



Implementation of Active Learning Type Quiz Team Improving Learning Outcomes for Vocational School Chemistry Material

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Abstract: Application of Active Learning Model Type Quiz Team to Improve Learning Outcomes in SMK. This study aims to determine the effect of Active Learning type Quiz Team models in improving student outcomes on electrochemical materials in class X SMK. The type of research used in this study is a classroom action research conducted two cycles with each stage of the cycle of planning, action, observation and reflection. Subject of research is class X of TP1 SMK Negeri 4 Palembang, amounting to thirty six people. The research instrument used is the test of learning outcomes, questionnaires of student interest and observation sheet for both learners and teachers. the analysis used is descriptive and guidance assessment of test results, questionnaires and observation results. The result of research of learners test through outcomes states improvement of first cycle average value equal to 45,28 the completeness are 44,44% and second cycle equals to 81,39 the completeness are 86,11%. Based on research results and discussion can be concluded that there is improvement of learning outcomes of learners from learning outcomes by using Active Learning type Quiz Team models on electrochemical materials in SMK.

Keywords: quiz team, classroom action research

▪ INTRODUCTION

Chemistry lessons are synonymous with abstract theories, calculations and reactions, so it is quite difficult for students to understand, especially in general, students in junior high school have never studied chemistry, this will make them even more confused when they are in vocational school (Sunyono, 2009: 305).

Meanwhile, vocational school students generally prefer practice over theory, which means that not all students have a great interest in learning, including studying chemistry. Even though interest is closely related to activities and learning outcomes. In this case, to encourage students to learn, interest acts as a motivating force. Interest contains several elements, including feelings of pleasure, will, awareness, and attention.

Based on the results of the author's observations with Mrs. Dewi Kusmawaty, S.Si., M.Pd as a chemistry teacher who teaches class general such as chemistry; b) chemistry learning usually only has a small amount of time allocated; c) the facilities and infrastructure for studying chemistry do not support it, so there is an opinion that chemistry has nothing to do with everyday life or is related to other majors in vocational schools. These facts cause students' low interest in learning, so that the cognitive learning outcomes obtained by students do not meet the criteria set by the school, namely 75. The percentage of students who meet the criteria according to the KKM (85% standard) is 40%, while 60% does not meet the KKM criteria.

To attract students' interest in understanding the concepts covered in the lesson is not easy. Teachers must have teaching method skills that make the learning atmosphere lively and interesting. Selection of learning methods

The right approach will help students develop their own interests thereby increasing their sense of enjoyment, attention, willingness and awareness to learn. Quiz Team is a type of Active Learning, where students in teams directly participate in studying the material by discussing, asking each other questions and giving answers which will make learning fun and not boring, and the material will be remembered by students longer.

Tarigan, et al (2016) with the title "Application of the Active Learning Type Quiz Team Model to Improve Learning Outcomes of Vocational School Students". The research aims to determine the learning outcomes and learning activeness of students. Where the research is classroom action research which consists of 2 cycles. The evaluation value obtained for each cycle, in cycle 1, the percentage of activeness and learning outcomes was 46.25% and 62.5%, including the sufficient category. In cycle II, the percentage of activeness and learning outcomes was 63.75% and 71.87% and included in the high category. The results of this research show that the Quiz Team type Active Learning learning model has a positive influence and is suitable to be implemented.

Based on the description that has been put forward, the problem formulation in this research is "How to improve the learning outcomes of class So the aim of this research is to improve the chemistry learning outcomes of class X students by using the Quiz Team type Active Learning learning model at SMKN 4 Palembang.

Based on the description above, the author intends to conduct research with the title "Application of the Quiz Team Type Active Learning Model to Improve Student Learning Outcomes in Vocational School Chemistry".

▪ **METHOD**

Types of Research

The type of research carried out is classroom action research. Where this research is informal, namely research that functions to evaluate teacher performance during the teaching process. And usually research consists of several cycles until the desired goal is achieved. This research was carried out in the following stages:

Planning Stage (Plan)

At the planning stage, what is done is determining the cycle learning material, namely electrochemistry, making a learning implementation plan (RPP) with the Quiz Team type Active Learning learning model, compiling teacher and student observation sheets to observe activities during the learning process, making a questionnaire sheet for assessing students' learning interest in chemistry subjects, and compiling learning outcome test instruments used to determine students' knowledge in studying learning material.

