INTERNATIONAL CONFERENCE
ON EDUCATION IN MUSLIM SOCIETY
(ICEMS)

OCTOBER 29-31, 2014
UIN Syarif Hidayatullah Jakarta

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Cetakan pertama
Edisi I, Oktober 2014

Penerbit:
Faculty of Tarbiya and Teachers Training
UIN Syarif Hidayatullah

Percetakan:
CV. Anak Negeri

ISBN :
978-602-70156-4-7

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EFFORTS TO IMPROVE LEARNING OUTCOMES THROUGH CHEMISTRY EXPERIMENT METHOD BASED ON DAILY MATERIAL IN CLASS XI SCIENCE AT MAN CIPONDHO TANGERANG

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ABSTRACT

This study was a class action research conducted in two cycles. Each cycle consisted of planning, implementation, observation and reflection. This study aimed to improve student learning outcomes on the concept of reaction rate. The participants of the research were 27 students (7 male and 20 female) of grade XI (Science concentration) of MAN (a type of Junior High School) Cipondoh Tangerang in the academic year 2011/2012. The instruments used in this study consisted of test, observation sheets, and documentation. The results showed that application of an experimental method based on daily materials can improve student learning outcomes on the concept of chemical reaction rate. The average value of post-test increased from 47.82 (3.70% of the minimum requirement) in cycle I to 73.37 (88.89% of the minimum requirement) on the cycle II. Results of the assessment form practicum reports also increased from 72.08 in cycle I to 84.07 in cycle II. It is therefore concluded that the application of experimental methods based on daily material can enhance student learning outcomes, especially on the concept of chemical reaction rate.

Keywords: Classroom Action Research, student learning results, experiments based daily material.
INTRODUCTION

Referring to the results of interview with teachers of MAN Cipondoh Tangerang, it is known that student achievement on chemistry is very low. The mean score is only 54.24 out of 100. This problem could be due to the low motivation and interests of the students. The teachers in the school reported that this could be influenced by the lack of supporting infrastructure and facilities. The existing laboratory does not have enough and proper equipment and materials. In addition, it is also possible that the teaching and learning activities provided by the teachers are very limited. Consequently, students may not learn optimally.

Interviews were also conducted for one of the students of class XII Science 1. Respondent interviewed said that low levels of learning outcomes of chemistry students of class XI IPA 1 MAN Cipondoh because they think chemistry is a science that is difficult to understand. It is abstract so that they are less enthusiastic about the lessons. He said it was evident from the fact that out of 33 students in the class, only 5 students who are enthusiastic to learn chemistry. The respondent suggested that students should be provided with more chemistry experiment activities. The researcher also observed the classroom activities in order to identify the problems faced by the students during the teaching and learning process. In addition, laboratory observation is also conducted from which it is known that it is under standard laboratory.

Based on the above description is presented from interviews, observation of teaching and learning activities and laboratory observations it can be said that the lack of activity, interest, and chemistry students' learning outcomes can be caused by several factors including: (1) the experiment is very less in practice due to the lack of tools and materials available; (2) students still think that the subject matter of chemistry are abstract and difficult to understand; (3) teaching methods used by teachers are less varied and innovative, so boring and not attract students. To make improvements to the low activity, as well as the interest of student learning outcomes recommended learning takes place as follows: (1) from the concrete to the abstract; (2) from the easy to the difficult, (3)
from the simple to the complex. From these suggestions it is clear that the appropriate method to achieve this is through the experimental method because this method can change very complex events to be more modest.¹³⁹

The activities can be done in a laboratory experiment or outside the laboratory such as at school, at home, and so on.¹⁴⁰ Students will be easier to understand the complex and abstract concepts if accompanied by concrete examples, examples of reasonable according to the circumstances faced, with his own practice. Students can also learn chemistry through direct observation of symptoms and chemical processes can practice scientific thinking skills, to instill and develop a scientific attitude, able to find and solve new problems through the scientific method.

The purpose of the experiment is implemented so that students can observe and experience firsthand the concept of rate of reaction so that students more easily master this concept. Therefore, researchers intend to conduct action research to achieve above expectations. The title of his research is: “Efforts to Improve Learning Outcomes Through Chemistry Experiment Method Based On Daily Materials Student Class XI Science Cipondoh Tangerang MAN”.

