

Student Scientific Attitude Analysis TBLA-Based on Temperature and Health Materials

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Abstrak

Penelitian ini merupakan penelitian yang bertujuan untuk menganalisis sikap ilmiah siswa melalui pembelajaran lesson study berbasis transcript-based lesson analyses (TBLA). Ada 3 tahapan utama dalam penelitian ini yaitu terdiri dari perencanaan (plan), pelaksanaan (do), dan refleksi (see) yang dilaksanakan dalam 2 siklus. Penelitian dilaksanakan pada bulan November 2020. Subjek penelitian yaitu siswa kelas VII Full Day Putri dengan jumlah siswa 14 orang. Dengan parameter sikap ilmiah. Pengumpulan data pada penelitian ini menggunakan rekaman video pembelajaran, lembar observasi, dan dokumentasi artefak lainnya. Pada siklus 1 terlihat hasil analisis lembar observasi sikap ilmiah pada diri siswa masih kurang, yakni sebagian besar siswa hanya memperoleh skor 1 pada setiap indikator. Siklus 2 lesson study dimaksudkan memperbaiki pembelajaran pada siklus 1 sehingga siklus 2 ini dilakukan berdasarkan hasil refleksi siklus 1. Hasil sikap ilmiah siswa pada siklus 2 dari analisis lembar observasi, ada beberapa indikator sikap ilmiah untuk beberapa siswa yang dapat diperbaiki, tetapi ada juga siswa yang justru menurun dari siklus 1 hal ini dikarenakan siswa yang kurang fokus terhadap pembelajaran. dari hasil penelitian ini disarankan agar guru bisa menerapkan lesson study berbasis transcript-based lesson analyses. Penerapan teknis analisis ini akan membuat guru mampu meningkatkan kemampuan untuk membuat pembelajaran yang akan dilaksanakan lebih efektif.

Kata Kunci: *Transcript Based Lesson Analyses, Sikap Ilmiah Siswa, Lesson Study*

Abstract

This research is a study that aims to foster students' scientific attitudes through lesson study based on transcript-based lesson analysis (TBLA). There are three main stages in this research, consisting of planning (plan), implementation (do), and reflection (see), which are carried out in 2 cycles. The study was conducted in November 2020. The research subjects were students of class VII Full Day Putri with 14 students. With scientific attitude parameters. It collects data in this study using video recordings of lessons, observation sheets, and documentation of other artifacts. In cycle 1, it can be seen that the results of the analysis of the scientific attitude observation sheet in students are still lacking; that is, most students only get a score of 1 on each indicator. Cycle 2 lesson study is intended to improve learning in process one so that revolution two is carried out based on process one reflection. The results of students' scientific attitudes in process two from the observation sheet analysis show several indicators of scientific attitudes for some students that can be improved. Still, some students decreased from cycle one; this was due to students who were less focused on learning. From the results of this study, it is suggested that teachers can apply the transcript-based lesson study based on lesson analysis. The application of technical analysis will enable teachers to increase their ability to make learning to be carried out more effectively.

Keywords: *Transcript Based Lesson Analyzes, Students' Scientific Attitudes, Lesson Study*

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INTRODUCTION

The decline in the Indonesian nation's morality is a form of the inadequacy of Indonesia's education process. Honest, thorough, curious, not prejudiced, responsible, and self-disciplined are the hopes students want to have. However, this is increasingly difficult for us to find in students, whether in high school, junior high, or elementary school. So, it is necessary to form an attitude such as in

science learning, namely forming a scientific mindset that refers to the mindset that a scientist or investigator must have in carrying out the research process (Tursinawati, 2013).

Good learning is carried out scientifically through various experiments, processes, and products. The process is a procedure in solving a problem. Meanwhile, products are in the form of facts, principles, theories, and laws. The more appropriate or according to the method, the teacher's media in teaching, the students want to know more so that their scientific attitude will increase. As Tursinawati (2013) stated, science includes aspects of perspective and science as a product and process. Science as a process contains a scientific attitude that is a central factor in supporting science development.

