

The Influence of Think Pair Share Model Assisted Student Worksheet and Student Entry Behavior on Biology Competence of Student Grade XI Senior High School 2 Siak Hulu

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Abstract –The results of student learning on the learning of biology belongs to low. This study aims to determine the influence of cooperative learning model type think pair share with student worksheet and entry behavior of grade XI students of SMA Negeri 2 Siak Hulu to biology study competence.

This type of research is experimental research, with a 2 x 2 shaped design (factorial design). Population in this research is all student of class XI IPA at SMA Negeri 2 Siak Hulu. The sample of this study used two sample groups, namely the students of the experimental class and the students of the control class. This research instrument uses questionnaires, observation sheet, and test. Data analysis techniques consist of data descriptions, test requirements analysis, and hypothesis testing.

The results showed that there is influence of cooperative learning model of types think pair share with the biology learning competence of students' cognitive domain, on high and low entry behavior, there is influence of cooperative learning model of types think pair share with the biology learning competence of students' affective domain, there is influence of cooperative learning model of types think pair share with the biology learning competence of students' psychomotor domain. Furthermore, there is an interaction between cooperative learning model type think pair share with student worksheet and entry behavior was student of grade XI SMA Negeri 2 Siak Hulu to biology study competence in the cognitif domain.

Keywords – Think Pair Share; Entry Behavior; Competency.

I. INTRODUCTION

Education is one of the most important areas to build a whole human being. This is in accordance with the law of the Republic of Indonesia No. 20 of 2003 about the education system namely national education function to develop the ability and shape the character and civilization of a dignified nation in order to educate the nation's life.

Biology learning involves students looking for a comprehensive source of information from various sources. Students should enthusiastically raise their hands to answer questions or contribute his thoughts, provide opinions or ideas, think critically, analytically, and logically so as to

create an effective learning atmosphere. This is reinforced by Warsita's opinion about effective learning (2011:289), that is: 1) students become active reviewers of their environment through observing, comparing, finding similarities and differences and formers of concepts and generalizations based on similarities found, 2) teachers present the material as the focus of thinking and interacting in the learning process, 3) student activities are entirely based on the assessment, 4) teachers are actively involved during the learning process, and 5) varied learning techniques.

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Based on the results of observations of researchers on September 6, 2016 at SMAN 2 Siak Hulu, Kampar, teachers are still using conventional learning models that are the delivery of materials by lecture method, question and answer and then ended by giving practice. Conventional learning by teachers in the classroom affects the students lack of interest in the learning process. Biology learning process in class XI SMA Negeri 2 Siak Hulu, more emphasis on the cognitive aspects of students only, while the affective and psychomotor aspects are not overly concerned.

Based on daily test (UH)4 result, it is known there are still many students who score below the Minimum Exhaustiveness Criteria (KKM) set by the school can be seen in Table 1.

Table 1. Percentage of Exhaustiveness of Daily Test 4 (UH) Subject Biology Academic Year 2016/2017 Before Research

Class	Number of Students	Number of Students completed	Students are not exhaustive	Completeness Classical (%)
XI ₁	30	9	21	30%
XI ₂	30	6	24	20%
XI ₃	30	18	12	60%

Source: Teachers of Biology Studies of SMAN 2 Siak Hulu

From the observations that researchers do on September 6, 2016, it was concluded that students who did group discussions well. Conventional learning model limited to discussing the problems in printed books and when the discussion ends the student is asked to take notes which causes students do not understand the interrelation between concepts well. Such conditions create teacher-dominated learning (teacher center) provide opportunities for students to chat on the learning process and disturb the students who listen to the teacher explanations.

Cooperative learning model Think Pair Share (TPS) Type according to Saenab and Puspita (2012), TPS model is one of the efforts that can be done by teachers to be able to help students. And according to Trianto (2010: 133), the TPS learning model consists of three steps, that is: 1) students think independently, 2) students discuss in pairs, and students share or discuss in front of the class.

Initial ability can describe readiness of students in receiving lessons to be submitted by teachers. According to Slameto (2010: 25), "How new materials can be studied well, depending on what is known". Thus, the student's initial

ability is a prerequisite that students have in order to follow the lesson so that will achieve better learning competence.

