KNOWLEDGE SHARING TO IMPROVE STUDENT'S ACHIEVEMENT ON COLLOID TOPIC IN CLASS XI IPA IN SMAN 1 KAMPAR TIMUR

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Abstract: The Research is about using active learning strategy knowledge sharingwhich has been done to know improvement student's achievement on colloid topicin class XI SMAN 1 Kampar East. This research is experimental research based on pretest-posttest design. The sample consisted of two classes. Experimental class appliedactive learning strategies knowledge sharing, while control class is not applied. Analysis of data used t-test. Based on final data using t-test formula with dk = 61 and α = 0.05 was obtained $T_{hitung} > T_{Table}$ (2,48> 1,67). That is the application of knowledge sharing active learning strategies can improve student achievement on the subject in class XI colloidal SMAN1 KamparTimur. Student activity can be seen from the willingness and enthusiasm of students in spelling worksheets, discussions and sharing of knowledge in solving problems with a group of friends as well as from other groups. Category increase student achievement in class experiments with the normalizedgain(N-gain) is 0.69 that include in medium category (N-gain).

Keywords: active knowledge sharing, learning achievement,colloid

1. INTRODUCTION

Learning is the most basic activities in the whole process of education in schools [4]. The learning activities in formal education can not be separated from the process of learning in school. So that the learning process goes well, then a teacher in addition to mastering the material, required also master model that can enable students in the learning process. The successful achievement of the goals of education in schools much depends on how the process experienced by students as learners.

Based on obtained information from chemistry's teacher SMAN 1 Kampar East, the value of student learning on colloid topic is still relatively low. It can be seen average daily test the students in the academic year 2013/2014, the average daily test the students on the subject of colloid is 70. Values obtained are still far from the minimum completeness criteria (KKM) was 80 and the students who did not complete as many as 68 %. The cause of the average value of low student is learning that there are less dominated by students so that students are less involved during the learning process and does not have the courage to put forward its ideas because they feel less confident about what to say.

The implementation learning strategies is expected to create an atmosphere that led to motivated students actively in learning so as to enable an increase in learning achievement. One alternative learning models that are expected to enable and improve student achievement is learning strategies Active Knowledge Sharing.

Learning strategy Active Knowledge Sharing requires collaboration among group members to help each friend group and among groups through knowledge sharing to friends in the group and outside the group members. With the knowledge sharing activities such as providing information, ask who does not understand, and convey the information to fellow can make memories to last longer subject matter, it would be easier for students to solve problems quickly and accurately.

Sudarmawanto [4], The Steps learning strategies Active Knowledge Sharing (2012) are:

1. Teacher explains the learning objectives and outline of the material to be studied and provide motivation to learn.
2. The teacher presents information to students about the material taught by demonstration or by reading or handout.
3. Teacher formsome group. The member at 1 group is 3-4 students. Then teacher explain role of discussionproccess.
4. The teacher provides a sheet of questions related to the subject matter.

5. Teacher gives time to answer a written question sheets that have been prepared by each student to share information on the students in the group and sharing information among a group represented by one person.
6. Most of the students are asked to present the answer in front of the class, the students in the group rules can only provide assistance or input on the presentation of his friends, and another group of students can deny and make a new question relating to the material to answer the students' presentations.
7. Teachers organize students to go back to their seat and directing students to analyze the differences of opinion about the topics covered.
8. Clossing

The application of learning strategies Active Knowledge Sharing students not only discuss with members in the group, but share knowledge with students between groups represented by a student. Students moving will discuss steps to resolve the problem set by the teacher, at this time the students would ask each other, answer questions, propose and share the knowledge that has been discussed within the group about the topics being discussed and to compare results of group discussion with the results of discussions the group that he visited, so students will easily accept and understand the subject matter as they construct their own knowledge, knowledge that is constructed by the students themselves will last longer so that the expected implementation of the strategy pembelajaranActive knowledge Sharing can improve student achievement on the subject of colloids in class XI SMAN 1Kampar East.

2. METHODS

This research was conducted at SMAN 1East Kampar at XI class even semester the academic year 2014/2015 in May 2015. The population in this study were students XISMAN 1 East Kamparsecond semester of 2014/2015 academic year consisting of six classes. The sample consisted of 2 classes the next randomly selected class XI IPA 2 as an experimental class and class XI IPA 1 as a control. Design of reserach was an experimental study with pretest-posttest. Research plan study design according to Nazir [3], can be seen in Table 1.

Table 1. Research Plan

Kelas	*Pretest*	Perlakuan	*Posttest*
Eksperimen	T_0	X	T_1
Kontrol	T_0	-	T_1

Information:
X: Treatment of experimental class with the application strategipembelajaranActive Knowledge Sharing
T_0: pretest value at experimental class and control class.
T1: posttest value et experimental class and control class

The first step in this research is the holding of normality test to see whether the data were normally distributed or not. Preliminary data on this study tested the normality with Lilliefors normality test equation. With the testing criteria: if $L_{maks} \leq L_{tabel}$ (α = 0.05), then the data is said to be normal [1]. After the normal distribution of data homogeneity test continued using the formula F test and t-test two hypotheses testing diambiluntuk pihak.Data the form of student achievement test scores in the control class and experimental class.

