

Effectiveness of Cooperative Learning Model Type STAD and TPS Against the Results of Student Learners

(Case Studies in senior high school in Madura City)

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Abstract

The aim of this study was to determine the effectiveness of cooperative learning model of type STAD and TPS to solve student learning outcomes in the matter of the reproductive system, the effectiveness of both models can be seen from the results of student learning, teachers' ability to manage teaching and student activities. Design research using *pretest-posttest -Control-Group - design*, with research subjects high school students at Madura. The result of the study indicates that: (1) the result from both try-outs shows the significant differences from the result of student's learning using STAD and TPS strategies with the significant level 5%, but all of students complete the subject of reproduction system well. (2) The teacher's ability in manage teaching learning process using STAD and TPS strategies is categorized into a good category with the average score to 3.5. (3) The dominant activity of the student in STAD and TPS strategies is doing the student's activity sheets (LKS) in a group. Based on the result of the study, it can be concluded that both cooperative learning model type STAD and TPS are effective in teaching the subject of reproductive system.

Key words: Reproductive Sytem, STAD, TPS

Background

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Reality on the ground are often found in high student curiosity to discover something of interest has not been accommodated so that students do not develop. In teaching science in the classroom is often met students who are difficult to ask questions, in group work there are only a few students who are active, intelligent students who belong tend not to want to help his friend to explain what he knew, students who do not understand do not want to ask friends who already understand and when given the questions the students tend to be quiet.

Teachers can assist this process in ways that make teaching the information to be very meaningful and very relevant for students, by providing opportunities for students to discover or implement their own ideas and to encourage students to be aware and to consciously use their strategies own to learn (Nur and Wikandri, 2000: 2). Lately, teacher thinking has been the focus of research in finding out the components of effective teaching.

For this reason, many researchers tried to design a learning device using various models, one that is cooperative model. Cooperative learning is one of the learning model that emphasizes the uniqueness of the task structure, the structure of goals, and reward structures (Ibrahim *et al*, 2005:2). Constructivist approach in teaching of cooperative learning is widely applied, based on the theory that students more easily find and understand the concepts that are difficult if they were discussing the issue with his friend. Students regularly work in groups to help each other solving complex problems (Nur and Wikandri 2000:8).

The model of cooperative learning (Ibrahim, *et al* 2005: 20), consisting of 4 approaches, STAD, jigsaw, an investigation group (IK) and the structural approach. Where the structural approach emphasizes the use of structures designed to influence the pattern of student interaction. The structure is intended as an alternative to conventional classroom structures such as recitation, the teacher asking questions to the whole class and students give the answer

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after lifting the hand and appointed. This structure requires students to work to help each other in small groups and more characterized by the award of cooperative, rather than individual awards. (Ibrahim, et al. 2005: 25).

Many studies comparing cooperative learning with traditional teaching methods have been evaluated cooperative learning such as *STAD*, *Jigsaw II*, *TAI*, and the method of *Jonson Circ*. More than 100 studies have compared the learning outcomes of students who studied with the methods by which learning with traditional methods in a period of at least 4 weeks (Slavin; in Nur and

Wikandri, 2000: 39). The results have consistently demonstrated the superiority of cooperative learning (Nur and Wikandri, 2000: 39).

Muchlis (2001), applying the device type *STAD* cooperative learning in high school chemistry course, the subject of functional group of carbon compounds as well as alcohols and esters. From the analysis it can be concluded that the students have been thoroughly achieved *TPK* products and psychomotor.

From the results of data analysis performed by Zulfatni (2004), on the subjects of biological material of human hormone study concluded that student achievement in the experimental class (which followed the use of learning strategies *TPS*) better than control students' learning achievement (which follow the conventional learning.)

Rumallang (2003) and Harjono (2005), also conducted similar research on the subjects of Physics and the results showed that the use of cooperative learning model type *TPS* on learning has increased *THB* processes, products and psychomotor.

The material of which the researchers chose is the reproductive system study materials, this material in the form of declarative knowledge that contains many Latin terms, ajarnya too much material making it difficult to memorize and understand. Students tend to be passive in accepting the lessons given by teacher. In order for students to actively engage the needed a learning approach which is a type of cooperative learning among student teams achievement divisison (*STAD*) and *think-pair-share* (*TPS*), because in this model students are required to

interact and work together in groups to solve every problem. So that allows students for discussion and questions and answers between students with a student or between students and teachers. Which ultimately aims to foster social skills in students. In addition, type *STAD* cooperative learning and *TPS* have more power and a good opportunity to cultivate the ability to apply concepts, communication skills, skills of asking questions.