As a reading source that students will read teachers can provide LKS to facilitate and direct students in understanding the lesson. LKS is the sheets that contain the tasks that the students must do. This worksheet is usually a hint, steps to complete the task. Each LKS is used as a guideline in the learning process that students do either in the form of problems or activities to be performed by students. In addition LKS also as a support to improve student activities in the learning process and optimize learning outcomes (Nurdin and Adrianto, 2016: 112).

Based on the above problems, researchers interested in conducting research entitled "The Influence Of *Think Pair Share Model* Assisted Student Worksheet And Student Entry Behavior On Biology Competence Of Student Grade Xi Senior High School 2 Siak Hulu".

II. REVIEW OF LITERATURE

1. Biology Learning

Biology learning is one of the branches of natural science that studies about living things and their environment and the mutual relationship between the two. According Sagala and Djulia (2016), biology is a learning that requires understanding. Biology provides a range of learning experiences to understand the concepts and processes of science.

The learning process needs to know the various requirements required for good educational interactions such as method approach, infrastructure condition, recognition of intellectual, psychological, and biological development of students (Lufri, 2007: 62). Learning is a two-way communication process, teaching is done by teachers as educators, while learning is done by students as students. Learning activities designed to help a person learn an existing skill or judge a new one (Sagala, 2014: 6

2. Cooperative Learning Model

Cooperative learning which means "Doing something together by helping each other with a group or team" (Isjoni, 2009: 22). According to Santri. et al (2014), cooperative learning models have a type that can build students' self-confidence and encourage their participation in the classroom. In cooperative activities students individually seek beneficial outcomes for all members of their group. Thus, cooperative learning is the use of groups in teaching

that enable students to work together to maximize their learning and learn other members of the group.

Cooperative learning is an active learning that emphasizes student activity together in groups and is not individualized. Cooperative learning is a learning model using a grouping system that has different academic, racial or ethnic abilities. Assessment system is done to each group, each member of group will have positive dependence (Nurdin and Adrianto, 2016: 183)

According to Huda in Ramadhan (2014) cooperative learning is believed to be a pedagogical practice to enhance learning process, high-order thinking, social behavior, as well as concern for students who have different ability, adjustment and needs background. The grouping of heterogeneity is a prominent feature in cooperative learning.

3. Co-operative Learning Think Pair Share (TPS)

Think Pair Share (TPS) type of learning model or paired thinking is a type of cooperative learning designed to influence student interaction patterns. According to Sari, et al. (2014). This type of TPS learning is a simple cooperative learning consisting of two different group members. According to Sinaga, et al. (2014) TPS type models can improve students' participation in teaching and learning, so students are able to express their opinions in the classroom.

Think Pair type cooperative learning model This learning helps students to be more active, creative, and effective than using lecture methods, as well as with Think Pair Share (TPS) model students are trained to think for themselves in answering and solving problems (Santri, et al). According to Trianto (2010: 81), the model of TPS type learning gives more time for students to think and discuss finding more appropriate answers and students to help each other, cooperation with group members so that less well-off students will be able to understand the subject matter.

4. Conventional Method

Conventional learning method is implemented by using lecture method. The essence of teaching by using lectures is to convey knowledge to students. The lecture method is learning that gives emphasis to new information by the teacher so that teaching and learning activities are more concentrated on the teacher. According to Sanjaya (2009: 209), teacher-centered learning process, there are at least three roles of teachers to do 1) teachers as planners, 2) teachers as informers and, 3) teachers as evaluators. In this case, class behavior and knowledge dissemination are

controlled and determined by the teacher. According to Djamarah and Zain (2014: 97), the lecture method requires more teacher activeness than the students, but this method can not be left behind in learning activities.

5. Lembar Kerja Siswa (LKS)

Student Worksheet (LKS) is a Student Guide used to conduct investigation or problem solving activities. LKS can be guidance for cognitive development as well as guidance for the development of all aspects of learning in the form of experiments. LKS contains a set of basic activities that must be done to maximize students' understanding of students in the effort to establish basic skills according to indicators of achievement of learning outcomes that must be pursued (Trianto, 2010: 222).

LKS is the sheets that contain the tasks that the students must do. This worksheet is usually a hint, a step to complete the task. Each LKS is used as a guideline in the learning process that students do both in the form of problems and activities that will be done students. In addition LKS is also a support to increase student activity in the learning process and optimize learning outcomes (Nurdin and Adrianto, 2016: 112).

