

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 research aims to know the influence of cooperative learning model of think pair share types is Categorized and assisted students learning ability competence against the biology students of class XI SMA Negeri 2 Siak Hulu. This type of research is research, experiments with shaped design (factorial design) 2 x 2. The population in this research is the whole grade XI IPA at SMAN 2 Siak Hulu. The sample of this study uses two sample groups' items, namely students' class experiments and grade control. This research instrument using questionnaires, observation sheets, and test. Technique of the data analysis consists of a description of the Data requirements, test analysis, and hypothesis testing. The results Showed that there was influence of cooperative learning model of types think pair share with learning competency cognitive domains biology students, both at the initial high ability Also low, there is the influence of learning model of think pair share type cooperative with the competence of learning biology students affective domain, both at the initial Also high ability low, and there is the influence of cooperative learning model of think pair share types with competence learning psychomotor domain biology students, both on initial ability to lower high. In addition, there is the interaction models of learning types think pair share with students learning competence against the cognitive domain of biology students of class XI SMA Negeri 2 Siak Hulu.

Keywords: Think pair share, competency, worksheet, student entry behavior

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INTRODUCTION

Education is one area that is very important for human development completely. This in accordance with the laws of the Republic of Indonesia No. 20 of 2003 on the education system's ability and forming a national education that serves to develop character and dignity of the nation civilization in order to achieve the life of the nation. Biology learning involves students seeking comprehensive source of information from various sources. Students should enthusiastically raised their hands to answer questions or contribute thoughts, give opinions or ideas, critical thinking, analysis, and logically so as to create an effective learning environment. This is reinforced by the opinion Warsita (2011: 289), about effective learning, namely; 1) the student becomes the reviewer active against the environment by observing, comparing, finding similarities and differences and forming concepts and generalizations based on similarities were found, 2) the teacher presents the material as a focal think and interact in the learning process, 3) activities of students entirely based on the assessment, 4) teachers are actively involved in the learning process, and 5) a variety of learning techniques.



Based on observations of researchers on September 6, 2016 at SMAN 2 Siak Hulu, Kampar, teachers still use conventional learning model that is delivering the materials to the lectures, question and answer and then terminated by giving exercise. Conventional applied learning classroom teachers less impact on students' interest in the learning process. The learning process in SMA biology 2 Siak Hulu, more emphasis on the class XI student's cognitive, affective and psychomotor aspects while little attention. Based on the test results daily test (UH), known to many students who scored below the minimum completeness criteria (KKM) established in schools, can be seen in Table 1.

Table 1. Percentage Complete Daily Deuteronomy 4 (UH) Subject Biology Academic Year 2016/2017 Prior 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: field Studies Biology Teacher of SMAN 2 Siak Hulu

From the observations the researchers did on September 6, 2016, concluded that students who perform well group discussions. Conventional learning models, merely discussing the problems in the printed book and the discussion ends when students are asked to make a record that causes students do not understand the linkages between concepts with baik. Kondisi like this create learning is dominated by teachers (*teacher centers*) provide opportunities for students to chatting on the learning process and the students listening to the teacher's explanation about.

Type of cooperative learning model *Think Pair Share* (TPS). According Saenab and Puspita (2012), a model TPS one effort that can be done by teachers to help students. And according Trianto (2010: 133), TPS learning model consists of three steps, namely; 1) students to think independently 2) students discuss in pairs, and 3) students sharing or discussion in class. Ability to describe the beginning of a student's readiness to absorb the lessons that will be presented by the teacher. According Slameto (2010: 25), "How is the new material can be studied, depending on what is known". Thus, the initial ability of students is a prerequisite of the students to be able to follow the lessons, so that it will achieve better learning competencies.

For background reading that will read the student, the teacher can give the BLM to facilitate and engage students in understanding the lessons. LKS is sheets that contain siswa. Lembar job to do this work usually in the form of instructions, step-lagkah to complete the task. Each worksheet used to guide the students' learning process undertaken in the form of questions and activities to be carried out students. In addition LKS well as support to increase the activity of students in the learning process and optimize the learning outcomes (Nurdin and Adrianto, 2016: 112). Based on the above problems, researchers interested in conducting a study entitled "The Effect of Cooperative Learning Model *Think Pair Share* Assisted LKS and Capability Early Learning Competence Students Against Biology Student Class XI SMAN 2 Siak Hulu".



