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Use of Hand Outs in the form of Illustrated Stories to Increase Student Learning Motivation

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ABSTRACT

Purpose of the study: This research aims to determine whether there is an increase in the chemistry learning motivation of class X3 students at Public High School 11 South Sumatra, through the use of handouts in the form of picture stories.

Methodology: The instruments used in this research are observation and documentation. Observations are carried out to determine the development of teachers and students in the ongoing learning process. Meanwhile, documentation is carried out to obtain school data, teacher data and also student data.

Main Findings: Based on the results of data analysis, the percentage of student motivation before action was 49.4%, cycle I 53.8%, cycle II 60.9%, and cycle III 76.4%, which increased with each meeting, so it can It was concluded that the use of handouts in the form of illustrated stories could increase students' learning motivation.

Novelty/Originality of this study: The novelty of this research is to determine the effectiveness of using handouts in the form of illustrated stories to increase students' learning motivation on the subject of chemical bonds.

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1. INTRODUCTION

The development of chemistry can encourage technological progress and encourage humans to be more careful in capturing phenomena found in everyday life. It is not impossible that developments in chemistry will influence the teaching and learning process [1], [2]. The increasingly rapid development of science and technology requires steps that are interconnected and used appropriately. In this case, it is related to the impact that will result from this development, both positive and negative [3], [4]. Education clearly plays an important role because education is something that is needed by individuals, anytime and anywhere.

Until now, chemistry is still considered difficult for some students. The assumption that chemistry subjects are difficult has been ingrained among students [5]-[7]. This is quite reasonable because the characteristics of chemistry lessons are that they are abstract, taught in a simpler form, whereas in reality the chemistry lesson material is sequential and develops quickly [8]-[10]. Much of the material that must be studied is rote, involves more than just solving problems and requires a lot of studying.

The teaching and learning process is a communication process between teachers and students or between students and students. The teaching and learning process is the core of the overall educational process with the

teacher as the main actor [11], [12]. The communication that occurs should be reciprocal communication created in such a way that the message conveyed in the form of teaching material should be directed at increasing student activity which places more emphasis on how students can master the subject matter [13]-[15]. If the subject matter can be mastered well by students, then the success of the learning process is in sight.

The success of the learning process is the main thing that is desired in implementing education at school. In the learning process, the main components are teachers and students. For the learning process to be successful, teachers must guide students. Therefore, appropriate learning methods are needed so that the teaching and learning process can take place well [16]-[18]. Using inappropriate methods can cause boredom, students are unmotivated and unable to understand the material explained by the teacher, thus having an impact on the learning outcomes achieved by students. Learning outcomes are statements of students' abilities who are expected to master some or all of the specified competencies.

Based on the results of observations made at Public High School 11 South Sumatra, the subject of chemical bonds is usually taught using lecture methods, assignments, homework, and questions and answers. These learning activities are teacher-centered, so that students are less active in learning, less motivated, less ready to receive lessons and not independent in carrying out assignments [19], [20]. This has an impact on student learning outcomes, where the average value of students' daily tests is still relatively low. Students are not motivated to seek information from books, students only accept what the teacher gives in class. Students' reading interest in existing books is very low [21], [22]. Actually, the books that are available are quite interesting, but these books have not been able to motivate students to read them. Therefore, efforts are needed to motivate students so that the material presented is liked by students. One way is by making handouts in the form of illustrated stories.

The implications of this research indicate that the use of handouts in the form of illustrated stories can be an effective strategy for increasing students' learning motivation in chemical bonding subjects. This approach can be integrated into the curriculum as an interesting and interactive learning alternative, especially for complex and abstract material. In addition, teachers can consider developing more picture story-based learning materials for other subjects to create a more dynamic and enjoyable learning environment. This research also indicates the need for training for teachers in creating and using creative handouts to maximize the potential for increasing student motivation and engagement in the learning process.