Efforts to improve student abilities are not only in the cognitive aspect, but also in supporting scientific attitudes (Harjono et al., 2017). In line with that, Natalina et al. (2010) argued that the intended learning objectives could not be fully achieved if the teacher only used a monotonous learning model and only used textbooks that generally contained information on the subject area not well organized. Low-quality books with conventional learning will result in lower scientific attitudes. By paying attention to existing conditions, teachers must make the latest innovations in the teaching and learning process. The chosen creation should actively involve students to be applied to improve students' scientific attitudes.

Based on the above conditions, it is necessary to improve the learning process. One way is to apply learning studies or better known as lesson study, in the learning process in class. Lesson study appears as one of the alternatives to solve learning practices that have been deemed ineffective. For the quality of lesson Study learning to increase as we expect, we need to analyze in-depth learning through observation and recording, make learning transcripts, and analyze them. The analysis method of learning transcripts is known as the Transcript Based Lesson Analyzes (TBLA) method.

Lesson study is a learning enhancement approach that initially came from Japan. Lesson studies provide a process for collaborating and designing lessons (learning) and evaluating strategic success. According to Manrulu & Sari (2015), a lesson study is defined as a class-based teaching professional development strategy through collaborative learning studies carried out collaboratively, carried out continuously based on the principles of collaboration and learning quality to build a learning community.

Lesson study is a coaching effort to improve the learning process carried out by a group of teachers or lecturers collaboratively and continuously to plan, implement, observe, and report learning outcomes. Lesson study is a concrete step to form a learning community. Through lesson study activities, we can improve our abilities as professional teachers in fulfilling students' rights to learn and improve students' quality.

Based on research, Febriyanti & Sunarsih (2013) states that, more simply, the lesson study cycle is carried out through a series of activities: Planing-Doing-Seeing (Plan-Do-See). The process of implementing a lesson study applies the same at any level. Lewis in Abizar (2017) explains six stages of lesson study. The steps of lesson study, according to Lewis, are as follows:

1. We are forming a lesson study group, including recruiting group members, arranging special times, arranging meeting schedules, and agreeing on group rules.
2. Focusing lesson study on main activities. First, agreeing on a research theme for long-term goals for students. Second, choose material coverage. Third, select learning units and agreed objectives.
3. We are planning the lesson plan. This includes activities to assess existing learning, develop instructional instructions, and ask for input from outside experts, whether it is a lecturer or other experienced teacher.
4. Carry out learning in class by observing it (observation). In this case, learning is carried out by one of the group members' teachers, while the other members are observers. The observer did limit to observing, so he was not allowed to introduce the course of learning to teachers and students.

5. Discuss and analyze the learning that has been implemented. Discussion and analysis should include a reflection by the instructor, background information on group members, presentations and discussion of learning observation data, general meeting, comments from outside experts, and thanks.
6. Reflect on the learning and plan for the next steps. At this stage, group members are expected to think about what to do next.

One lesson study practice development is Lesson Study for Learning Communities (LSLC) in the 1990s. LSLC views schools and classrooms as social environments. This means that each member (teacher-parent, teacher-education expert, teacher-student, student-student) cares, learns from each other, listens, and interacts. All activities can develop learning at the focus of LSLC. The formation of a learning community allows mutual learning relationships, dialogue, making learning designs, observing, reflecting, and re-designing, carried out together in LSLC. LSLC can be done with several models, Transcript Based Lesson Analyzes (TBLA).

The TBLA model provides analysis for learning input through learning dialogue transcripts. This learning analysis system developed focuses on student responses during classroom learning, reflecting how teaching practices and student involvement. This model allows analysis to focus on communication between teachers and students. Through this TBLA-based Lesson Study activity, we can determine how students learn and think and how we facilitate to learn optimally. For the quality of lesson study to improve as we expect, we need to analyze in-depth learning through observation and recording, make learning transcripts and analyze them. The analysis of learning transcripts is known as the Transcript Based Lesson Analyzes (TBLA) model.

According to Damanik & Bukit (2013), a scientific attitude is defined as a tendency, readiness, willingness, someone to respond/respond / behavior scientifically and meet the requirements (law) of science that has been recognized as valid.

METHODS

The type of research in this research is a case study, and this is done by involving researchers in the application of lesson studies as a case for learning. The idea is to view lesson study as a phenomenon and look for subjects to which it is applied. Sources of data in this study were all class VII students of SMP IT An-Nahl Jambi.