In addition to the reasons mentioned above, and *TPS STAD* approach is a strategy that is simple and has been able to improve student learning outcomes. *TPS* is one of the structural approach to cooperative thinking strategies in pairs is more likely done in large classes while *STAD* is a cooperative approach consisting of 4-5 people and is more effective for small classes. The existence of comparisons between students who are taught in pairs with the group, which then can be found more efficiently and effectively in teaching and learning materials especially in the reproductive system.

Based on the author wants to do research on the effectiveness of Cooperative Learning Model Type *STAD* and *TPS* Type Of Student Results.

Method

This research can be classified into experimental research. The subjects were students of *SMU Negeri 1 Arosbaya 4* classes and students *SMU Negeri 1 Tanjung Bumi*, as much as 2 classes, each class consists of 39-40 students. This research was initiated with the development of tools as instruments for conducting research. Development of these devices using software development model of *four-D (model 4D)*. Analyze data using descriptive and inferential analysis. The design of this study using *pretest-posttest - Control-Group - design*.

Discussion

As with term limits on effective when learning is said to satisfy: 1) score high student learning outcomes, at least 85% the proportion of students answer correctly on the final test of ≥ 65 . 2) good managing in learning and 3) high levels of student activity.

1. Student Results

Learning outcomes measured by the thoroughness of individual students and classical.

Mastery learning outcomes based on defined minimum mastery standard in high school SMA Negeri 1 Arosbaya and Tanjung Batu, namely by 65%. The test results students who are taught using STAD strategy and TPS both individually and classical are all complete. In conventional class (control) exhaustiveness individually, not all students complete while in a completely classical.

Based on the data showed that 100% of students who are taught using STAD strategy and polling proportion correct answers on the final test of not less than 65. Thus it can be said that learning biology using STAD strategy and TPS effectively teach the subject of the reproductive system at SMU Negeri Arosbaya Madura and SMU Negeri 1 Tanjung Batu. Because more than 85% the proportion of students who answer more than 65.

Differences student learning outcomes were tested using *Analysis of Variance (ANOVA)* because the second test sample used more than two groups. Data were analyzed using SPSS 16.0.

Having in mind that the population has a normal distribution and equal variance, followed by ANOVA test, to test whether the average third of the population of each group had an average (mean) the same, the data used is the difference data pretest and posttest results of students.

TABLE 1

ANOVA					
outcomes					
	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	4220.736	2	2110.368	54.081	.000
Within Groups	10692.181	274	39.023		
Total	14912.917	276			

From the results of these ANOVA F test get 54.081 with probability 0.000. F table with significance level of 5%, figures obtained from table 19.495. Because the $F_{test} 54.081 > F_{(2,274)} 19.495$ then H_0 is rejected. Based on probability values, $0.000 < 0.05$ then H_0 is rejected, it implies that the average value of all three groups are different. Having in mind that there are significant differences among the three groups,

then will proceed to the analysis of LSD, to determine which groups are different and that is no different. Test of significance of mean difference between groups based on probability values.

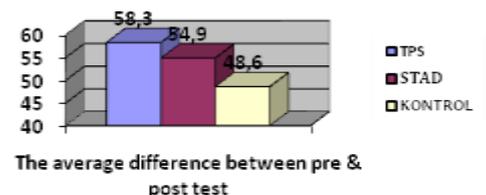
Table .2
Multiple Comparison

outcomes LSD				
(I) class	(A) class	The mean Difference (I)	Std. Error	Sig.
TPS	STAD	3.38384 *	.88788	.000
	Control	9.73597 *	.94240	.000
STAD	TPS	-3.38384 *	.88788	.000
	Control	6.35213 *	.94240	.000
Control	TPS	-9.73597 *	.94240	.000
	STAD	-6.35213 *	.94240	.000

*. The mean difference is significant at the 0:05 level.