Illustrated stories are stories/tales conveyed by the author through continuous pictures. A student will be motivated if the picture story presented in the lesson matches the hobbies and characters that the student likes. If students are motivated, it will have an effect on changing behavior from not knowing to knowing which ultimately can improve learning achievement. Based on the background that has been stated, the author is interested in using hand outs in the form of illustrated stories in a study entitled "Using Hand Outs in Story Form Pictures to Increase Students' Learning Motivation in Main Discussion of Chemical Bonds"

2. RESEARCH METHOD

2.1. Type of Research

This research is Classroom Action Research (CAR). Classroom action research is an examination of learning activities in the form of actions, which are deliberately carried out by teachers in their own classes [23], [24]. The aim of implementing CAR is to improve the process and improve the quality of learning. One of them is through increasing student learning motivation. There are four important stages in CAR, namely (1) planning, (2) implementation, (3) observation and (4) reflection. The four stages in CAR form a cycle, where activities are consecutive and will return to the original steps.

2.2. Population and Sample

The subjects of this research were 30 class X3 students at Public High School 11 South Sumatra. Meanwhile, the object of the research is the use of handouts in the form of illustrated stories to increase students' learning motivation on the subject of chemical bonds.

2.3. Data Collection Technique

To collect data about students' learning motivation on the subject of chemical bonds, several techniques or methods were used, namely observation techniques and documentation techniques. The data collection method uses observation techniques and documentation techniques which include two main approaches. Observation techniques include direct observation of student behavior, activities and interactions during the learning process, which allows researchers to get a real picture of students' learning motivation directly. Meanwhile, documentation techniques include collecting data from various relevant documents and records, such as test results, diaries, activity reports, and other administrative documents, which provide additional information and support observation findings. The combination of these two techniques provides comprehensive and in-depth data regarding student learning motivation.

2.4. Data Analysis Technique

The data analysis technique used in this research is descriptive statistical analysis. Descriptive statistics are statistical activities that start from collecting data, compiling or measuring data, processing data, presenting and analyzing numerical data to provide an overview of a symptom, event or situation. In this research, descriptive statistical analysis aims to describe student motivation during the learning process.

2.5. Research Procedures

The classroom action research procedure involves several systematic stages to improve the quality of learning. The first stage is planning, where the researcher identifies the problem, sets goals, and designs an action plan to be carried out. The second stage is action implementation, which involves implementing the plan in the immediate classroom context. The third stage is observation, where researchers collect data about the effects of actions that have been taken, using various techniques such as field notes, interviews, and tests. The final stage is reflection, where the researcher analyzes the data that has been collected to evaluate the effectiveness of the action and plan next steps. This process can be repeated in several cycles until the research objectives are achieved.

3. RESULTS AND DISCUSSION

In cycle I, learning activities refer to Lesson plan II by using handouts in the form of illustrated stories which are different from the previous Lesson plan. In cycle I, after the teacher had absented the students, the teacher distributed handout sheets containing material on chemical bonds to the students. Then the teacher prepares students to learn, the teacher reminds students of previous lessons and what students already know to attract students' attention so that they are not embarrassed and can participate in learning, so that they can foster a positive attitude, so that students are willing to ask and answer questions from the teacher.

Next, students are given the opportunity to read and study the handout, after which the teacher informs the students to find partners to discuss the handout they have. Then the teacher gives questions to the students, namely questions regarding the material in the handout. After students were given several questions and the teacher had a discussion, the teacher distributed worksheets which they would immediately work on individually. Then the teacher and students conclude the day's material. Then, students are given reinforcement regarding the material and results obtained during the learning process.

In this first cycle, the results of data analysis for the average motivation of all students did not show maximum improvement. This can be seen from the lack of students' desire to complete assignments individually, and there are even students who play around in discussions. Students do not follow the learning process such as asking and answering questions, and are still not confident in defending their own opinions. The average percentage of motivation for all students reached 53.8% with the Sufficient Category. At the previous meeting the teacher did not give awards so it did not attract students to study better. This is known from the results of observations made by the chemistry teacher as observer and the results of deliberations with the observers. In this cycle the teacher provides more motivation and opportunities for students to ask and answer questions. From the results of the data obtained, the use of handouts in the form of illustrated stories needs to be continued in cycle II by paying attention to the shortcomings that occurred in cycle I.

