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Implementation *auditory-intellectually-repetition* of redox material to improve learning outcomes in class X high school students 1 Krueng Barona Jaya

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Abstract: Students have different levels of knowledge that can affect learning outcomes. The implementation of learning models in the classroom can also affect student learning outcomes. This study aims to determine how the effect of the implementation of the Auditory Intellectually Repetition (AIR) learning model on redox material in class X SMAN 1 Krueng Barona Jaya. This type of research is descriptive and the approach used is a qualitative approach. This study focuses on several aspects, namely learning outcomes, activities, and students' responses. The subjects in this study were students in class X-MIA1 SMAN 1 Krueng Barona Jaya. Data collection tools used were student activity observation sheets, evaluation questions, and student response questionnaires. Data were collected using these three tools and then the percentage of the results was seen. The results of the analysis of students' learning completeness were obtained that 80% of students had completed and 20% of students did not complete. The results of observations of students 'activities were seen to have developed from the first meeting, namely 92.11% to 93.75% at the second meeting, while the results of the students' responses were obtained an average percentage of 85.56%. This shows that the implementation of the AIR learning model received a positive response from students and can be used as an effective model to use in redox material.

Keywords: Auditory intellectually repetition, Learning outcomes, Student activities

1. Introduction

Students are currently required to be more active, this indicates that learning must be centered on students (student center). Chemical material is considered difficult by many students because it is abstract and complicated, so additional information is needed to make abstract material more concrete and complicated become clearer (Retno et al. 2015).

The quality of learning carried out by teachers in schools becomes a thing that greatly affects learning outcomes. Learning outcomes are a picture of the effectiveness of learning (Sutrisno and Siswanto, 2016; Muchtar et al. 2019). In this case learning outcomes become one of the parameters for teachers in determining whether or not the learning objectives have been designed before learning.

The results of the initial interview with the teacher at SMA Negeri 1 Krueng Barona Jaya obtained information that students' understanding of redox material was still low, especially in determining oxidation numbers. So the teacher must repeat the material, even though this material is still considered difficult by some students. Some students still have to attend remedial, and other students have the right value according to KKM. This is caused because students are less interested when the learning process takes place. In addition, it is known that the learning process that takes place is still not much applying variations in learning models, especially interesting learning models with an emphasis on the sense of hearing of students in building their knowledge. As a result, students find it difficult to build their knowledge because their activities in class are limited so students rarely ask questions and express opinions.

One way that can be used to overcome this problem is to apply a learning model that can build students' knowledge as a whole, from emphasizing the student's sense of hearing to the knowledge of students can be built properly. According to Hutagalung and Harahap (2018) the learning model is an appropriate way of creating active, innovative, fun, and creative learning in the classroom in order to increase the interest and motivation of students so that learning objectives can be achieved. One model that can be used is the auditory model, intellectually, repetition (AIR). This model makes students more active and easier to digest learning material. This is because this learning model involves three very important elements, namely auditory (listening), intellectually (knowledge), and repetition (repetition).

The implementation of this model makes students more active, uses their sense of hearing more deeply in learning, and deepens the information they get by repetition (Apriliah et al., 2019). According to Agoestanto et al. (2018) AIR model consists of several stages, at the stage of sending the teacher provides contextual problems that can stimulate students, at the training stage the teacher directs and facilitates students by forming groups so that students can express opinions, gather information, and solve problems, stages the last is the presentation stage where students can deduce newly acquired knowledge.

Winarti and Suharto (2017) revealed that the implementation of the AIR model can improve student learning outcomes, student motivation, teacher activity and student activity. Besides Nurdina et al. (2015) revealed that the implementation of the AIR learning model can improve chemistry learning outcomes. Astuti et al. (2018) revealed that the AIR learning model influences student learning outcomes.

