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# Effectiveness Problem Based Learning with Teaching at the Right Level Approach on Learning Outcomes and Group Discussion Skills of Environmental Change Material for Class X Students of SMAN 1 Jember

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**ABSTRAK**

Penelitian ini bertujuan untuk mengetahui keefektifan Pembelajaran Berbasis Masalah dengan pendekatan Teaching at the Right Level terhadap hasil belajar dan keterampilan diskusi kelompok materi perubahan lingkungan kelas X6 SMAN 1 Jember. Penelitian ini termasuk Penelitian Tindakan Kelas (PTK) yang dilaksanakan dalam 2 siklus. Desain penelitian yang digunakan berbentuk siklus yang mengacu pada model Kemmis & Taggart dengan empat kegiatan utama yaitu perencanaan, pelaksanaan, observasi, dan refleksi. Pengumpulan data hasil belajar dilakukan melalui post test sedangkan data keterampilan diskusi kelompok dilakukan melalui observasi kepada siswa mengacu pada indikator Greenstein. Hasil penelitian menunjukkan adanya peningkatan hasil belajar dan keterampilan diskusi kelompok pada siklus 2 dengan persentase ketuntasan klasikal sebesar 91,67% dan rata-rata keterampilan diskusi kelompok sebesar 85,67% dengan kategori sangat baik.

**ABSTRACT**

*This study aims to determine the effectiveness of Problem-based Learning with Teaching at the Right Level approach on learning outcomes and group discussion skills of environmental change material for class X6 SMAN 1 Jember. This research included Classroom Action Research (CAR) which was carried out in 2 cycles. The research design used has a cyclical form that refers to the Kemmis & Taggart model with four main activities, namely planning, acting, observing, and reflecting. The data collection of learning outcomes was carried out through post tests while group discussion skill data was carried out through observation to students referring to Greenstein indicators. The results showed an increase in learning outcomes and discussion skills in cycle 2 with a percentage of classical completeness of 91.67% and an average group discussion skill of 85.67% with a very good category.*

## 1. PENDAHULUAN

Education is crucial to the progress of the nation. According to Ki Hadjar Dewantara, education aims to guide the nature of children, both the nature of nature and the nature of the times, to achieve the highest possible happiness (Ainia, 2020). Education must be able to realize humans who have the ability holistically to recognize, understand, understand, and solve problems that occur in everyday life (Tarigan et al., 2022). Therefore, efforts are needed to improve the quality of education to become an advanced nation. One of the efforts to realize the quality of education is done by implementing an independent curriculum.

The Merdeka Curriculum can be implemented since the Decree of the Minister of Education, Culture, Research and Technology No.56 / 2022 concerning Guidelines for Implementing the Curriculum in the Framework of Learning Recovery. This is an effort to support the improvement of the quality of education in Indonesia in realizing an advanced Indonesia and the creation of a Pancasila student profile (Rahmadayanti & Hartoyo, 2022). The distinctive feature of the Merdeka Curriculum is the existence of Merdeka Belajar. Freedom of learning is the

freedom to gain knowledge that makes individuals have behavioral changes to form a whole person. Freedom of learning is in line with Ki Hadjar Dewantara's thinking, which recognizes human nature (Pangestu, 2021).

Based on the observation, it is known that the implementation of learning has not fully given freedom to students. Learning that is carried out has been centered on students, but has not facilitated students according to their characteristics and learning needs. At the time of learning, students are less actively involved in discussing their heterogeneous grouping so there is a dominance of students who have high abilities, while students with medium and low abilities only accept what is conveyed by high ability students. This makes inactivity in group discussions. While the learning outcomes of students show that there are still many students who have not achieved learning completeness (KKTP < 76).