In cycle II, the learning activities refer to Lesson plan III, which is also slightly different from Lesson plan II in cycle I, where in this cycle after the teacher has absented the students, the teacher distributes the handout sheets that will be studied and the teacher writes the title of the subject matter to be studied and its use, even though students already know it. Then students read and discuss with their partners. Then the teacher motivates students by providing opportunities to ask questions and after the teacher explains the material. Then the teacher gives worksheets to work on, and students complete them in turn. Next, to find out the extent of competency that students have achieved, the teacher holds a quiz. Then the teacher guides students to conclude the lesson material and provides feedback. After that, the teacher distributed handouts for the next meeting.

The results of observations in cycle II using handouts in the form of illustrated stories, according to the observer, researchers were able to control the class, give awards to students who answered quickly and correctly, and could make students feel happy and interested in learning. Researchers also looked at students' motivation and activeness, students were willing to do assignments independently and almost all students submitted assignments and looked enthusiastic in discussing and helping friends. However, in cycle II, it was still seen that some students were not doing their assignments and they still did not want to express their opinions and they were always hesitant in defending their opinions. And in the second cycle, the achievement of all indicators did not show a significant increase, not too far from the first cycle, namely 60.9%. So, learning activities using handouts in the form of illustrated stories need to be continued in cycle III because the target has not yet been achieved up to 75%.

In this third cycle, there are improvements from the previous cycles. In cycle III, learning follows lesson plans IV and V. Which are also slightly different from the previous cycle. As in the previous cycle, learning begins with students attending, recalling previous material by discussing questions together. Next, the teacher conducts

questions and answers with students, then a quiz is held. To find out the extent of competency that has been achieved, after that students work on the student worksheet [25]. At the end of the lesson the teacher and students conclude the material that has been studied and before saying hello the teacher informs the students that the next meeting will hold an evaluation of the material that has been taught.

The results of data analysis of the average motivation of all students in cycle III experienced an increase with a percentage of 76.4%. Almost all indicators have increased. Several indicators have also increased, the criteria are asking and answering questions and summarizing learning outcomes. All indicators have reached the criteria of very good and good. This is shown by better student activity in the learning process. Students are increasingly serious about utilizing learning activities to prepare for their studies. The assignments given by the teacher, both in the form of worksheets and questions and answers, were carried out well by the students. Students are motivated to take part in learning activities. Students are more active in interactions to discuss. In this way, students' learning motivation has reached the target, so that the cycle can be stopped.

The data that will be analyzed is data from observations that have been collected during the learning process, both pre-action and action using handouts in the form of illustrated stories. In cycle I, student motivation in learning only reached 53.8 % which was classified as sufficient. Student learning motivation has not gone as expected, namely reaching a minimum of 75%. At that time, it was seen that several students were still confused about what the teacher had said. So this action needs to be continued in cycle II.

In cycle II, students are again directed in learning, namely by adding varied methods that make all students participate in doing the assignment. From the results of the observation sheet at this second meeting, motivation slowly began to increase, reaching 60.9 % which is considered good. The students already seem enthusiastic, it's just that the students still don't ask enough questions. Still unable or lacking confidence to defend his opinion. In cycle III, student motivation began to be optimal by reaching 76.4%. which is categorized as very good motivation. Thus it can be seen that students are able to be motivated in learning by using handouts in the form of illustrated stories in class X3 Public High School 11 South Sumatra.

The data obtained from the presentation is then analyzed by paying attention to student motivation before giving the action and after the action. The weight of the achievement of student learning motivation per indicator during the learning process shows that the percentage value of the achievement of indicators of student learning motivation in the learning process through action using handouts in the form of illustrated stories is higher, from the beginning of the pre-action meeting until the action is held, the indicator increases. The achievement weight is 47.8 % ; 55.5%; 60.9%; and 78.7%.

Next, the researcher stopped the research because the target had reached the desired scale. Meanwhile, analysis of actions for individual students during the learning process by providing actions shows that in general each student experienced an increase in motivation to learn chemistry. This can be seen from the weight of student motivation achievement for all indicators.