In this research, qualitative data collection will be carried out. Qualitative data is obtained from observing learning actions by observers. Qualitative aspects in the form of data from observations, interviews, review of documents or archives based on observation sheets and questionnaires that describe the learning process in class. In this case, learning actions are carried out based on lesson study. Furthermore, the observations will be discussed in reflection activities and referenced in improving the next activity cycle results. The type of observation used is participant observation, which is the observer's observation, but in this case, the observer enters and follows the group activity being observed. Thus, the observer can appreciate and feel what the people in the group being observed would feel. Observers can observe the learning process using observation sheets, which use a Likert scale, where the answers to each indicator of scientific attitudes have a gradient from very positive to very negative, which can be in the form of words, including:

- 1 = Never / less
- 2 = Sometimes / quite
- 3 = Often / well
- 4 = Always / very good

The observer will fill in the observation sheet provided by the researcher and the lesson study team. The observation sheet is filled in according to the object being observed, namely students. Observations are made by the observer every lesson without disturbing the ongoing teaching and learning activities. The student activity observation sheet used in this study is a check-list containing a

row of statements. The evaluated respondent only needs to put a suitable sign (\surd) in the space provided (Arikunto, 2013).

This study also included data retrieval through video recordings, voice recordings, and photos documented during the learning activities to obtain more varied and more accurate data. This research was conducted in several cycles of lesson study activity consisting of processes I and II. But if you do not get the desired results, actions can be added to get the desired results. Still, if you have obtained the desired results before activity II, you can stop it until activity II. In this study, researchers collaborated with class VII teachers at SMP IT AN-NAHL Percikan Iman Jambi. And researchers participate in every teaching and learning activity that takes place to observe the learning process.

And researchers participate in every teaching and learning activity that takes place to observe the learning process. The scheme of implementing this research activity is depicted in figure 1 below.

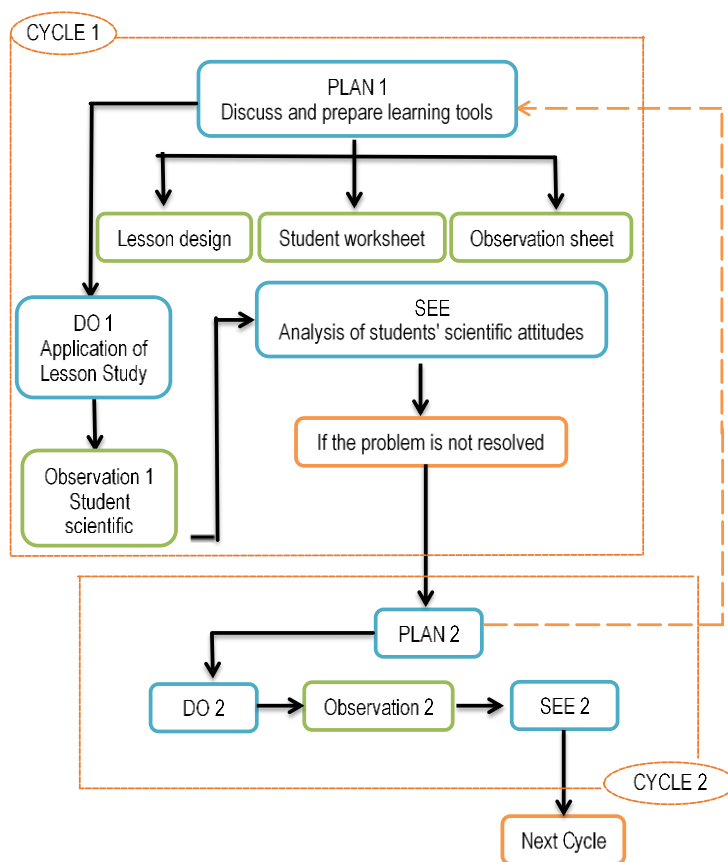


Figure 1. Research procedures of lesson study (Susanti et al., 2018)

RESULTS AND DISCUSSION

Analysis of students' scientific attitudes based on transcript-based lesson analysis (TBLA), which was carried out in class VII NBK SMP IT An-Nahl Percikan Iman Jambi on November 9, 2020, and November 16, 2020, through 2 research cycles, and each cycle was carried out with three stages, namely planning (plan), implementation (do), and reflection (see). At the planning stage, the researcher prepares learning tools ranging from learning materials, learning designs, to student worksheets, which are then discussed with supervisors, class teachers, and observers. At the next stage, it runs well.