Due to the above problems, Problem Based Learning (PBL) with Teaching at the Right Level (TaRL) approach needs to be implemented in the classroom. Problem-based learning is problem-based learning that presents real problems so that students can work together and discuss to solve the problems presented (Firdaus et al., 2021). Problem-based learning is characterized by authentic problems that can be solved by associating them with other disciplines (Malmia et al., 2019). In PBL learning, students are able to solve contextual problems according to their knowledge or try to explore new knowledge (Bhara, 2022).

The stages of Problem Based Learning (PBL) include: (a) integrating learners to the problem; (b) organizing learners to learn; (c) guiding the investigation (can be a practicum if needed); (d) developing and presenting work; (e) analyzing and evaluating problem solving. This stage can make learners to enrich literacy and build new knowledge (Khoiriyah & Husamah, 2018). Problem solving offered by learners can vary according to literature read, experience, and cognitive level. Therefore, problem-based learning is in line with the Teaching at the Right Level approach, which is a learning approach that refers to the cognitive level of learners.

Teaching at the Right Level is a learning approach that provides flexibility in learning according to learners' capacity, ability level, and learners' needs so that this approach does not refer to grade level, but to the similarity of learners' abilities (Suharyani et al., 2023). In the classroom, teachers find students who learn faster and slower, this happens due to several factors, one of which is that the cognitive level of these students is not appropriate according to their achievements. Therefore, the TaRL approach is needed because it can accommodate the needs of students who have a diversity of cognitive levels so that diagnostic assessments are needed to find out the characteristics, cognitive levels, and needs of students so that teachers know to what extent the development phase.

Several teachers, researchers, and experts have conducted research related to the implementation of problem-based learning in learning. Based on various studies, it is known that problem-based learning can improve problem-solving skills (Asiyah et al., 2021), problem based learning can also improve creative thinking skills (Elizabeth & Sigahitong, 2018), increased learning outcomes due to critical thinking activities of PBL learning (Mulyanto et al., 2018), In addition, PBL is able to improve students' science literacy skills (Alatas & Fauziah, 2020).

There is quite a lot of research related to the Teaching at the Right Level approach. Research conducted by (Ningsyih et al., 2022) It is known that the application of Teaching at the Right Level approach can improve the reading literacy skills of students, which refers to the results of the initial test, the number of students is more grouped in the low level group, but after the Teaching at the Right Level learning and progress tests it is known that the number of students in the high level group has increased by 78%, this shows that students experience an increase in reading levels. The Teaching at the Right Level approach is more often implemented in improving learners' literacy and numeracy skills at the primary school level. However, teachers can adapt the Teaching at the Right Level approach in secondary schools by grouping learners based on their cognitive level, namely low, medium and high cognitive levels. Although grouping is done based on cognitive level, teachers must refer to the learning objectives achieved by all learners.

From the description above, the selection of learning models and approaches plays an important role in the learning outcomes and discussion skills of students. A material certainly has its own characteristics to be combined with learning models and approaches. Environmental change material can be implemented problem-based learning with the Teaching at the Right Level approach because it can invite students to discuss the problems presented according to groupings based on cognitive levels so that there is no dominance of students with high cognitive levels. This study aims to determine the effectiveness of Problem-based Learning with Teaching at the Right Level Approach to learning outcomes and group discussion skills of environmental change material of class X students of SMAN 1 Jember.

## 2. METHODS

This research is Classroom Action Research (CAR). Classroom Action Research aims to improve and enhance the quality of learning in general at school and specifically in the classroom (Sugiyono, 2014). mplementation of Classroom Action Research at SMAN 1 Jember which is located at Jalan Letjen Panjaitan No. 55, Sumbersari, Jember, East Java. The research subjects amounted to 36 students. The research design used has a cyclical form that refers to the Kemmis & Taggart model with four main activities, namely planning, acting, observing, and reflecting (Komara & Mauludin, 2016). Data collection on learning outcomes was carried out through post tests

while data on group discussion skills was carried out through observations of students referring to Greenstein's indicators.