6. Student Learning Competency

The success of a learning process is measured by how far the learning outcomes achieved by students. According to Burton in Lufri (2007: 11), learning outcomes are images of actions, values, attitudes, appreciations, abilities and skills. To find out the results of learning or student learning competence, then the teacher must make an assessment. In KTSP curriculum, students' learning competency assessment includes knowledge competence (cognitive), attitude (affective) and skill (psychomotor). The three domains of competence can be explained as follows:

a. The cognitive domain

The cognitive domain is the domain that deals with the ability to think. Cognitive competence reflects the scientific concepts that must be achieved by learners through teaching and learning (Kunandar, 2014: 391). Knowledge (cognitive) is the ability to know, understand, mengaplikasikan, analyze and evaluate.

b. Affective Sphere

Affective sphere is the domain associated with attitudes and values. Attitude refers to a person's actions or behavior (Kunandar, 2014: 392). Affective competence deals with interests and attitudes that can shape responsibility,

cooperation, discipline, commitment, confidence, honesty, respect for the opinions of others, and self-control.

c. Psychomotor domains

Psychomotoric realm is a domain related to a person's skill or ability to act after receiving a learning experience of basic movements, reflexes, creative movements (Kunandar, 2014: 394). Skills possessed by a person indicate a person's skill level in performing a particular task.

III. METHODOLOGY

This type of research is experimental research. In this study, performed the manipulation of conditions by providing treatment or create a condition or stimulus to the subject examined. This study included quasi experiments because the variables can not be fully controlled as pure experiments.

In this study the students are divided into two classes, that is experiment and control class. The experimental class is the students who were given treatment using cooperative learning model Think Pair Share Type, while the control class uses a conventional model. The experimental design used in this research is factorial design 2 x 2 and Posttest-Only Control Design for affective and psychomotor competence.

The determination of students' high and low initial abilities is grouped by dividing the students with a 50% percentage of high initial ability and a low 50% initial ability of the total number of students based on the value given by the teacher prior to the study

Population in this research is all student of class XI IPA at SMA Negeri 2 Siak Hulu, Kampar District second semester amounted to 90 people, grouped into 3 classes. In this study, two classes were taken: the experimental class students using cooperative learning model of Think Pair Share type assisted LKS and control class were taught using conventional method. Sampling by purposive sampling technique, that is sampling technique done with consideration of requirement that same student number and student average value almost same. o take the experimental class and control class is done in a draw. Sampling steps are as follows:

- a. Request and calculate the value of UH 4 subject biology of students at SMAN 2 Siak Hulu academic year 2016/2017 consisting of 3 classes, as a basis for determining the average class XI IPA seen in Table 6.

- b. Define the experiment class and control class in a draw by taking a roll of paper that inscribed the class name as a sample group. The assigned class name specified as the experimental class is Class XI IPA 1 and the unselnd class name is assigned as the control class ie Class XI IPA2.

IV. RESULTS AND DISCUSSION

A. Research Results

1. Data Description

The data obtained in this study are students biology learning competencies in the cognitive, affective, and psychomotor domains. Data on the cognitive domain is obtained after the learning process of two basic competencies is completed, while the data on the affective and psychomotor domains obtained from observations by the observer at the time of the learning process took place by using the model of learning cooperative Think Pair Share (TPS).

a. Cognitive Domains Competency Data Description

Data of cognitive domain learning competence in this research is obtained through the final test in the form of written test in the form of multiple choice questions provided to the experimental class and control class students held at the end of the meeting. Data of cognitive student learning competence study are presented in Table 2.

Table 2. Results of Student learning Competency Cognitive domains

Class	N	\bar{X}	Xmax	Xmin
Experiment	30	83,66	94	72
Control	30	77,40	92	62

Based on Table 2. It can be seen that the average student's biology learning outcomes in the experimental class is higher than the control class, ie 83.66 experimental class and 77.40 control class. The standard deviation also shows the experimental class gets the highest score compared to the conventional class.

b. Affective Domains Competency Data Description

Research data on the affective aspects obtained through observations made by two teachers as an observer by using the format of assessment affective aspects of students during the learning process takes place. Data analysis on the affective domain was done by non parametric test ie Mann Whitney U. The affective field competence research data is presented in Table 3