The same thing was said by Hasnawati et al. (2016) that the mathematics learning outcomes of students taught with the AIR learning model are better than those not using this learning model. Elinawati et al. (2018) states that there are significant outcomes of students' cognitive learning outcomes on environmental pollution material between the experimental class and the control class. Apriliah et al. (2019) stated that the mathematics learning outcomes of students after the implementation of the AIR model were significantly complete.

One of the chemicals in class X which is considered difficult for students is redox. Sari and Muchlis (2019) revealed that most students disliked and felt difficulties when studying redox material. This study aims to determine how the effect of the implementation of the Auditory Intellectually Repetition (AIR) learning model on redox material in class X SMAN 1 Krueng Barona Jaya.

2. Methods

This type of research is descriptive research that is more describing or describing conditions, circumstances or situations that occur (Arikunto, 2010). This research focuses on student learning outcomes, activities and responses. The approach used in this study is a qualitative approach. The subjects in this study were students who were in X-MIA 1 class at SMAN 1 Krueng Barona Jaya.

Data collection is done through interviews, written tests, observation sheets, and questionnaires. Written tests are made in the form of multiple choice questions totaling 16 items and are given after the learning process is complete. The question was first validated by two supervisors so that it could be used for data collection.

Observations were made to find out the activities of students during the learning process. This data was obtained from the observation sheet of student activities carried out by 4 observers. Questionnaire responses of students aims to describe the response of students to the model applied.

Research data were processed and analyzed using qualitative descriptive techniques. Observation of the activities of students is done by analyzing the open observation sheet that has been done by the observer. The percentage of students' learning outcomes, responses, and activities is calculated.

3. Results and Discussion

3.1 Learning Outcomes of Students

Learning outcomes seen from this study are in the form of mastery learning of students after the implementation of the AIR learning model. This mastery learning is obtained from the final evaluation test scores and LKPD as an exercise. Evaluation test scores were taken at 70%, while LKPD training scores were taken at 30%.

After applying the AIR learning model, 80% completeness is obtained with the highest final score obtained by students, namely 85.25, while the remaining 20% of students is incomplete with the lowest value of 60.37. The existence of students who are incomplete because students are less active and pay less attention to the teacher when being given directions and explanations related to redox material.

According to Rahayuningsih (2017) learning using the AIR model can improve student learning outcomes, increasing learning outcomes mainly occurs in the cognitive aspect. This can be seen from the percentage of completeness, when compared with the recapitulation of scores given by the teacher during the interview, the percentage of completeness increased from 75.47% to 80%. Improved learning outcomes can also be triggered by the use of LKPD as training for students. This is because the critical thinking skills of students can support the achievement of student learning outcomes, especially in terms of cognitive achievement. Apart from the AIR learning model, this internal factor is also very influential in improving learning outcomes.

The increase in learning outcomes is because students are more independent when they want to know the learning material, namely in auditory activities, then students are guided by the teacher in remembering the material that has been learned by doing repetition activities so that students can remember the material in a longer period of time. Students learning completeness can be seen in Fig 1.

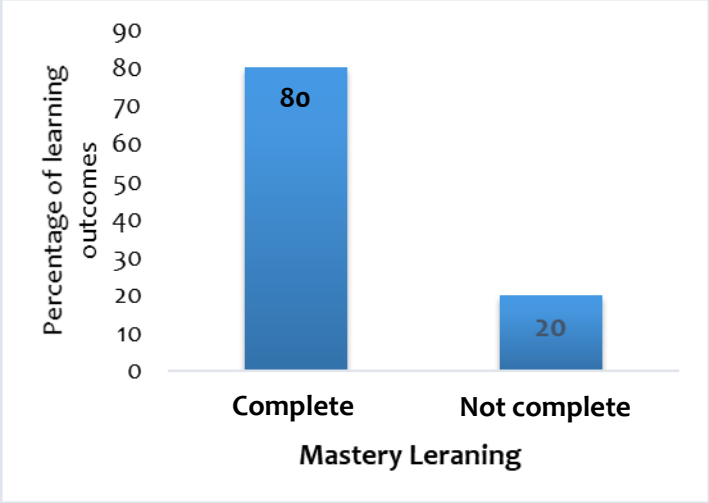

Fig 1. Graphic percentage of students learning completeness

3.2 Obseravtions of Student Activities

Student activities can be measured using activity observation sheets. As many as 4 people acted as observers. The average percentage of student activity seen increased from 92.11% at the first meeting to 93.75% at the second meeting. This shows that the percentage of student activity as a whole is very good. The activity of students increases due to the fact that in the learning process most students maximize all of their sense devices. In line with the research of Hasnawati et al.