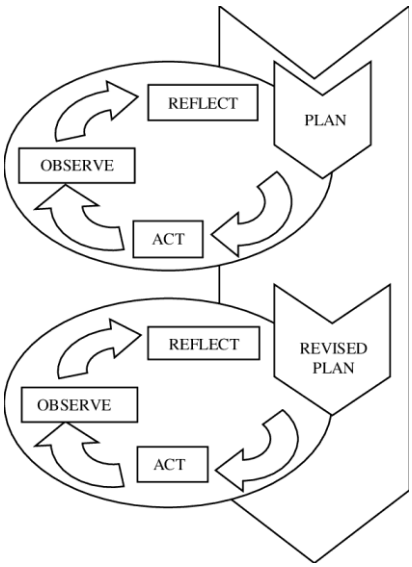


**Figure 1.** CAR Cycle of Kemmis & Taggart Model

The research subjects were students of class X6 in the even semester of the 2022/2023 academic year. Class X6 consists of 36 students consisting of 18 male students and 18 female students. The object of research is learning outcomes and group discussion skills on environmental change material. The data collected include learning outcomes and group discussion skills. Learning outcome data comes from diagnostic assessment (pre test) and formative assessment (post test) collected through test sheets. The group discussion skills data comes from observation sheets that refer to (Greenstein, 2012). The observation sheet used contains 5 indicators with 4 descriptors. Learning outcome data were analyzed by descriptive statistics to determine the results of individual and class completeness referring to the following formula.

Individual Completeness= $\frac{Accepted\ Score}{Maximum\ Score}\ x\ 100\%$

Classical Completeness= $\frac{\text{Number of students completed}}{\text{Number of students who did not complete}}\ x\ 100\%$

Individual completeness is declared complete if the minimum percentage level of completeness reaches 76%, while the classical level reaches at least 85%.

The group discussion skills data were analyzed using percentages and determined based on table 1.

**Table 1.** Group Discussion Skills Criteria

| Percentage (%) | Description |
|---|---|
| 0-20 | Very Less |
| 21-40 | Less |
| 41-60 | Simply |
| 61-80 | Good |
| 81-100 | Very Good |

Indicators of group discussion skills achievement are at least good.

## 3. RESULT AND DISCUSSION

### *3.1. Cycle 1*

1) Plan

The first thing that researchers did in carrying out Classroom Action Research (CAR) in the form of the effectiveness of Problem-based Learning with the Teaching at the Right Level approach to learning outcomes and group discussion skills was: (a) conducting diagnostic assessments, diagnostic assessments are useful for teachers to find out the extent of students' understanding of the material, characteristics, and needs of students. The

implementation of diagnostic assessment also serves to classify the cognitive level of students from low, medium, and high cognitive levels; (b) compile an independent curriculum teaching module, the independent curriculum teaching module is compiled based on the results of the diagnostic assessment of students which includes lesson plans, teaching materials, student worksheets, learning media, formative and summative assessments, and observation sheets for group discussion skills which refer to Greenstein's opinion; and (c) prepare documentation tools in the form of cameras and tripods.

The results of the pre-test before treatment can be seen in table 2..

**Table 2.** Pre-Test Results

| No | Description | Pre-test |
|---|---|---|
| 1 | Total | 2622 |
| 2 | Average | 73 |
| 3 | Number of students completed | 14 |
| 4 | Number of students who did not complete | 22 |
| 5 | Classical Completeness (%) | 38,89 |
| 6 | Not complete (%) | 61,11 |

Implementation of learning in cycle 1 of class action research, researchers used the Problem-based learning model with the Teaching at the Right Level approach with the following steps: (a) researchers provide information related to group division, group division refers to diagnostic assessments so that it is divided based on cognitive levels; (b) researchers orient students to a problem and then ask students to formulate problems and hypotheses; (c) researchers organize students to sit according to group division; (d) researchers ask students to work on worksheets, worksheets is arranged based on the cognitive level of students so that there are questions with low, medium, and high cognitive levels. However, this differentiation must refer to the learning objectives that have been formulated. Researchers also provide scaffolding to students, for low cognitive level students are given scaffolding with more quantity, moderate cognitive level students are given scaffolding with moderate quantity, and students with high cognitive level are crosschecked answers; (e) after working on worksheets, students present the results of the discussion in front of the class; (f) researchers together with students analyze and evaluate the problems that have been presented and provide reinforcement of the material; and (g) researchers observe group discussion skills during the implementation of Problem-based learning with Teaching at the Right Level approach.