MATERIAL AND METHODS

This research is an experimental research. In this study, manipulation conditions by providing *treatment* or creates a condition or stimulation of the subjects examined. This study included *quasi experiment* (quasi-experimental) because the variables can not be controlled entirely as a pure experiment. In this study, the students are divided into two classes, namely the experimental class and control. Experimental class is given treatment with students using cooperative learning modelmode, *Think Pair Share* while the control group using a conventional model. Experimental design used in this study is (*factorial design*) 2×2 and *Posttest- Only Control Design* for affective and psychomotor competencies.

Determination of high and low initial ability of students grouped by dividing students with prior knowledge persesntase 50% higher and 50% lower initial ability of the number of students based on grades given by teachers prior to the study. The population in this study were all students of class XI IPA at SMAN 2 Siak Hulu, Kampar Regency second semester of 90 people, divided into three classes. In this menelitian taken two classes of students using the experimental class learning modelkooperatif tipe *Think Pair Share* aided LKS and prior knowledge of students and classes taught using methods konvensional control. The withdrawal of samples by sampling, *purposive* ie sampling technique is done with consideration of the needs that the same number of students and the average value is almost the same student. To take an experimental class and control class conducted the draw. Measures of sampling are as follows:

- a. Request and calculates the value of 4 subjects UH biology grade students of SMAN 2 Siak Hulu 2016/2017 academic year consisting of three classes, as the basis for determining the average grade XI shown in Table 6.
- b. Determine the experimental classes and control classes in drawing, by taking a roll of paper is written the name of the class as a sample group. The class name that is picked up is set as the experimental class is Class XI IPA₁ and class names are not drawn assigned as the control class is Class XI Science₂

RESULTS AND DISCUSSION

Data description: The data obtained in this study a competency study biology students on the cognitive, affective, and psychomotor. The data on the cognitive domain was obtained following two basic competence learning process is completed, while the data on the affective and psychomotor obtained from observations by the observers during the learning process by using a model of type pembelajaran kooperatif *Think Pair Share* (TPS).

Cognitive domains competency data description: Data cognitive learning competencies in this study was obtained through the final test in the form of a written test in the form of multiple choice questions given to students in grade and Kolas control experiment conducted at the end of the study. Data cognitive learning competencies students are presented in Table 2.

Table 2. Results of Student learning Competency Cognitive domains

Class	N	\bar{x}	xmax	xmin	deviasi Standard
Experiment	30	83.66	94	72	7.00
Control	30	77.40	92	62	7.82

Based on Table 14. It is known that the average learning outcomes biology students in the experimental class is higher than the control class, namely the class 83.66 77.40 experiment and control class. Standard deviation is also demonstrated an experimental class to get the highest score compared to the conventional classroom.

Affective domains competency data description: Data research on affective aspects obtained through observations made by two people teachers as observer using the format affective ratings of students during the learning process takes place. Analysis of the data on the affective performed with nonparametric tests that *Mann-Whitney U* test. Affective competencies research data presented in Table 3

Table 3. Affective Sphere Value and Control Experiment Class

Class	N	\bar{x}	Predicate
Experiment	30	75.50	B
Control	30	61.86	C

Based on Table 3. Can be known to the average total value of affective students filled out by observers in the experimental class earned an average higher ie 75.50 compared to conventional classes are only 61.86. This suggests that the affective domain competence grade students experiment that uses a type of cooperative learning model *Think Pair Share* (TPS) is higher than the control class with the conventional model.

Psychomotor domains competency data description: Data research on psychomotor aspects obtained through observations made by two people guru sebagai observer using the format psychomotor assessment of students during the learning process takes place. Analysis of the data on psychomotor performed with nonparametric tests that *Mann-Whitney U* test. Psychomotor competency research data presented in Table 4.

Table 4. Psychomotor aspect Value and Control Experiment Class

Class	N	\bar{x}	Predicate
Experiment	30	77.23	C
Control	30	74.40	C

Based on Table 4 it can be seen the total value of psychomotor students filled out by observers in the experimental class earned an average higher at 77.23 compared to the control class which only 74.40. This shows that the competence of psychomotor graders experiment that uses a type Cooperative learning model *Think Pair Share* (TPS) is more significant influence than the control class that uses conventional models.

Testing Requirements Analysis

Normality test: Normality test is done on the cognitive competence experimental class and control class. Competence cognitive domain showed improvement after implementing the learning process. Normality Test conducted with test *levene*. From the calculation Sig prices are then compared with each kelompok. Hasil alpha Experiment class normality test and control classes can be seen in Table 5.