(2016) that the implementation of the AIR model can increase student activity compared to applying a direct learning model. A similar result was also shown by Surono (2019) that when applying the AIR learning model the learning activities of students in the classroom look livelier and the role of students as research subjects is increasingly felt. The development of learning activities of students in this research can be seen in Fig 2.

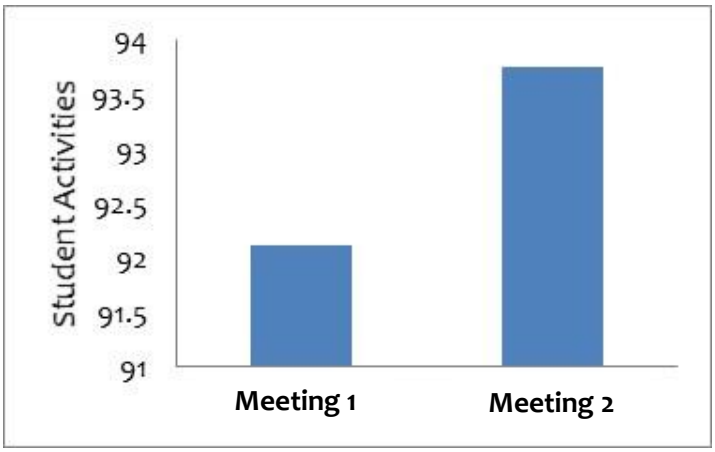

Fig 2. Graphic percentage of student activity observations

3.3 The Results of Student Responses

Questionnaire responses for students are given at the end of learning at the last meeting. The purpose of this questionnaire is to find out what percentage of students' responses to the AIR learning model that has been done. The results obtained are students who responded positively with details on the response "strongly agree" of 31.67% and the response "agree" with a percentage of 53.89%. While the negative results obtained on responses "disagree" of 7.22% and responses of "strongly disagree" of 7.22%. So if the total average percentage of students' responses to the AIR learning model are added together the value is 85.56%. From this percentage it can be concluded that students can more easily understand redox material by applying the AIR model.

Overall the research results obtained are in accordance with the journals that are used as a reference. Results of research by Rushapiana et al. (2018) states that the steps of the AIR model applied successfully increase the activity of teachers, students, critical thinking skills, cognitive learning outcomes, and the implementation of this model gets a positive response to learning. After conducting research, it was found that student activity increased by a percentage of 92.11% at the first meeting and 93.75% at the second meeting. As a result of the activeness of these students also affect the learning outcomes obtained, as much as 80% of students achieve completeness. Apart from being more active, students also greatly maximize the function of the sense of hearing at the auditory stage. This certainly affects the brain

function of each student. Then the knowledge that has been obtained is also strengthened by repetition.

4. Conclusion

Based on the results of the research that has been done, it can be serviced as follows: (1) The application of the AIR learning model can complete the learning outcomes of students. The increase in learning outcomes is due to participants who do more independently when they want to see the learning material in auditory activities, then students are guided by the teacher in remembering the material that has been learned by doing repetition activities so that students can remember the material for a longer period of time. (2) The activities of students in participating in learning with the AIR model on the material that increased in the second meeting compared to the second meeting. The increase in student activity is because students are guided by the teacher so that they can maximize all the senses they have, and the teacher directs students independently in finding information and building their understanding through intellectual activities. (3) Students give positive responses to the AIR model. This shows that the model is best applied during the learning process, especially in redox material.

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