From the analysis above seemingly LSD probability value is 0.000. Therefore, the probability of each group of $0,000 < 0,05$, then H_0 is rejected, meaning that the difference in the average value of students in each group actually real or significant. The difference can be seen easily in the output with the sign (*) which means that between kelas TPS and STAD no significant differences between TPS and control classes there are also significant differences. So also if we compare between classes STAD and control there is also a significant difference.

Mean difference value of different strategies can be seen in the following diagram



In Figure 1 recaps the final test STAD strategy and TPS and controls on top of the results shows that the average value of the difference between pre test and post test students there are differences in the average value of students who

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are taught with STAD strategy, polling and class without treatment (control) . From these values we can see that student learning outcomes using TPS strategy is greater than the results of student learning and are taught by using STAD strategy and control.

2. Observation Results Teacher Skills in Managing Cooperative Learning with STAD and TPS strategy.

In the bar chart below we can see, the first stage of preparation as a whole good, with an average score of 4. In phase II, which consists of three activities, namely introduction, core activities and the cover 3.7. For time management menunjukka score 3.2, which means pretty good. The class is fair with a score of 3.6.

In this diagram we can see that, learning by using strategies of TPS, in phase I preparation with a good overall average score of 3.9. In phase II, which consists of three activities, namely introduction, core activities and the cover showed an average score of 3.7 observation results. To demonstrate time management score 3.7, which means good. The class is fair with an average score of 3.56.

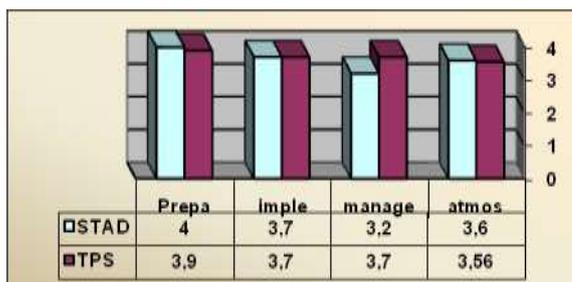


Figure 2. Teacher skills in managing Cooperative Learning with STAD and TPS

In figure 2 above shows, at this stage of preparation, implementation and atmosphere of the class showed that there was no notable difference between the STAD and TPS strategy. The third phase shows a mean score of 3.5 ditas good. This suggests that teacher preparation prior to learning is good. This implies that teacher preparation is good, teachers also have to organize cooperative learning, students organize, guide and encourage students to do cooperative activities, provide recitation / evaluation and concluded that learning outcomes.

Next time management for STAD strategy, the average score of less than 3.5 observations

which means pretty good. While the TPS strategies for time management has been good.

In general, the average score of teachers' observation skills to manage cooperative learning using STAD strategy and polling stations was 3.7. This shows that the management of cooperative learning using STAD strategy and TPS is going well.

3. Observation Results Students in Learning Activities

Results of analysis of student activity and are taught by using STAD strategy and TPS can be seen briefly in the following bar chart. Based on observations it appears that the dominant activity of the students in the STAD strategy is to do tasks / worksheets together as shown by the pesentase 19.6%. In the group using the TPS strategy also indicates that the student activity worksheets work together more dominant than the task independently. This is indicated by the percentage of student activities 14.2%.

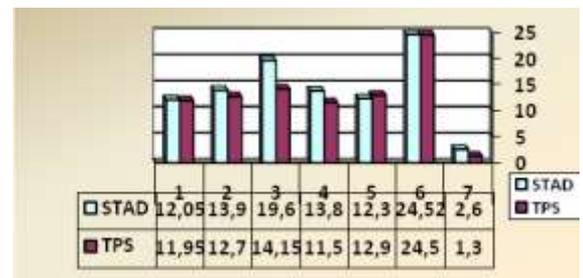


figure 3. Learning activities

Description:

1. = Listening / attention to teachers' explanations
2. = Read LKS
3. = Working Sheet in Mandiri 7.
4. = Practicing conduct cooperative skills.
5. = To presentation the results of group
6. = Write
7. = Behavior that is not in accordance with the

In the bar chart above in both trials 1 and 2, we can see aspects of the difference is quite prominent, namely aspect 3 (LKS working in groups / pairs) and the aspect 4 (Practicing perform cooperative skills).

CONCLUSION

Based on the above findings can be concluded that, type STAD cooperative learning and TPS both effective in complete senior high school student learning outcomes on the subject matter of Biology Reproductive system.

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