Research Hypothesis

Based on the above problems, the hypothesis proposed in this study is “Application of Experimental Method Based Daily Materials to Improve Student Learning Outcomes Chemistry Class XI Science Cipondoh Tangerang MAN”.

RESEARCH METHODOLOGY

The method used in this research is a classroom action research. The study was carried out directly by the researcher in charge of teaching and jointly by two people who helped research partners perceive the learning process through field notes and help as facilitators to the implementation of the
action when the learning process. In the first cycle chemistry teacher and observed two groups of researchers looked at three groups of partners at the same time observing the teacher was teaching. In the second cycle was observed twice a learning process where the observation of the first researchers to observe and be a facilitator of group 1 and 2, two other research partners observe each group of 3, 4 and 5. In order to obtain valid data is done collaboration in conducting observations, then in the second observation in this second cycle researchers observed a facilitating group 3, two research partners (collaborators) other observing each group 1, 2, 4 and 5. the observation of teachers is still being done by the same collaborators. In this study, researchers used several cycles, where each cycle consists of four stages: Planning (Planning), Action (Acting), Observations (Observing), and Reflection (Reflecting).

The action research design is described as follows: 141

Subjects in this study were the students of class XI Science Cipondoh MAN 1, amounting to 27 students, consisting of 7 male students and 20 female students. Data collection instruments used in this study consisted of a test result of learning, observation sheets, field notes, and lab report assessment results. Data analysis techniques in the cognitive aspects

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141 Suharsimi Arikunto, Penelitian Tindakan Kelas, (Jakarta: Bumi Aksara, 2008), h. 74
of learning outcomes or mastery of concepts using descriptive analysis using the techniques of the post-test percentage of each cycle.\textsuperscript{142} To see the improvement of learning outcomes from cycle to cycle using n-gain scores as follows: \textsuperscript{143}

\[ N - Gain = \frac{\text{skor posttest} - \text{skor pretest}}{100 - \text{skor pretest}} \]

Analysis of teacher activity data during the learning process using the observation formats. This data field is used to record the condition of the students and teachers during the learning process that was made by the researcher or research partners who make observations or observations of the subject or object of action research. Data analysis of the results of lab reports that are based on the reference components of the assessment. Indicators of success is when an increase in the terms of learning outcomes, namely: the cognitive aspect and report lab results on average student achievement in learning chemistry achieving a score of 70 or reached the KKM set at the school with a target of 75\% of students scored above KKM.

RESULTS AND DISCUSSION

Findings Results Cycle I

a. Field Notes

Observations during the learning process contained in the notes field. Note This field is used to determine the activity of the student and the teacher during the learning process in class, teacher interaction with students, interaction with students and the students’ class processing. Field findings show that students are very focused listening to the

\textsuperscript{142} Kunandar, Langkah Mudah Penelitian Tindakan Kelas Sebagai Pengembangan Profesi Guru, (Jakarta: Rajawali Pers, 2008), h. 280

explanations given practical implementation procedures related to teacher and students were very enthusiastic in carrying out lab to lab results of ongoing discussion. Teachers also play an important role as a facilitator in practical activities and discussions with the way around the classroom and monitor the learning process. In the interaction between students, students look to cooperate with friends in a group of their practical activities and discuss the existing problems in the worksheets. When viewed as a whole at the time of the discussion and lab activities partially sighted students active enough to follow the learning process. In the interaction between students and teachers during the learning process, students actively asked the teacher especially ask LKS (Worksheet) procedure that has not been understood, how to use the right tools and materials as well as asking the problems contained in the worksheets.

LKS-based experimental study of everyday materials to students’ lives is a worksheet designed to assist students in carrying out practical work, discussion and report lab results. Practicum is held on the first cycle as much as 1 times, ie on the production of salt solution. As for tools and materials based on everyday materials that are used to replace tools and synthetic materials, namely: NaCl (table salt), containers of paper, scales for manual, aqua glass marked line solution volume of 50 mL and 100 mL, tsp, spray bottles, plastic bottles of distilled water and drinking water (Aqua). The tools and materials used for the preparation of the solution that replaces lab tools and synthetic materials that should be available in school laboratories such as: NaOH (caustic soda), watch glass, analytical balance, glass beaker, flask, glass stirrer, spray bottles, distilled water, glass large beaker and pipette or pipette measuring mumps.

b. Teacher Observation Sheet

Observations made to teachers who are teaching to see the feasibility of learning implementation plan has been created. Here is the result of observation of teachers who are teaching. The results showed that teachers were conducting their activities in accordance with the plan of instructional design (RPP) which has been created. However, there are some activities that are not performed.

c. Cognitive Learning Outcomes

456
To see the indicators of achievement tests in the form of multiple choice questions. The results of the tests the ability of students is as follows.