The hypothesis was tested using data from an average difference of pretest and posttest. The formula used for the t-test are as follows:

$$t = \frac{\bar{x}_1 - \bar{x}_2}{S_g \sqrt{\frac{1}{n_1} + \frac{1}{n_2}}}$$

Thedeviation standard (Sg) can be calculated using the following formula:

$$S_g{}^2 = \frac{(n_1 - 1)S_1{}^2 + (n_2 - 1)S_2{}^2}{n_1 + n_2 - 2} \quad [5]$$

Category increase student achievement represented by the formula N-Gain as follows:

$$N - gain = \frac{Skor posttest - skor pretest}{Skor maksimum - skor pretest}$$

Table 2. *N – Gain* normalized value and classification

Average *N-Gain* normalized	Classification
$0{,}7 \leq N - gain$	High
$0{,}30 \leq N - gain < 0{,}70$	Medium
$N - gain < 0{,}30$	Low

Information:
N – gain = improve student's achievement [6]

3. RESULTS AND DISCUSSION

The data used to test the hypothesis in this study is the difference between the posttest and pretest. The results of the analysis of hypothesis testing can be seen in Table 3.

Table 3. Hipotesis test result

Kelas	N	$\sum X$	$\overline{x}$	S_g	t_{tabel}	t_{hitung}
Ekperimen	31	1840	73,38	8,35	1,67	2,48
Kontrol	32	1732,5	69,92			

Description: n = number of students who receive treatment Σ X = the number of the differences of posttest and pretest = The average value of the difference between pretest and posttest Sg = standard deviation of the combined.

Hypothesis testing is done by testing the hypothesis by using t test right side. Based on Table 3 shows that the value of t = 2.48 and the value ttable at 95% probability criterion with dk = 61 is 1.67. T_{count} value greater than T_{tabel} (2.48> 1.67) so the hypothesis can be accepted, meaning that an increase in student achievement by using learning strategies Active Knowledge Sharing greater than the increase in student achievement without the use of learning strategies Active Knowledge Sharing. The average size of the gain is normalized <g> student achievement experimental class was 0.69 which included the moderate category and the average gain is normalized <g> student achievement control class is 0.64 medium category. From the analysis of the average gain is normalized learning achievement showed that the gain is normalized experimental class is higher than the normalized gain control class. Thus the application of Active Knowledge Sharing learning strategies can improve student achievement on colloids topic.

Learning strategies Active Knowledge Sharing can improve student's achievement in the subject koloidkarena with appliance of learning strategies Active Knowledge sahring students are required to play an active role in the learning process. Colloidal material is one that is rote learning in the form of concepts that make student bored so that students are less interested in meteri colloid with the implementation of learning strategies Active Knowledge Sharing keep students interested and active in the learning process in the colloidal material.

The results based on survey revealed that students in the experimental class is more active than students in the control class. Active students in the experimental class can be seen from the willingness and enthusiasm of students in doing practical visible from the moment the student share the task of carrying out lab work, enthusiasm students in doing students work sheet (LKS), discussion and sharing of knowledge in resolving problems with a friend group and from the group other. Learning strategies Active Knowledge Sharing requires students to be active in the learning process because the process of moving students kekelompok other and presentations accountability group discussion results determined by the teacher where each meeting is different, indirectly learning strategies Active Knowledge Sharing requires each indivudu student is responsible for his group each. Student activity was also seen at the end of the learning process when the teacher asked one representative from each group to advance mempertasikan result of discussions that they did where the experimental class tampa asked by their teachers took the initiative to move forward mempertasikan their discussion unlike the case in the control class, the teacher should ask the representative mempertasikan groups to advance their discussion inactivity students in the control class also looks at

when doing lab work is dominated by a few students while other students just waiting for the results of her friend. This is in accordance with the opinion of Budiningsih [2] that the activity is required in the learning process constructivism, because can help students to construct their knowledge. The knowledge sought and constructed by themselves will survive long time [7].

4. CONCLUSIONS

Based on the results of data analysis and discussion it can be concluded that: (1) The implementation of Learning strategy ActiveKnowledge Sharing can be improve student's achievement oncolloids topic in Class XI SMAN 1 Kampar Timur. And (2) Category of increase student's achievement is medium in experimentclass with normalized gain was 0.69 while in control class is middle classified by the normalized gain was 0.64.

REFERENCES

[1] Agus Irianto. 2003.*Statistika Konsep Dasar dan Aplikasi.* Kencana. Jakarta.

[2] Budiningsih, Asri. 2012. *Belajar dan Pembelajaran*. Rineka Cipta. Jakarta.

[3] M. Nazir. 2003.*Metode Penelitian.*Ghalia Indonesia. Jakarta.

[4] Sudarmawanto. 2012.Pengaruh Model Pembelajaran dengan Pendekatan *Aktive Knowledge Sharing* dan *Aktive Debate* Terhadap Hasil Belajar Ditinjau dari Motivasi Belajar Siswa. *Jurnal Pendidikan Teknik Elektro*,*Vol.1 No 2*.

[5] Sudjana.2005.*Metode Statistik*. Tarsito.Bandung.

[6] Susilawati, Johar Maknum, dan Dadi Rusdiana.2010.*Penerapan Model siklus Belajar Hipotetikal Deduktif 7E Untuk Meningkatkan keterampilan Proses Sains Siswa SMA Pada Konsep Pembiasan Cahaya*.Proc.of 10th*Seminar Nasional Fisika,*pp 318-325.

[7] Wibawa, Wigih Adi. 2013. *Teori Belajar Konstruktivisme*. http://wiare.blogspot.com/2013/02/teori-belajar-konstruktivisme.html.Diakses pada25 Mei 2015.