Action Stage (Action)

At the action stage, the teacher applies learning according to the RPP that was created at the planning stage, namely with the Quiz Team type Active Learning learning model. The learning steps using the Quiz Team type Active Learning model are a) the teacher divides students into teams consisting of 4-6 people; b) the team creates short-answer questions according to the subject matter; c) the teams take turns playing quiz matches; d) the teacher gives rewards to the team with the highest score; e) the teacher

discusses and makes conclusions. If learning according to plan has been implemented then a cognitive learning outcomes test is carried out at the end of each cycle.

Observation Stage (Observation)

The observation stage is carried out during the learning process. The activities of teachers and students will be observed by observers and the results will be recorded on observation sheets accompanied by research evidence in the form of photos and videos when learning activities are carried out.

Reflection Stage (Reflection)

The weaknesses and strengths that emerge in the action stage will be analyzed in the reflection stage. Then, corrective steps for the next cycle are determined. This continues in the next cycle until students achieve 85% completion of classical learning outcomes and experience an increase in students' learning activity. The results of data analysis obtained in cycle I are used as a reference for research that will be continued to the next cycle so that learning objectives are achieved optimally.

Subject, Time and Place of Research

This research was carried out at SMKN 4 Palembang from March 12 2018 to June 7 2018 in the 2017/2018 academic year. The research subjects were class X students majoring in Mechanical Engineering (TP) with 36 male students.

Data Collection Technique

Data collection for research was carried out using two techniques, namely: Test Technique, this test will show an increase in students' cognitive learning outcomes in chemistry learning through the application of the Quiz Team type Active Learning model. Formative tests are carried out at the end of each cycle. The test questions are developed based on the basic competencies in the syllabus in the form of multiple choices.

Tabel 1. Kisi-kisi soal tes hasil belajar siklus I

Kompetensi Dasar	Indikator Pencapaian Kompetensi	No Soal	Aspek Kognitif	Kunci Jawaban
3.9 Memahami gejala atau proses yang terjadi dalam contoh sel volta yang digunakan dalam kehidupan.	1. Memahami prinsip kerja sel volta.	1	C2	C
	2. Menganalisis reaksi yang terjadi pada anoda dan katoda dari sel volta.	2		B
		4	C4	B
	3. Menuliskan notasi sel volta.	3	C3	A
	4. Memahami potensial elektroda standar.	6	C2	C
	5. Meramalkan kespontanan suatu reaksi redoks berdasarkan potensial selnya.	5		D
		10	C2	
	6. Memahami deret keaktifan logam (deret volta).	7	C2	B
7. Menyebutkan contoh pengaplikasian sel volta dan dalam kehidupan.	8	C1	D	
8. Menjelaskan prinsip kerja contoh pengaplikasian sel volta dalam kehidupan.	9	C2	E	

Tabel 2. Kisi-kisi soal tes hasil belajar siklus II

Kompetensi Dasar	Indikator Pencapaian Kompetensi	No Soal	Aspek Kognitif	Kunci Jawaban	
3.10 Menganalisis faktor-faktor yang mempengaruhi terjadinya korosi dan mengajukan ide/gagasan untuk mengatasinya.	1. Menjelaskan pengertian korosi	1	C1	C	
		2		C	
	2. Menguraikan proses terjadinya korosi	3	C2	B	
		4		E	
	3. Menganalisis faktor-faktor yang dapat menyebabkan korosi besi	5	C4	C	
		6		D	
	4. Menentukan berbagai cara pencegahan korosi besi		7	C3	D
			8		A
			9		A
			10		C

Teknik Non Tes, dengan menggunakan angket dan lembar observasi. Hasil angket berupa data aspek afektif pada minat belajar kimia peserta didik. Pemberian angket minat belajar kimia dilakukan setiap akhir siklus. Lembar angket ini berisi beberapa butir pernyataan. Untuk mengetahui berapa besar minat belajar peserta didik dapat dilihat dari beberapa indikator. Indikator tersebut berdasarkan aspek minat peserta didik diantaranya kesukaan, ketertarikan, perhatian, dan keterlibatan.