Table3. Affective Sphere Value and Control Experiment Class

Class	N	\bar{X}	Predicate
Experiment	30	82,16	B
Control	30	63,83	C

Based on Table 3. It can be seen that the total average value of students affective field filled by the observer in the experimental class obtained a higher average that is 82,16 compared to the conventional class only 63,83. This shows that the affective class competence of experimental class students using cooperative learning model Think Pair Share (TPS) is higher than control class with conventional model.

c. Psychomotor Domains Competency Data Description

Research data on the psychomotor aspects obtained through observations made by two teachers as an observer by using the format of psychomotor student ratings when the learning process takes place. Data analysis in psychomotor domain was done by non parametric test ie Mann Whitney U. Psychomotor domain competency research data are presented in Table 4.

Table4. Psychomotor aspect Value and Control Experiment Class

Class	N	\bar{X}	Predicate
Experiment	30	77,23	C
Control	30	69,96	C

Based on Table 4 can be seen the total value psychomotor domain students filled by the observer in the experimental class obtained a higher average of 77.23 compared to the control class which only 69.96. This shows that the competence of psychomotor domains of experimental class students using Think Pair Share (TPS) cooperative learning model is more significant than control class using conventional model.

2. Testing Requirements Analysis

a. Normality Test

Normality test is done to the competence of the cognitive domain for the experimental class and control class. The competence of this cognitive domain shows improvement after conducting the learning process. Normality test was performed with levene test. From the calculation obtained Sig price which is then compared with alpha in each group. The result of normality test for experimental class and control class can be seen in table 5.

Table 5. Normality Test Cognitive Domains Competency Experimental and control class.

Class	X	AsympSig	Alpha
Experiment	83.66	0.49	0:05
Control	77.40	0,90	

b. Homogeneity Test

Homogeneity test was conducted on the variants of two sample groups with the cognitive domain data of the students in the experimental class and control class. The experimental and control class homogeneity test results can be seen in Table 6.

Table6. Homogeneity test of cognitive competence in a sample grade

Class	Entry Behavior	N	\bar{X}	Levene	Sig
Experiment	High	15	88,66	0,623	0,05
Control	High	15	78,66		
Experiment	Low	15	83,06		
Control	Low	15	71,73		

Based on Table 6. It can be seen the results of homogeneity testing on both samples based on the initial ability of homogeneity test results in this study obtained Sig> alpha 0.05% both high and low initial ability. In other words it can be concluded that both groups of samples come from a homogeneous or the same population.

3. Hypothesis Testing

a. The first hypothesis

This first hypothesis is used to determine the effect of cooperative learning model Think Pair Share type with the learning competence of biology of cognitive domain of grade XI students of SMA Negeri 2 Siak Hulu. Learning outcomes in the experimental class and control class can be seen in Table 7.

Table 7. Results of the first Hypothesis calculation

Class	\bar{X}	t_{count}	t_{table}
Experiment	83,66	3.267	2.04
Control	77,40		

Based on Table 7. Can be seen in the competence of the cognitive domain of students obtain t_{count} is 3.26, while the t_{table} is 2.04. From the data obtained $t_{count} > t_{table}$ means hypothesis accepted, meaning that cooperative learning model Think Pair Share (TPS) can improve biology

competence of grade XI students of SMA Negeri 2 Siak Hulu.

b. The second hypothesis

This hypothesis is to know the influence of cognitive student learning competence who follows cooperative model of Think Pair Share (TPS) type with high initial capability. The result of t test can be seen in Table 8.

Table 8. The results of the second hypothesis

Class	Ability	\bar{X}	t_{count}	t_{table}
Experiment	High	88,66	3.03	2.13
Control		83,06		

Based on Table 8. It can be seen that in t test of cognitive competence of students with high initial ability that obtain t_{count} is 3.03 while t_{table} is 1,96. From the data obtained $t_{count} > t_{table}$ means the hypothesis accepted, ie there is the cognitive influence of students using cooperative model type Think Pair Share (TPS) with high initial ability

c. The third hypothesis

This hypothesis is to know the influence of learning competence of cognitive domains of students who follow cooperative model of Think Pair Share (TPS) with low initial capability. The result of t test can be seen in Table 9.