Table 5. Uji Normality Cognitive Domains Competency Class Class Experiment and control.

Class	N	Average	Standard Deviation	AsympSig	Alpha	Conclusion
Experiment	30	83.66	7.00	0.490	0:05	Normal
Control	30	77.40	7.82	0,900		

Test homogeneity: Homogeneity test conducted on a variant of the two groups of data samples with cognitive students in the experimental class and control. Hasil class homogeneity test experimental and control classes can be seen in Table 6.

Table 6. Homogeneity test of cognitive competence in a sample grade

classes	Levene	df	DF2	Sig
initial capability Low grade control	experiment, 507	15	88.66	479
initial capability Higher class experimental	control, 623	15	78.66	603

Based on Table 6, It can be seen the test results homogeneity in both samples based on initial capability homogeneity test results in this study was obtained Sig > 0.05% alpha both high and low initial capability in other words it can be concluded that the two sample groups are derived from a homogeneous population or the same.

Hypothesis Testing

The first hypothesis: Hypotheses first used to determine the effect of type of cooperative learning model *Think Pair Share* with cognitive learning competencies biology class XI student of SMAN 2 Siak Hulu. Learning outcomes in the experimental class and control class can be seen in Table 7.

Table 7. Results of the calculations first hypothesis

Class	\bar{X}	t	t _{table}	conclusion
Experiment	83.66	3.267	2.04	H ₁ received H ₀ is rejected
Conventional	77.40			

Based on Table 7. can be seen on the cognitive competence of students gain_t is 3.26, whereas t_{table} is 2.04. From the data obtained t_{count} > t_{table} means the hypothesis is accepted, meaning the type of cooperative learning model *Think Pair Share (TPS)* to upgrade the competence biology class XI student of SMAN 2 Siak Hulu.

The second hypothesis: This hypothesis to determine the effect of cognitive learning competencies of students who take the cooperative model Type of *Think Pair Share* (TPS) which is capable of high initial. T test calculation results are shown in Table 8.

Table 8. The second hypothesis calculation

Class	Ability	\bar{X}	t	t_{table}	conclusion
Experiment	High	88.66	3.03	2.13	H_1 received
Conventional		83.06			H_{0is} rejected

Based on Table 8. Can t appears that the competency test cognitive ability students beginning high gain_t is 3.03 while the t_{table} is 1.96. From the data obtained $t_{count} > t_{table}$ means the hypothesis is accepted, that there are significant cognitive competence of students who use the cooperative model Type of *Think Pair Share* (TPS) which is capable of high initial.

The third hypothesis: this hypothesis to determine the effect of cognitive learning competencies of students who take the cooperative model Type of *Think Pair Share* (TPS), which enabled the initial low. T test calculation results are shown in Table 9.

Table 9. Calculation Results Third Hypothesis

Class	Ability	\bar{X}	t	t_{table}	conclusion
Experiments	Low	78.66	3.61	2.13	H_1 received
Conventional		71.73			H_{0is} rejected

Based on Table 9. It can be seen that the t-test on the competence of the cognitive ability students lower initial_t gain, namely 3,615 whereas t_{table} is 2.13. From the data obtained $t_{count} > t_{table}$ means the hypothesis is accepted, that there are significant cognitive competence of students who use the cooperative model *Think Pair Share* (TPS), which enabled the initial low.

The fourth hypothesis: fourth hypothesis is used to determine the effect of affective learning competencies of students who take the cooperative model Type of *Think Pair Share* (TPS) The results of calculation in the experimental class and control class in the affective domain can be seen in Table 10.

Table 10. Calculation Results U test on domains Affective Experiment Class and Class Controls.

Class	\bar{X}	U_{count}	U_{Table}	Conclusion
Experiments	82.16	39.50	127	H_1 received H_{0is} rejected
Conventional	63.83			

UnknownTable 10. Based on test *the U* on the competence of the affective student earns_{count} is 39.50 while the U_{table} is 127 . From the data obtained $U_{count} > U_{table}$ means it can be concluded that there are significant affective competencies of students using cooperative model type of *Think Pair Share* (TPS) than conventional.

Fifth hypothesis: seventh hypothesis is used to determine the effect of psychomotor learning competencies of students who take the cooperative model jigsaw. The calculation in the experimental class and control class on psychomotor can be seen in Table 11.