At the first meeting, the material discussed was related to environmental changes so the learning goals (TP) was that students could identify environmental changes. Meanwhile, in making observations, a group discussion observation sheet is used which refers to Greenstein with 5 indicators including: (a) cooperation; (b) communicating opinions; (c) tolerance; (d) creativity; and (e) respect for opinions. Five indicators consist of 4 descriptors.

2) Act

The implementation of learning in cycle 1 discusses the identification of environmental changes. Cycle 1 was held on April 12, 2023. Problem-based learning classroom action research with the Teaching at the Right Level approach was carried out in accordance with the learning design contained in the independent curriculum teaching module.

3) Observe

a) Learning Outcomes

At the end of cycle 1, students were asked to take a post test. The post test was carried out to understand the ability of students on cognitive aspects related to the material taught through Problem-based learning with the Teaching at the Right Level approach. The post test results can be seen in table 3.

**Table 3.** Learning Outcomes in Cycle 1

| No | Description | Cycle 1 |
|---|---|---|
| 1 | Total | 2880 |
| 2 | Average | 80 |
| 3 | Number of students completed | 23 |
| 4 | Number of students who did not complete | 13 |
| 5 | Classical Completeness (%) | 63,89 |
| 6 | Not complete (%) | 36,11 |

Based on table 3 shows that the average value of students is 80. Of the total 36 students, there are 23 (63.89%) students who have completed learning, while 13 (36.11%) students do not complete learning (scores below KKTP <76). While the classical completeness reached 63.89%, it can be seen that the learning outcomes of students have not reached the minimum classical completeness of 85% so that it is continued to cycle 2.

b) Group Discussion Skills

The results of observations of group discussion skills during cycle 1 can be seen in table 4.

**Table 4.** Observation Results of Group Discussion Skills in Cycle 1

| Indicators | Percentage(%) | Description |
|---|---|---|
| Cooperation | 73,61 | Good |
| Communication of opinions | 59,72 | Simply |
| Tolerance | 74,30 | Good |
| Creative | 59,02 | Simply |
| Respect for opinions | 79,86 | Good |
| Average | 69,30 | Good |

Table 4 shows the percentage of group discussion skills, the achievements that have a sufficient category are communication of opinions by 59.72% and creative indicators by 59.02%. The achievements that have a good category are in the indicators of cooperation at 73.61%, tolerance at 74.30%, and respect for opinions at 79.86%.

Based on the average group discussion skills including the good category with a percentage of 69.30%. In cycle 1, students began to be enthusiastic in carrying out group discussions, but there were still students who could not communicate their opinions in the discussion forum and did not have creative ideas in solving the problems presented so teachers provided more scaffolding to low and medium cognitive level groups.

4) Reflect

Based on the implementation of learning in cycle 1, some things are found including (a) the process of discussion and presenting results takes quite a long time, because when presenting the results of discussion, group representatives are still embarrassed to express their opinions in front of the class; (b) conditioning students who still cannot discuss properly such as talking to their friends and opening smartphones not for the benefit of learning; (c) there are students who are passive in group discussions; and (d) there are students who are shy in expressing their opinions.