During the Covid-19 pandemic, the learning process was not carried out in the classroom. Still, it was carried out virtually through the Zoom Cloud Meeting application so that researchers used

similar applications during the study. The Zoom Meeting application was chosen. It makes it easier for the model teacher to deliver learning because it can face virtually with students and provide complete material by displaying learning power points. Although the Zoom meeting application has a weakness, namely that it must have a strong network to join in the learning and has a time limit of only 45 minutes for one session, education is still useful.

Furthermore, at the implementation stage (do), researchers who act directly as model teachers carry out virtual learning through Zoom Meetings with students. Observers who are members of the teaching can observe and assess students' scientific attitudes during the learning process. In the reflection stage (see), researchers discuss with observers the learning activities carried out. Observers who observe students convey findings that occur during learning. The results of the discussion at this stage become a reference for improvement in the second cycle. Furthermore, in the second cycle, the learning activities are carried out to improve the learning activities in process 1.

The results of observing the scientific attitudes of 14 students in cycle one on each indicator can be seen in Table 1.

Table 1. The results of observing the scientific attitudes in cycle one

No	Student's Name	Scientific Attitude Indicator								
		Attitude of Curiosity			Critical Thinking Attitude			An Open-Minded Attitude and cooperation		
		A	B	C	D	E	F	G	H	I
1.	Student 1	3	4	3	2	3	3	3	3	4
2.	Student 2	1	2	1	1	1	2	1	1	1
3.	Student 3	1	1	1	1	1	1	1	1	1
4.	Student 4	1	2	1	1	1	1	2	2	1
5.	Student 5	1	1	1	1	1	1	1	1	1
6.	Student 6	1	1	1	1	1	1	1	1	1
7.	Student 7	1	1	1	1	1	1	1	1	1
8.	Student 8	1	1	1	1	1	1	1	1	1
9.	Student 9	3	3	1	2	2	3	2	1	3
10.	Student 10	3	2	1	2	2	2	2	1	3
11.	Student 11	1	1	1	1	1	1	1	1	1
12.	Student 12	1	1	1	1	1	1	1	1	1
13.	Student 13	2	3	1	2	2	1	1	2	3
14.	Student 14	1	1	1	1	1	1	1	1	1

The results of observing the scientific attitudes of 14 students in cycle two on each indicator can be seen in Table 2.

Table 2. The results of observing the scientific in cycle two

No	Student's Name	Scientific Attitude Indicator								
		Attitude of Curiosity			Critical Thinking Attitude			An Open-Minded Attitude and cooperation		
		A	B	C	D	E	F	G	H	I
1.	Student 1	4	4	3	3	4	4	4	4	4
2.	Student 2	2	2	1	2	2	2	1	2	1

No	Student's Name	Scientific Attitude Indicator								
		Attitude of Curiosity			Critical Thinking Attitude			An Open-Minded Attitude and cooperation		
		A	B	C	D	E	F	G	H	I
3.	Student 3	2	2	1	1	1	1	2	1	1
4.	Student 4	1	2	1	2	1	1	2	2	1
5.	Student 5	1	1	1	1	1	1	1	1	1
6.	Student 6	1	1	1	1	1	1	1	1	1
7.	Student 7	1	1	1	1	1	1	1	1	1
8.	Student 8	1	1	1	1	1	1	1	1	1
9.	Student 9	4	4	1	2	2	3	2	1	4
10.	Student 10	4	3	1	2	3	2	2	1	3
11.	Student 11	1	1	1	1	1	1	1	1	1
12.	Student 12	1	1	1	1	1	1	1	1	1
13.	Student 13	2	4	1	3	2	1	2	2	4
14.	Student 14	1	1	1	1	1	1	1	1	1

The results of the analysis of the scientific attitude observation sheet in cycles 1 and 2 show an increase in students' scientific attitudes in cycle 2. It can be seen that an increase in indicator A is enthusiastic in seeking answers by seven students. The rise in indicator B, namely attention to the object observed from the second cycle of learning, also occurred in 7 students. However, the increase is not seen in hand C, namely asking every step of the activity because almost all students are still shy or afraid to ask questions. The analysis of scientific attitudes on indicators A, B, and C in cycles 1 and 2. Furthermore, in indicator D, namely doubting friends' findings, there was an increase in 6 students. In the E indicator, which repeats the activities carried out, the five students look good enough. And the F indicator, which is not ignoring the data even though it is small, looks good enough for four students. The analysis of students' scientific attitudes on indicators D, E, and F in cycles 1 and 2.