Table 4.4 Percentage of Students Achieving Mastery Learning

<table>
<thead>
<tr>
<th>Score</th>
<th>Amount of (people)</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;60.00</td>
<td>23</td>
<td>85.19</td>
</tr>
<tr>
<td>60-69.90</td>
<td>3</td>
<td>11.11</td>
</tr>
<tr>
<td>≥70.00</td>
<td>1</td>
<td>3.70</td>
</tr>
</tbody>
</table>

To determine the level of effectiveness of the measures in the action research in the first cycle, the student score data were analyzed by n-gain as shown in table 4.5 below:

Table 4.5 Average Student Ability Test Results In the first cycle

<table>
<thead>
<tr>
<th></th>
<th>Cycle I</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pre Test</td>
</tr>
<tr>
<td>Average</td>
<td>26.96</td>
</tr>
</tbody>
</table>

In tables 4.4 and 4.5 shows that the first cycle, before learning to get the average value of 26.96 pretest scores. But after experiencing the average learning student learning outcomes increased to 47.82. To determine the level of effectiveness of the measures in the action research in the first cycle, the student score data were analyzed by n-gain against the average score of pretest and posttest student ability. From the difference in the scores obtained n-gain value of 0.31. Under the acquisition of category n-gain scores, score n-gain category was 0.31 (0.72 value ≥ 0.3 g). But the post-test results in the first cycle has not reached the expected success indicators which in the first cycle only passing rate of 3.70% with molarity concept, and the rate of the reaction order.

d. Results Practicum Reports

To view the laboratory skills of students conducted an assessment of the
student lab reports based on aspects of assessment have been made before the results of the data as shown in Table 4.6 as follows:

Table 4.6 Average Assessment Report of Practicum Students In Cycle 1

<table>
<thead>
<tr>
<th>Average</th>
<th>Cycle I</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>72.08</td>
</tr>
</tbody>
</table>

According to the table 4.6 above shows that the average value of lab reports students in the first cycle is 72.08. For the percentage of students who reached the KKM namely: 59.26%.

e. reflection

In the first cycle did not show good results on cognitive aspects as well as practical reports, the reflection needs to be done. There are a few things to note:

1) Practice needs to be added because the students so given reinforcement.
2) Teachers should encourage students to be more interaction in the learning process.
3) Activity teachers need to be considered again.
4) BLM assists students in carrying out practical work
   For the lab report grade students did not show good results of only 59.26%
5) students who scored above KKM set.
6) For the cognitive learning, the results of the post-test on the first cycle shows the number of students who achieve a 3.70% KKM. The percentage of students who reached the KKM has not reached the target of 75%.

f. decision

Based on the results it can be concluded that the reflection of student learning outcomes in molarity concept, the pace and order of the reaction has not meet the researchers expect a good indicator of the cognitive aspects and report student practicum. As a result, the number of students who reached the KKM on cognitive aspects, namely 3.70%
with an average post-test score in the first cycle are: 47.82 which is still far from the target of the researchers expect ie: as many as 75% of students have a value above KKM 70. in which school lab report is far from the researchers expect ie: as many as 75% of students had scores above 70. KKM school is 59.26% as a result of students who reached the KKM with the average value in the first cycle of this namely: 72.08. Therefore, researchers decided to continue the study of this class action to cycle II. The improvements in the second cycle as deemed necessary by the researchers include:

Findings Results Cycle II

a. Field Notes

Observations during the learning process contained in the notes field. Note This field is used to determine the activity of the student and the teacher during the learning process in class, teacher interaction with students, interaction with students and the students’ class processing. Field findings show that students are very focused listening to the explanations given practical implementation procedures related to teacher and students were very enthusiastic in carrying out lab to lab results of ongoing discussion.