### *3.2. Cycle 2*

1) Plan

The results of the reflection that has been carried out in cycle 1 can be the basis for conducting follow-up. The follow-up efforts of Problem-based learning with Teaching at the Right Level approach in cycle 2 are: (a) the teacher motivates students to always dare to express their opinions in class; (b) the teacher invites passive students by asking tracer questions so that they can argue and discuss; (c) the teacher directs students to be actively involved in solving the problems presented through group discussions; (d) when providing material, the teacher asks more questions so that the class becomes active and students can express their opinions; and (e) if there are students who use smartphones on things other than learning, the teacher gives a firm warning.

The preparation of the lesson plan in cycle 2 was not much different from the lesson plan in cycle 1 contained in the independent curriculum teaching module. Researchers prepare worksheets, teaching materials, media, observation sheets, assessment sheets, and documentation tools before implementing learning.

2) Act

The implementation of learning in cycle 2 discusses the identification of various kinds of pollution. Cycle 2 was held on May 3, 2023. Problem-based learning classroom action research with the Teaching at the Right Level approach was carried out in accordance with the learning design contained in the independent curriculum teaching module.

3) Observe

a) Learning Outcomes

Students' learning outcomes can be known through post tests conducted after the action process or implementation of learning. Post test results can be used to determine the effectiveness of Problem-based learning with the Teaching at the Right Level approach that has been implemented. The post test results in cycle 2 can be seen in table 5.

**Table 5.** Learning Outcomes in Cycle 2

| No | Description | Cycle 2 |
|---|---|---|
| 1 | Total | 2936 |
| 2 | Average | 81,55 |
| 3 | Number of students completed | 33 |
| 4 | Number of students who did not complete | 3 |
| 5 | Classical Completeness (%) | 91,67 |
| 6 | Not complete (%) | 8,33 |

Based on table 5, it can be seen that after the post test, the average value is 81.55. A total of 33 (91.67%) students have achieved learning completeness and 3 (8.33%) students did not achieve completeness. Thus, the percentage of classical completeness has reached 91.67% which has met the criteria for classical completeness of 85% so the Problem-based learning class action research with the Teaching at the Right Level approach is sufficient until cycle 2.

b) Group Discussion Skills

In the implementation of cycle 2, students are accustomed to following Problem-based learning with the Teaching at the Right Level approach. Learners are accustomed to discussing with their groups, cooperating with each other, communicating opinions, tolerance, respecting opinions such as not talking when other groups present discussion results, and being creative to provide solutions related to problems presented by the teacher. In addition, the scaffolding provided by the teacher tends to decrease compared to cycle 1 because students have begun to be independent in doing tasks and solving problems. The observation data of group discussion skills can be seen in table 6.

**Table 6:** Observation Results of Group Discussion Skills in Cycle 2

| Indicator | Percentage (%) | Description |
|---|---|---|
| Cooperation | 88,19 | Very Good |
| Communication of opinions | 86,11 | Very Good |
| Tolerance | 92,36 | Very Good |
| Creative | 79,86 | Good |
| Respect for opinions | 84,02 | Very Good |
| Average | 85,76 | Very Good |

0

Berdasarkan tabel 6, menunjukkan Based on table 6, shows the percentage of group discussion skills. Achievement in the good category is shown in the creative indicator of 79.86%. The achievement with a very good category is shown in the cooperation indicator of 88.19%, communication of opinions by 86.11%, tolerance by 92.36%, and respect for opinions by 84.02%.

The average group discussion skills in cycle 2 were 85.76% with a very good category. This shows that students can conduct group discussions well, they can work together, agree on the division of tasks, and express each other's opinions without individual dominance because they are grouped based on the same cognitive level.

4) Reflect

The implementation of learning in cycle 2 has been running in accordance with the lesson plan contained in the independent curriculum teaching module. Based on the learning outcomes in the form of post tests in cycle 2, it has achieved classical completeness with a percentage of 91.67% which has exceeded the minimum classical completeness that has been determined. Meanwhile, the group discussion skills aspect obtained a percentage of 85.76% with a very good category. Learning in cycle 2 has improved the weaknesses that occurred in cycle 1 so that learning activities are well implemented and are sufficient in cycle 2 because they have met the predetermined minimum completeness.