Furthermore, the G indicator, namely respecting other people's opinions, looks quite good on six students. On the H indicator, which is receiving suggestions from friends, it also looks good enough for four students. An indicator I, which is active participation in learning, seems that it is quite useful in the second learning cycle. The analysis of students' scientific attitudes on G, H, and I in cycles 1 and 2 are shown in Figure 2.

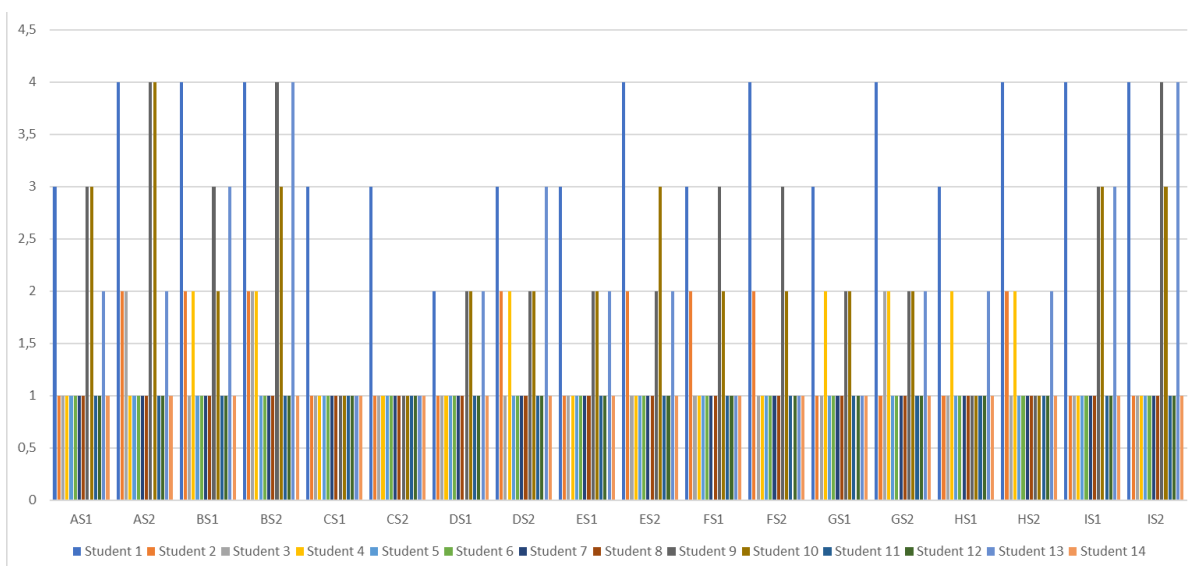


Figure 2. The analysis of students' scientific attitudes on G, H, and I in cycles 1 and 2

CONCLUSION

Based on the results and discussion, it can be concluded that lesson study learning on temperature and heat material can be said to be going well, according to the stages in the lesson study, namely planning (plan), implementation (do), and reflection (see). From the first cycle, problems were found during the learning process, which was then corrected in the second cycle. So it can be concluded that lesson study can improve the learning process, because by implementing the lesson study model, teachers can collaborate in planning, implementing, and reflecting on learning to make learning more effective. In addition, by implementing lesson study learning, it can foster students' scientific attitudes on temperature and heat material. Students' scientific attitudes can be measured through the scientific attitude assessment instrument, which consists of 3 dimensions, and each of them has three indicators. In the first cycle, the observer's observations on students' scientific attitudes showed that their scientific attitudes were still relatively low. Then the researcher, who acts directly as a model teacher, collaborates with class teachers, supervisors, and observers to improve the learning process. After the second cycle, there was a change in scientific attitudes better than the previous cycle.

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