Tabel 3. Kisi-kisi lembar angket

No	Aspek	Indikator	Nomer Item		Jumlah
			Pernyataan (+)	Pernyataan (-)	
1	Kesukaan	Kesiapan peserta didik dalam menerima pelajaran kimia.	1, 2, 5, 20, 23, 27	3, 4, 21	9
2	Perhatian	Perhatian peserta didik dalam mengikuti pembelajaran.	12, 13, 14	11, 29	5
3	Keterlibatan	Keterlibatan peserta didik dalam pembelajaran kimia.	15, 18, 24, 25, 30	16, 17, 19, 28	9
4	Ketertarikan	Ketertarikan peserta didik dalam menerima tugas.	6, 7, 8, 9, 22	10, 26	7
Jumlah					30

Meanwhile, the observation sheet is used to determine the development of teacher and student activities during the learning process in implementing the Quiz Team type Active Learning learning model. Observation activities in this research were carried out by observers using observation sheets and assisted by a video camera.

The data obtained was analyzed using quantitative and qualitative analysis. Quantitative data analysis will be carried out from the beginning of the research until the end of data collection activities obtained from the results of formative tests.

Meanwhile, qualitative data obtained from the observation sheet of teacher and student activities during the learning process will be observed based on the descriptors that appear on the observation sheet and then the percentage of each descriptor is carried out (Sudjana, 2012). And for analysis of questionnaire data using a Likert scale.

Success criteria for the cognitive aspect Minimum Completeness Criteria (KKM) determined by the SMK Negeri 4 Palembang school for chemistry subjects is 75. This research is said to be successful if $\geq 85\%$ of students meet the KKM, namely ≥ 75 .

Meanwhile, the criteria for success in the affective aspect of students' descriptive analysis scores are more than equal to 60 and less than 80.

Data Analysis

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▪ RESULT AND DISCUSSION

This research consists of two cycles, where the material in cycle I is about voltaic cells while the material in cycle II is corrosion.

Learning Results Test

Cognitive learning outcome test data were analyzed using Webb's Depth of Knowledge (Jihad & Haris, 2012). So the average score of students with classical completeness is obtained as shown in table 4 as follows:

Table 4. Average learning outcomes and completion

Siklus	Rata-rata Nilai	Ketuntasan
<u>I</u>	<u>45.28</u>	<u>44.44%</u>
<u>II</u>	<u>81.39</u>	<u>86.11%</u>

The data above shows that judging from the average value obtained, there was an increase from cycle I to cycle II after learning was carried out using the Quiz Team type Active Learning learning model. This figure meets the success criteria of this study, namely $\geq 85\%$.

This increase occurred in cycle I, each team was still confused about using quiz team learning, this could be seen from the difficulty in creating short answer questions, conducting quiz competitions and presenting the results of discussions. Only 1-2 people on each team seem to understand. So only 16 people met the KKM in the learning outcomes test.

Next, the teacher gives directions to team members who understand helping fellow team members to work together to discuss according to the teacher's directions. Namely dividing the tasks in each team, there are those who are in charge of making questions according to the subject matter, there are those who are in charge of answering during the quiz competition, and there are those who are in charge of presenting. So that all members are actively involved in learning, they are expected to be able to answer the learning outcomes test in cycle II.

Towards the next meeting, the class atmosphere began to control. Each team understands their task and feels motivated by the quiz competition because at the end of the lesson there is a reward given by the teacher. This is what makes test learning outcomes increase. It was proven that out of 36 people, 31 people met the KKM value.

Observation Results of Students and Teachers

From the statistical test calculations, the observation results of students and teachers for cycle I and cycle II can be seen from table 5 below:

Table 5. Observation results of students and teachers

	Siklus	Hasil Observasi Peserta Didik	Hasil Observasi Guru
I	Pertemuan 1	54.34%	73.33%
	Pertemuan 2	60.20%	86.67%
II	Pertemuan 3	65.65%	96.67%
	Pertemuan 4	67.03%	100%

The data above shows that seen from the results of observations by both students and teachers, the scores obtained were an increase from cycle I to cycle II after learning was carried out using the Quiz Team type Active Learning learning model.

This improvement was achieved from the results of the reflection stage in cycle I learning activities so that improvements were made to the learning process at the next meeting. Weaknesses that occurred in cycle I included the distribution of the subject matter not being in paper form so that the team had difficulty covering the material discussed; students have difficulty writing questions with short answers because they have not read the material so a lot of learning time is taken up in the discussion section; Students are not used to learning in groups.