Table 11. Results of calculation of the Fifth hypothesis

Class	\bar{u}	u_{count}	u_{Table}	Conclusion
Experiments	40.60	114.0	127	H1 received
Conventional	20,40			H0 rejected

Based table 11. it is known interest *the U* on psychomotor students acquire competence U_{count} is 114.0 while the u_{table} is 127. From the data obtained $U_{count} < U_{table}$ hypothesis is accepted, meaning it can be concluded that there are significant psychomotor competence of students using the model type cooperative *Think Pair Share* (TPS).

Hypothesis sixth: This hypothesis is used to determine the interaction between the cooperative model Type of *Think Pair Share* (TPS) with a prior knowledge of the competencies of cognitive biology class XI student of SMAN 2 Siak Hulu calculation result test this hypothesis by using test Anova two directions for the interaction of X x Y the extent nyata $\alpha = 0.05$, obtained $F_{table} = 6.131$ while the $F_{count} = 3.28$. This means that F_{count} is smaller than F_{table} is **6.131 > 3.28** with demikian dapat concluded there was an interaction between the learning model with initial knowledge of students' cognitive competence of students.

Discussion: Based on the results of statistical analysis, hypothesis testing results show that the average results obtained studying biology students with cooperative learning *Think Pair Share* (TPS) aided LKS and the ability to start a positive impact compared with the learning outcomes of learners conventional biology. This is evidenced from the data analysis of the experimental class are treated in the form of cooperative learning *Think Pair Share* (TPS) aided LKS and capability initials better than the conventional classroom is not given treatment. Cooperative learning model think pair share. This learning helps students be more active, creative, and effective than using lectures, as well as methods Think Pair Share (TPS) students are trained to think themselves in answering and solve the problem (Pupils, et al).

Achievement interaction model early learning ability students: The results of calculations for hypothesis testing concluded there was an interaction between cooperative learning model *Think Pair Share* (TPS) with the initial ability of learners to learn competence biology. It means learning outcomes of students using cooperative learning model *Think Pair Share* (TPS) can be increased by beginning to see the ability of learners first. Interaction is a dependency relationship between a variable to another variable in certain real level. This is evident from the changes in the study of students, both overall and views from each of the initial capability.

The learning process of learning biology in particular, the initial capability is an important component that must be mastered by the students well. Initial capability obtained as a result of changes made and the learning is ongoing and continuous. This is in accordance with the opinion Slameto (2010: 3) that "as a result of learning, a change in a person takes

place on an ongoing basis, not static. A change that occurs will cause the following changes and will Barguna for the life or the next learning process. According Slameto (2010: 25) states "How is the new material can be studied, taergantung of what is already known(*advanceorganizers*)".Ability early before starting to learn something new is also known by the term "*entrybehavior*".

Initial capability is basically a state of ability or skill that must be held in advance by the student prior knowledge or learn new skills (Ali, 2004: 74). With the start of this ability students are able to build on the knowledge and skills that will be given by the teacher later. How to know the entry behavior, namely: (1) with an interview or test, scratch test (pre-test) the teacher and can be a tool to know the entry behavior. Pre-test should be the same as that used in the post-test. (2) through analysis and instructional, from instructional analysis is made to know the level of ability or mastery of materials (Ali, 2004: 77). Readiness by Slameto (2010: 59) is the willingness to give a response or reaction.

According Harjanto (2006: 128), the initial capability is determined to provide an early test, initial ability of students is very important for teachers to be able to give the right lessons, not too hard and not too easy. Initial capability is also useful to take the steps necessary to understand the new capabilities. Thus, the initial ability of students is a foundation that can be used as capital for the student before studying a new material that can later cause a response or reaction during the learning process so as to create a good interaction.

It can be concluded that the initial capability is adequately student capacity in relation to the learning objectives developed through the learning process. In other words, the initial capability is the ability of students to more deeply understand something of learning materials that will be delivered teacher before the material is learned or taught.

LKS Achievement: LKS Giving a student manual used to conduct an inquiry or problem-solving. LKS can be a guide for cognitive development as well as a guide to pengemangan all aspects of learning in the form of experiment. LKS contains a set of basic activities a student must do to maximize student understanding in the efforts to establish the basic capability corresponding indicators of achievement of learning outcomes that must be taken (Trianto, 2010: 222).