5) Recommendation

Assessment of students was carried out through post tests and observation of group discussion skills in each cycle of class action research on Problem-based learning with the Teaching at the Right Level approach on environmental change material in class X6 SMAN 1 Jember in the 2022/2023 academic year. The recapitulation of pre-test and post-test scores can be seen in table 7.

**Table 7.** Recapitulation of Learning Outcomes

| No | Description | *Pre Test* | Cycle 1 | Cycle 2 |
|---|---|---|---|---|
| 1 | Total | 2622 | 2880 | 2936 |
| 2 | Average | 73 | 80 | 81,55 |
| 3 | Number of students completed | 14 | 23 | 33 |
| 4 | Number of students who did not complete | 22 | 13 | 3 |
| 5 | Classical Completeness (%) | 38,89 | 63,89 | 91,67 |
| 6 | Not complete (%) | 61,11 | 36,11 | 8,33 |

Based on table 7, it is known that there was an increase in individual completeness from cycle 1 to cycle 2 with an average score of 80 to 81.55. The classical completeness has increased from 63.89% in cycle 1 to 91.67% in cycle 2.

The results of the recapitulation of observations of group discussion skills in cycles 1 and 2 can be seen in table 8.

**Table 8.** Recapitulation of Group Discussion Skills Cycle 1 and Cycle 2

| Indicator | Cycle 1 (%) | Cycle 2 (%) | Increase (%) |
|---|---|---|---|
| Cooperation | 73,61 | 88,19 | 14,58 |
| Communication of opinions | 59,72 | 86,11 | 26,39 |
| Tolerance | 74,30 | 92,36 | 18,06 |
| Creative | 59,02 | 79,86 | 20,84 |
| Respect for opinions | 79,86 | 84,02 | 4,16 |
| Average | 69,30 | 85,76 | 16,46 |

Table 8 shows that there was an increase in group discussion skills by 16.46%. The increase in group discussion skills is because students are accustomed to the learning that is applied. Learners have familiarized themselves with working together, expressing opinions, tolerating and respecting each other's opinions when group representatives present results, and having creativity towards solutions to problems presented by the teacher.

Classroom action research on Problem-based learning with Teaching at the Right Level approach on environmental change material that has been implemented shows that problem-based learning and teaching at the right level are known to be effectiveness in improving learning outcomes and group discussion skills of students. The problem-based learning model makes students solve the problems presented. The problem raised in problem-based learning is a real problem, the problem presented aims to train students in solving problems so that they can familiarize themselves with creative thinking, explore ideas, and can identify solutions to the problems presented (Supiandi et al., 2016).

The teaching at the right level approach makes learners grouped according to their cognitive level. This approach refers to the needs or learning abilities of students because each student has a different ability to understand learning, therefore teaching at the right level can be the answer to the gap in students' understanding in carrying out learning (Fitriani, 2022). Teaching at the Right Level is also an alternative to differentiated learning, namely related to differentiation of learning readiness. In the differentiation of learning readiness, it should consider the readiness of students to receive new material so that there will be divided students who are ready to accept difficult material and there are also students who need a long learning time (Herwina, 2021). Implementation of Teaching at the Right Level makes teachers introduce material concepts according to the learning needs of students, one of which is their learning readiness.

The combination of problem-based learning and teaching at the right level can make learners actively discuss with each other to solve the problems presented without individual dominance. In problem-based learning, learners discuss and analyze problems in groups so that the problems raised require exploration. Exploration of this problem requires group discussion so that when they discuss with their group colleagues with similar cognitive levels, they can be confident and do not feel inferior in expressing their opinions. Research conducted by (Purnomowati, 2016) It is known that students who have high cognitive levels tend to be diligent and feel they have to be better than other students, while students with low cognitive levels feel less capable and inferior when placed in a group with students who have high cognitive levels.