These weaknesses were corrected at the next meeting, namely the teacher made a drawing of the subject matter in paper form; directing students to read teaching materials as material for creating quiz questions so that the next meeting allocates time according to plan; and ask students to work together with other team members to discuss the work on the LKPD so that students do not wander off to other teams.

Student Interest Results

The results of the student interest questionnaire for positive and negative statements can be seen in the following table:

Table 6. Results of interest questionnaire analysis of positive statements

No		Siklus I		Siklus II	
		Persentase Nilai (%)	Kriteria	Persentase Nilai (%)	Kriteria
1	Sangat Sering (SS)	22,37	Rendah	33,78	Rendah
2	Sering (S)	42,98	Cukup	74,43	Tinggi
3	Kadang-kadang (KK)	23,68	Rendah	9,798	Sangat rendah
4	Jarang (J)	14,77	Sangat rendah	0,293	Sangat rendah
5	Tidak pernah (TP)	3,509	Sangat rendah	0,293	Sangat rendah

Table 7. Results of negative statement interest questionnaire analysis

No		Siklus I		Siklus II	
		Persentase Nilai (%)	Kriteria	Persentase Nilai (%)	Kriteria
1	Sangat Sering (SS)	6,818	Sangat Rendah	0,253	Sangat rendah
2	Sering (S)	22,98	Rendah	0	Sangat rendah
3	Kadang-kadang (KK)	35,35	Rendah	25,76	Rendah
4	Jarang (J)	20,20	Rendah	32,83	Rendah
5	Tidak pernah (TP)	21,46	Rendah	29,03	Rendah

From the results of the analysis of the student interest questionnaire, there were 30 statements, consisting of 19 positive statements and 11 negative statements. Shows that both positive statements and negative statements have increased in percentage from cycle I to cycle II. In positive statements, significant changes occur in frequent indicators, where changes from sufficient to high criteria. Meanwhile, for negative statements, the percentage change was stable, where the criteria were in the low category from both cycle I and cycle II, but only experienced changes in percentage size.

This happens because in the Quiz Team Type Active Learning learning model, learning activities use a constructivist paradigm which assumes that in learning students actively build their own knowledge in their minds (Sagala, 2013: 88). By inviting students to work together in teams, discussions create questions, answer questions, convey the results of the discussion. Such activities will increase the understanding of concepts and the skills that students will become more trained in.

Based on this, it can be said that the learning experience obtained by students in the Quiz Team Active Learning model really motivates students to build their knowledge more actively.

The learning experience gained by students in each stage of the Quiz Team Active Learning learning model places more emphasis on learning by doing, by making direct contact or interaction with the object being studied, students will experience joyful learning which has an impact on obtaining information more easily. remembered and interpreted. Apart from that, through the implementation of the Quiz Team Type Active Learning learning model, it provides students with the opportunity to link the concepts they have understood with the concepts to be studied so that a meaningful learning process occurs. The results of this research are in line with Ausubel's theory of meaningful learning (Meaningfull learning). Learning is said to be meaningful (meaningful learning), as stated by Ausubel, when the information that students will learn is arranged according to the cognitive structure that the student has so that the student is able to relate the new information to the cognitive structure that he has (Trianto: 2007: 25).

▪ CONCLUSION

In accordance with the research objectives, after data analysis was carried out, it was concluded that there was a positive influence from implementing the Quiz Team type Active Learning learning model to improve student learning outcomes in electrochemical material in class X TP 1 SMK Negeri 4 Palembang. It can be seen based on statistical tests that the learning outcomes in cycle I were 44.44%, which increased in cycle II to 86.11%. This indicates that the research was successful because the criteria above were $\geq 85\%$.

Increased cognitive learning outcomes because it is supported by Quiz Team Active Learning type learning which requires students to be active in the learning process, inviting students to work together in teams, discussing making questions, answering questions, conveying the results of discussions. Such activities will increase the understanding of concepts and the skills that students will become more trained in.

This success is supported by the results of student activities and teacher activities which have both increased. For student activities at meeting 1 it was 54.34%, meeting 2 was 60.20%, meeting 3 was 65.65% and meeting 4 was 67.03%. Meanwhile, teacher activity at meeting 1 was 73.33%, meeting 2 was 86.67%, meeting 3 was 96.67% and meeting 4 was 100%.

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