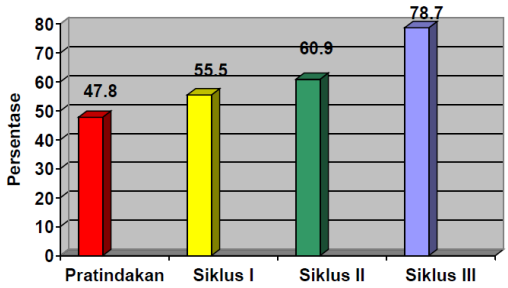

Figure 1. Percentage Graph of Student Motivation Indicators

Researchers grouped the weight of pre-action motivation observations and through action. The percentage results of achievement through action during three meetings are added up and divided by three cycles. Based on the post test results, the scores obtained by students also showed an increase where the class average was 78. This research presents innovation in the world of chemistry education by developing handouts in the form of illustrated stories as learning aids. This approach is different from conventional methods which generally use simple text and illustrations [26]. Through the use of illustrated stories, this research attempts to present the concepts of chemical bonds in a way that is more interesting and easy for students to understand. This not only makes it easier to understand the material, but also has the potential to increase students' learning motivation which often decreases when they have difficulty with complex and abstract subject matter [27], [28].

The results of this study have important implications for the practice of teaching chemistry in schools. If the use of handouts in the form of illustrated stories is proven to be effective in increasing students' learning motivation, then this method can be applied more widely in the educational curriculum [29], [30]. Teachers can integrate lesson material into illustrated stories to make learning more interactive and interesting. In addition, this

approach can also be used as a model for developing teaching materials in other subjects, with the aim of increasing overall student engagement and motivation.

Although this research shows promise, there are several limitations that need to be noted. First, the effectiveness of handouts in the form of picture stories may be influenced by individual student factors, such as learning preferences and visual reading abilities. Second, this research may have limitations in generalizing the findings, considering that the sample used may be limited to one or a few schools. Finally, this implementation method requires additional time and resources for teachers to design and create open-ended materials in the form of illustrated stories, which can be an obstacle in schools with limited resources.

This study has several limitations that need to be noted. First, the sample used in this study was limited to one high school in a particular city, so the results may not be generalizable to a wider population. Second, the duration of the intervention using handouts in the form of picture stories is relatively short, so the long-term effects of using this material on students' learning motivation cannot be ascertained. Third, this research only measures students' learning motivation without considering other variables such as academic achievement or in-depth understanding of chemistry concepts. Finally, external factors such as support from family and home learning environment were not controlled in this study, which may have influenced the results obtained.

4. CONCLUSION

Based on the results of research and data analysis, it was concluded that there was an increase in motivation to learn chemistry in class Increasing students' motivation to learn chemistry occurs when the learning process uses the steps contained in each cycle. Increasing student learning motivation cannot be separated from the teacher's efforts to make students feel happy in learning and provide motivation to students. In the first cycle only 53.8 % of students' motivation in learning was categorized as sufficient, in the second cycle there was a slight increase. Student learning motivation was 60.9 % which was categorized as good. Meanwhile, in the third cycle students were really motivated. Judging from the data, it reached 76.4 % which was categorized as very good student motivation. So the cycle can be stopped.

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AUTHOR CONTRIBUTIONS

Conceptualization, Y.O.; Methodology, Y.O.; Software, Y.O.; Validation, Y.O.; Formal Analysis, Y.O.; Investigation, Y.O.; Resources, Y.O.; Data Curation, Y.O.; Writing – Original Draft Preparation, Y.O.; Writing – Review & Editing, Y.O.; Visualization, Y.O.; Supervision, Y.O.; Project Administration, Y.O.; Funding Acquisition, Y.O.

CONFLICTS OF INTEREST

The authors declare no conflict of interest.

USE OF ARTIFICIAL INTELLIGENCE (AI)-ASSISTED TECHNOLOGY

The authors declare that no artificial intelligence (AI) tools were used in the generation, analysis, or writing of this manuscript. All aspects of the research, including data collection, interpretation, and manuscript preparation, were carried out entirely by the authors without the assistance of AI-based technologies.

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