virtual learning (Susanti &; Putri, 2021), lesson study improves science learning outcomes for students (Prayekti & Rasyimah, 2012) and lesson study can be used to develop teacher professionalism so that learning can be better (Rejeki et al., 2018). Previous study explained in his research that lesson study can improve teachers' critical thinking (Erna et al., 2021). Moreover other study explains that lesson study can enhance the pedagogical experience of teachers (Coenders & Verhoef, 2018).

The achievement of implementing TBL measures in obtaining a score above 85% shows the professionalism of lecturers assuming that lecturers are able to carry out the steps of the learning model in accordance with the plan that has been prepared. The TBL steps implemented have been jointly prepared by the lesson study team. The results of the comparison of students' communication and collaboration skills at meeting 1 and meeting 2 showed an average increase in the very good category. This is in line with research state the improvement of student communication and collaboration skills is caused by the TBL learning model which contains steps that can trigger interaction between group members in discussing assignments given by lecturers (Malekigorji & Hatahet, 2020; Parappilly et al., 2021). The key to this interaction is communication so that collaboration will automatically be created when each group member communicates to complete a task (Huisman et al., 2019; Lewis et al., 2021; Malik, 2020). TBL contains an active and structured form of small group learning, which can be applied to large classes. Student accountability is achieved through TBL-specific measures, including pre-class preparation, preparation, problem-solving activities, and feedback

Student collaboration and communication skills based on research data are in the good category. Communication in this study is defined as the verbal exchange of thoughts or ideas (Burgess et al., 2020; Darby et al., 2023). Another definition is communication is a tool (instrument) used by humans to carry out social interaction, either individually with individuals, individuals with groups or groups with groups, while collaboration skills are skills to work together effectively and show respect to others. Each team member is diverse, fluency and willingness in making the decisions necessary to achieve common goals. Communication and collaboration indicators in research are combined because collaboration is fundamentally inseparable from communication.

Thus, some of the research results that have been presented show that the use of the Lesson Study-based TBL model is effective in improving student collaboration and communication skills during the learning process. Of course, this has implications for scientific development in the field of learning. However, this research is limited to the research objects of IKIP Siliwangi students and in the field of

Indonesian Language and Literature. Therefore, for further research development, the application of the Lesson Study-based TBL model can be applied to the learning process in other fields of science besides Indonesian Language and Literature. The object of research does not have to be students but can be applied to secondary students.

## 4. CONCLUSION

Based on the results and discussion above, it can be concluded that the use of the TBL learning model can improve the communication and collaboration skills of IKIP Siliwangi students in Learning Evaluation learning. This is evidenced by the achievement of student collaboration and communication ability scores based on determined indicators. TBL measures also received significant assessments based on observations. However, there are still weaknesses in this study, namely in terms of limited time in research so that the results are felt to be less than optimal. For future researchers, it is hoped that research related to improving student collaboration and communication in the learning process will be carried out more than twice so that research results can be maximized.

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