Table 9. Third Hypothesis Calculation Result

Class	Ability	\bar{X}	t_{count}	t_{table}
Experiments	Low	78,66	3.61	2.13
Control		71,73		

Based on Table 9. It can be seen that the t test on the competence of the cognitive domain of students with low initial ability that obtain the t_{count} is 3.615, while the t_{table} is 2.13. From the data obtained $t_{count} > t_{table}$ mean hypothesis accepted, ie there is influence of cognitive competence of student which use cooperative model Think Pair Share (TPS) with low initial ability.

d. The Fourth hypothesis

This fourth hypothesis is used to determine the influence of learning affective competence of students who follow the cooperative model Think Pair Share (TPS). The results of calculations on the experimental class and control class in the affective domain can be seen in Table 10.

Table 10. Result of U Test Calculation on Affective Class of Experiment Class and Control Class

Class	\bar{X}	u_{count}	u_{Table}
Experiments	82.16	39.50	127
Control	63.83		

Based on Table 10. It is known in U test on the competence of the affective domain of students that obtain U_{count} is 39,50 while U_{table} is 127. From the data obtained $U_{count} > U_{table}$ means it can be concluded that there is influence of competence affective student field using cooperative model Think Pair Share (TPS) than conventional.

e. The Fifth Hypothesis

The fifth hypothesis is used to determine the influence of learning competence psychomotor domain students who follow the cooperative model jigsaw. The results of calculations on the experimental class and control class in the psychomotor domain can be seen in Table 11.

Table 11. Result of Fifth Hypothesis Calculation

Class	\bar{X}	u_{count}	u_{Table}
Experiments	77,23	114	127
Conventional	69,96		

Based on Table 11. It can be seen on the U test on the psychomotor domain competence of students that obtain U_{count} that is 114 while U_{table} is 127. From the data obtained $U_{count} < U_{table}$ hypothesis accepted, it means that it can be concluded that there is influence of competence psomomotor students using cooperative model Think Pair Share (TPS).

f. The Sixth Hypothesis

This hypothesis is used to know the interaction between cooperative model of Think Pair Share (TPS) with initial ability to competence cognitive domain of biology of class XI students of SMA Negeri 2 Siak Hulu. The results of this hypothesis test calculation by using two-way Anova test

For interaction X x Y at the level of real $\alpha = 0,05$, then obtained $F_{table} = 3,15$ while $F_{count} = 2,94$. This means F_{count} is smaller than F_{table} ie $2,94 < 3,15$, so it can be concluded there is not interaction between model of learning with early knowledge of student to student cognitive competence.

B. Discussion

The learning process is an overall development process of interaction and learning experience. The learning process is not determined by the taste of the teacher, but is determined

by the students themselves, it is called *membelajarkan* students (Sanjaya, 2009: 214). Recognizing the importance of involving students in the learning process, in biology lesson in class XI IPA1 SMA Negeri 2 Siak Hulu has conducted research using learning model that can generate student activity by applying cooperative learning model Think Pair Share (TPS).

In the control class that is class XI IPA2 SMA Negeri 2 Siak Hulu also conducted conventional research / lecture. This aims to see the effect of cooperative learning model of TPS type in improving student competence.

1. Achievement of Learning Competence in Cognitive Sphere

The results showed that the learning competence of the cognitive domain increased by using cooperative learning model Think Pair Share (TPS) in the experimental class, conventionally in the control class. By paying attention to students' early ability to give positive impact to the competence of cognitive domain of students. Students' early ability in the learning process is very important for teachers to be able to provide the right lessons, not too difficult and not too easy (Harjanto, 2010: 128).

Based on the research result of cooperative learning model of TPS type assisted by LKS with high initial students in experiment class is better than the students having high initial ability in control class with conventional learning. Similarly, in low-skilled students in the experimental class it is better than low-ability students in the control class. This hail is due to the co-operative learning model of TPS type in the experimental class gives more time for the students to think about the material and solve the problem according to individual capability, this activity is done at Think stage. In the control class this activity is seen, many students are waiting for an answer and silence, so that students' understanding of the material becomes less.

At the Pair stage, students are given the opportunity to integrate the material understanding undertaken at the Think stage together. This activity contributes greatly to the students' understanding of the material, in which the understanding of early high-ability students' materials initially improved. Understanding of material on low-skilled early students who initially did not become good.