 Teachers also play an important role as a facilitator in practical activities and discussions with the way around the classroom and monitor the learning process. In the interaction between students, students look to cooperate with friends in a group of their practical activities and discuss the existing problems in the worksheets.

When viewed as a whole at the time of the discussion and lab activities partially sighted students active enough to follow the learning process. In the interaction between students and teachers during the learning process, students actively asked the teacher especially ask LKS procedure that has not been understood, how to use the right tools and materials as well as asking the problems contained in the worksheets.

LKS-based experimental study of everyday materials, where tools and materials as much as possible with the life of a student worksheets that are designed to assist students in carrying out practical work, discussion
and report lab results. Practicum is held on the second cycle 4 times, which is about the effects of temperature, concentration, surface area, and catalysts on the rate of reaction. As for the tools and materials that are used everyday to replace the tools and synthetic materials can be seen in Table 4.7

Table 4.7 List of Daily Equipment and Materials

<table>
<thead>
<tr>
<th>No</th>
<th>Name of Tools and Materials</th>
<th>No</th>
<th>Name of Tools and Materials</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Temperature</td>
<td>C</td>
<td>Surface</td>
</tr>
<tr>
<td></td>
<td>Water 100 mL (air biasa,</td>
<td></td>
<td>Egg Shell</td>
</tr>
<tr>
<td></td>
<td>dingin dan panas)</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>2</td>
<td>Glasses of Aqua</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>3</td>
<td>Glasses of Aqua</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>4</td>
<td>Powder sugar</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>5</td>
<td>Solution of Vinegar</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>4</td>
<td>Watch</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>3</td>
<td>Tea spoon</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>2</td>
<td>Scissors</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>1</td>
<td>Watch</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>4</td>
<td>Catalysis (flame test)</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>Concentration</td>
<td>D</td>
<td>Sugar Stone Leather</td>
</tr>
<tr>
<td></td>
<td>Egg Shell</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>2</td>
<td>Solution of vinegar</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>3</td>
<td>Glasses of Aqua</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>4</td>
<td>Watch</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>5</td>
<td>Marquetry of metal / small</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td></td>
<td>plates</td>
</tr>
</tbody>
</table>

According to the table 4.7 it can be seen that the tools and materials needed daily for practicum factors that affect the rate of reaction is: For the first lab on the effect of temperature on the reaction rate, the tools and materials that are used daily are: Water 100 ml (water plain, cold and hot), aqua glass, powder sugar, a measure of time (hours) and a teaspoon. While tools and synthetic materials that should be available in school laboratories, namely: foot three and gauze, methylated spirits

144 Crys Fajar Partana dan Antuni Wiyarsi, *Mari Belajar Kimia Untuk SMA-MA Kelas XI IPA*, (Jakarta: Pusat Perbukuan, Departemen Pendidikan Nasional, 2009), hal. 92-93

145 Johari dan Rachmawati, *Kimia 2 SMA dan MA untuk kelas XI*, (Jakarta: Esis, 2009), hal. 112-113
burner, thermometer, enlenmeyer, test tubes, HCl, Sodium Thiosulfate (Na2S2O3) and a measure of time (stop watch). Practicum both about the effect of concentration on reaction rate, tools and everyday materials used are: egg, vinegar, aqua glass, scissors and a measure of time (hours). While tools and synthetic materials that should be available in school laboratories, namely: CaCO3, enlenmeyer, glass beaker, HCl, measuring cylinder, measuring cups and a measure of time (stop watch).

Practicum third on the effect of surface area on the reaction rate, the tools and materials that are used daily are: egg shells with the same weight in the form of powders, granules and chips, aqua glass, vinegar, scissors and a measure of time (hours). While tools and synthetic materials that should be available in school laboratories, namely: CaCO3, enlenmeyer, HCl, digital scales and a measure of time (stop watch). Practicum fourth on the influence of the catalyst on the reaction rate, the tools and materials that are used daily are: Sugar Stone, Paper, Lighters, and marquetry of metal / small plates. While tools and synthetic materials that should be available in school laboratories, namely: Measuring Tool Time (stop watch), Hydrogen Peroxide (H2O2), MnO2 (catalyst), and the Test Tube.

For the time spent in the learning process because it is enough planned.

b. Teacher Observation Sheet

Observations made to teachers who are teaching to see the feasibility of learning implementation plan has been created. The data indicated that the teachers had experienced an increase in their activities just still there is one activity that is not performed.