Problem based learning with Teaching at the Right Level approach is not only effective on students' learning outcomes, but also effective on group discussion skills. Group discussion skills based on Greenstein have five indicators, namely cooperation, communication of opinions, tolerance, creativity, and respect for opinions. All indicators increased from cycle 1 to cycle 2 so that problem-based learning with the Teaching at the Right Level approach is effective.

The cooperation indicator has increased because students are able to interact with each other to achieve learning goals and work on group assignments well. Humans as social creatures need cooperation for their survival. In

learning, cooperation involves students to interacting, collect ideas, opinions within a certain period of time so that learning objectives can be achieved (Yulianti et al., 2016). The results of this study are suitable with research of Putri et al., (2018), cooperation is shown by the interaction of students in groups to do tasks, use learning resources, deepen knowledge by learning together so as to achieve expected goals. Group cooperation can also uphold a sense of caring for others which is reflected through activities with the principles of mutual trust, respect, and adapted to the rules of the prevailing norms (Nasia et al., 2014).

The indicator of opinion communication has increased because students have dared to communicate their personal opinions in group discussion forums and in class forums. Learners are actively involved in learning by asking questions, answering questions, or giving responses. This is supported by research Nurhayati et al., (2019) learning that implementing a discussion system can improve opinion communication in students because they are trained to compose effective sentences in accordance with grammar and communicate with the right voice and intonation when speaking. Communication of opinions by learners can be one of the indicators of learning success. When students' communication in learning is good, then students' understanding of the material will also be good (Wati et al., 2019).

Tolerance by students has increased. Tolerance is an action that gives freedom to individuals and allow them to have opinions, beliefs, choices, religions, and decisions according to their choices even though they are not in accordance with us (Rahmawati & Harmanto, 2020). In the class where the research was conducted, there was a diversity of student backgrounds in terms of religion and ethnicity. The attitude of tolerance in the classroom is shown by tolerance when students who come from religious minorities in class express opinions. Research conducted by Kurnia & Mukhlis, (2023), showed that the attitude of tolerance makes students able to adapt independently in a multicultural and gain experience if ideas can be conveyed straightforwardly in a discussion that has a diversity of students.

Creative indicators in students have increased. Students have creativity to solve the problems presented, of course in solving problems there are students who need scaffolding so that they can solve problems well, but there are also students who without being given scaffolding have been able to solve problems. Learner creativity is closely related to communication indicators, this is in suitable with research by Fitriyani et al., (2019) argued that active communication carried out by students can express their respective creative ideas so that they can solve problems. Individual creativity can develop through four stages, namely problem analysis, finding solutions, evaluating and applying solutions (Zeng et al., 2011). Therefore, the application of Problem-based learning with Teaching at the Right Level approach can help learners to become creative individuals. The indicator of respecting opinions has increased because students are able to listen to and respect the opinions of their colleagues, both during discussions with groups and presenting the results of discussions in class. This makes students' social attitudes better because they are able to listen to and respect the opinions of others. Research conducted by Setyowati & Mulyani, (2016) showed that the social attitudes of students both caring and respecting opinions can be trained through problem-based learning. The existence of an attitude of respect makes students think openly so that they are willing to accept suggestions from others if there is insufficient or incorrect data and do not consider themselves as individuals who are always right (Lestari & Projosantoso, 2016).

Based on the description of group discussion skills indicators, it is known that group discussion skills have increased because students are accustomed to the learning that is applied. Learners are used to working together, expressing opinions, being tolerant, having creativity in solving problems, and respecting each other's opinions.

## 4. CONCLUSIONS AND RECOMMENDATIONS

Based on the results of the study, it can be concluded that Problem-based learning with the Teaching at the Right Level approach on environmental change material is considered effective on learning outcomes and group discussion skills of students. In line with this research, it is expected that teachers can apply Problem-based learning with the Teaching at the Right Level approach in accordance with the characteristics of material and school conditions, besides other innovations are needed in learning to improve the quality of learning.

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