Learning is a Transfer of Knowledge Skill activity undertaken by students. The liveliness is entirely on the students, while the teacher only provides the material and shows the way of good learning (Harjanto, 2010: 171). This

is not apparent in the control class, the students are more silent and waiting for answers from friends without having to contribute, so clearly there is a difference understanding of the students' experimental class with the control class students.

The experimental class using the Think Pair Share (TPS) cooperative learning model and the initial ability has a higher cognitive domain competence score of 83.66 compared to the average of cognitive domain competence in the conventional control class / lecture which is 77.40 .

2. Penerimaan Kompetensi Belajar Pada Ranah Afektif

Achievement of Learning Competence in Affective Sphere The result of observation of students affective competence conducted by observer, in the experimental class with cooperative type model of TPS type is better than the affective class affective competence of the control class students conventionally. The experimental class learning poses by using TPS type cooperative learning model, seen by the discipline students, is responsible for solving the problem given at the Think stage. In the Pair stage of curiosity and cooperation, students also appear to be responsible and serious in solving problems, as well as socializing each other in the discussion activities and the success of the group at the stage of Pair (Djulia and Sagala, 2016).

At the stage of cooperation sharing, responsibility and curiosity of students are also seen, students work with full responsibility in answering questions posed by his friend. The sharing activity raises the curiosity of the other students, so that the first student is silent / passive becomes active. The emotional environment affects learning conditions such as individual motivation, task precision and responsibility (Harjanto, 2010: 147).

Different in control class students are still less active in the learning process. Students still lack collaboration in class discussions because of low material understanding, students are not required to contribute individually or in groups that cause less sense of student responsibility. Curiosity and discipline that are less due to students are not directly involved in the process of student learning is just a container of information from teachers only (teacher center). This results in differences in the results of the affective domain competencies in the experimental and control classes. The experimental class using the Think Pair Share (TPS) cooperative learning model and the initial ability has a higher average competence affective competency score of 82.16

than the mean affective competence level in the conventional control class / lecture that is 63.83 .3

3. The result of observation of psychomotor competency

The result of observation of psychomotor competency of students conducted by the observer, in experimental class with cooperative type model of TPS type is better than the competence of psychomotor domains of control class students conventionally. In the experimental class using the Think Pair Share (TPS) model, students are required to be more skilled in communicating and actively participating in presenting the results of the discussion in front of the class, skilled in asking, skilled in opinion and answering questions in their minds, according to the learning materials without having to be embarrassed to argue, ask questions and answer questions. Group discussions make students talk more often, ask questions, and be directly involved in learning so that each student is responsible for his group (Kunandar, 2014: 374).

In the experimental class the students participate directly in the learning process because in the model of cooperative learning type TPS requires students to contribute opinions with their partners in the Pair stage, and students must also be able to respond to questions that friends can think and share in Share stage. Students' attitude in the learning process is the readiness of students to accept or reject opinions, input from friends, self-assessment is the relationship between knowledge, attitude and skills (Sanjaya, 2009: 234).

In the experimental class and teacher controls both provide motivation that can lead to the spirit of student learning to be active and more serious in the discussion during the learning process takes place, because the motivation and willingness to learn students will determine the learning outcomes achieved so that students are able to make a conclusion correctly, appropriate and in accordance with the material being studied. Discussion of students in small groups can increase students' activity so that it becomes a motivation that can improve student learning outcomes (Djamarah and Zain, 2014: 87). Based on the observation of the researchers found positive skills changes that occur in students and filling rubric filled by the observer of each learning took place.

It only happens in the experimental class, different in the control class the students are more silent and rely on other friends, due to lack of understanding of the material that causes the students not to know what to ask and do not know

what will be answered if anyone asks or the teacher asks. So that the difference of competence result of psychomotor domain of experiment class with competence result of student psychomotor control class.

V. CONCLUSION

The conclusion in this study, the learning competence of learners by using cooperative learning type Think Pair Share (TPS) with LKS assistance and initial ability significantly influence the competence of students learning grade XI IPA at SMA Negeri 2 Siak Hulu. The advantage of this learning model is to give more time for students to think, to share with the couple aims to equate the concept and train students to dare to express opinions and listen to the opinions of classmates with the aim of improving students' learning competencies both the cognitive, affective and psikomotor domains.

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