LKS is sheets that contain siswa.Lembar job to do this work usually in the form of instructions, step-lagkah to complete the task. Each worksheet used to guide the students' learning process undertaken in the form of questions and activities to be carried out students. In addition LKS well as support to increase the activity of students in the learning process and optimize the results belajar (Nurdin and Adrianto, 2016: 112). With the Student Worksheet (LKS) is expected to make students active and responsive, and creative. LKS can be used for students to observe the cognitive, affective and psychomotor student. LKS can train students seanyak concept blunts much of the material that will be studied through worksheets and discussed for the conclusion in the learning material.



Learning competency achievement in cognitive domains: The results showed that cognitive learning competence can be increased by using cooperative learning model *Think Pair Share* (TPS) aided LKS and initial capabilities have a positive impact. This is evident from the acquisition value of the average results of experimental class learning higher than students in conventional classes are given, where the average values obtained experimental class learning outcomes 83.66 and 77.40 a conventional classroom, that average learners shows that the value of second grade sample experience the difference.

Based on the analysis of the data that the experimental class given treatment using learning model *Think Pair Share* (TPS) aided LKS and higher initial capability results compared with conventional classroom learning. This is because they cooperative learning models Think Pair This lesson helps students be more active Share, creative, and effective than using lectures, as well as methods Think Pair Share (TPS) students are trained to think themselves in answering and solve the problem (Pupils et al. According Trianto (2010: 81), explains that learning model TPS mode gives more time to think about and discuss for students find a more appropriate answer and students to help each other, co-operation with members of the group so students who are less able will be able to understand the subject matter.

Instruction Think Pair Share (TPS) with LKS and prior knowledge students will be trained to think independently in solving a given problem, and give an idea of the individual (Think) .Besides learning model Think Pair Share (TPS) with LKS and initial assistance capabilities provide opportunities for students to give their opinions on the subject matter (Pair).during the *Share* discussion, students share what has been discussed in pairs with the aim of matching their descriptions conformity with the understanding of other classmates. If the information does not match, then the students try to resolve disagreements that occur together.

Initial ability of students in the learning process to give effect to the realm of cognitive competence of students. According Harjanto (2010: 128), the initial capability is determined to provide an early test, initial ability of students is very important for teachers to be able to give the right lessons, not too hard and not too easy. Thus, the initial ability of students is a foundation that can be used as capital for the student before studying a new material that can later cause a response or reaction during the learning process so as to create a good interaction.Students are capable of high initial impact with the use of cooperative learning model compared to students using conventional learning.

Phase to competence study on affective domains: observations affective competencies of students conducted by the observer, gained an average of affective competencies of students in the experimental class better than conventional grade students affective competencies. Students in the experimental class participate in the learning process because in this learning model requires students to donate opinion with his partner, and the students also must be able to respond to a friend who believes pasangannya.Disiplin, curiosity, cooperation, and responsibility are required of students in the learning model TPS ,

Appropriate according to Djamarah and Zein (2014: 55) educating students an advanced social tendencies beings live together and be able to control their selfish sense respectively.

In a conventional classroom using conventional learning model is still less active students in the learning process. Students are still lacking in cooperation, responsible for the discussion because the concept of a low understanding of the material. Causing students are less confident in asking, provide feedback, and responding to the questions posed by the teacher and when berdiskusi. Rasa curious less cause problems unsolved.

Learning competency achievement in the sphere psychomotor: Competence observations psychomotor students conducted by the observer, psychomotor competency data obtained experimental class students better than conventional classes. The high acquisition of competence in the experimental class also had a positive influence on learning using learning model *Think Pair Share* (TPS) aided LKS and prior knowledge where students are required to be skilled in communicating and play an active role in displaying the results of the discussion in class. This is regarding to that expressed by Lord (2001: 31) that the discussion groups to make learners more often to speak, ask questions, and be directly involved in learning, compared with a learning centered on the teacher.

According to RJ (2009: 144) theory of constructivism build knowledge based on experiences that encourage students to think dans berpikir then demonstrate re. This theory states that learning is a process of searching for knowledge, understanding akanmembutuhkan physical involvement (psychomotor) in the implementation.

CONCLUSION

The conclusion of this research, the competence of learners using cooperative learning *Think Pair Share* (TPS) aided LKS and initial capability significantly affect the competence of learners grade XI SMA Negeri 2 Siak Hulu. Advantages of this model is to provide more time for students to think, to share with the pair aiming to equate the concept and train students to dare to express opinions and to listen to opinions was classmates with the goal to increase the competence of student learning both cognitive, affective and psychomotor.

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