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145 Muchtaridi dan Sandri Justiana, Kimia SMA Kelas X, (Bogor: Quadra, 2007), hal. 125
146 O.Cit., Johari dan Rachmawati, hal. 110
147 L.Cit., Muchtaridi dan Sandri Justiana.
148 Johari dan Rachmawati, Kimia 2 SMA dan MA untuk kelas XI, (Jakarta: Esis, 2009), hal. 111-112
149 Das Salimawati, Fitria Mellina K, dan Jamil Suprihatiningrum, Belajar Kimia Sekolah Menengah untuk SMA/MA kelas XI, (Jakarta: PT. Grasindo, 2007), hal. 127
150 O.Cit., Johari dan Rachmawati, hal. 114
c. Cognitive Learning Outcomes

To see the indicators of achievement tests in the form of multiple choice questions. The results of the tests the ability of students is as follows:

Table 4.8 Percentage of Students Achieving Mastery Learning

<table>
<thead>
<tr>
<th>Score</th>
<th>Cycle II</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Amount of people</td>
<td>%</td>
</tr>
<tr>
<td>&lt;60,00</td>
<td>2</td>
<td>7.41</td>
</tr>
<tr>
<td>60-69.90</td>
<td>1</td>
<td>3.70</td>
</tr>
<tr>
<td>≥70.00</td>
<td>24</td>
<td>88.89</td>
</tr>
</tbody>
</table>

To determine the level of effectiveness of the measures in the action research in the second cycle, the student score data were analyzed by N-gain as shown in Table 4.9 below:

Table 4.9 Average Ability Test results Students In Cycle II

<table>
<thead>
<tr>
<th>Cycle II</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pre Test</td>
</tr>
<tr>
<td>Average</td>
<td>25.37</td>
</tr>
</tbody>
</table>

In Table 4.9 shows that the second cycle, before learning to get the average value of 25.37 pretest scores. But after experiencing the average learning student learning outcomes increased to 73.37. To determine the level of effectiveness of the measures in the action research in the first cycle, the student score data were analyzed by n-gain against the average score of pretest and posttest student ability. From the difference in the scores obtained n-gain value of 0.65. Under the acquisition of category n-gain scores, score n-gain category was 0.65 (0.7 ≥ value ≥ 0.3 g). Posttest results in the second cycle appeared to have achieved success indicators set in which the second cycle of the graduation percentage is equal 88.89% with the concept of the factors that affect reaction rates and indicators set as many as 75% of students achieving the KKM is 70.
d. Results Practicum Reports

To view the laboratory skills of students conducted an assessment of the student lab reports based on aspects of assessment have been made before the results of the data as shown in Table 4.12 as follows:

Table 4.10 Average Assessment Report of Practicum Students In Cycle II

<table>
<thead>
<tr>
<th></th>
<th>Cycle II</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average</td>
<td>84.07</td>
</tr>
</tbody>
</table>

According to the table 4.10 shows that the average value of lab reports students in the second cycle is 84.07. For the percentage of students who reached the KKM namely: 85.18%. The results of lab reports students in the second cycle increased by 25.92%.

e. reflection

In the second cycle is already showing good results, then the reflection is not necessary. There are some things you consider are:

1) The teacher has been great in teaching and praktikumnya added up to 4x the practical implementation so that students are more interested, interested and motivated students to chemistry and so much more given the strengthening of the existing theories.

2) The teacher has conducted its activities in accordance with well accepted indicators.

3) The worksheets are very helpful in implementing the practicum students.

4) An increase in the student lab report results of 59.26% in the first cycle to 85.18% in the second cycle students who scored above KKM set at 70 with a target of 75%.

5) An increase in cognitive learning outcomes of students from the first cycle to the second cycle. N-value gain in the first cycle of 0.31 increased to 0.65 in the second cycle.
6) An increase in the number of students who reached the KKM is the first cycle of 3.70% increased to 88.89%. The percentage of students who reached the KKM has exceeded the target of 75%.

f. decision

Based on the results of the second cycle of reflection can be concluded that the learning outcomes of students to the concept of the factors that affect the rate of reaction that researchers have met the indicator set. The indicator is defined as 75% of students had scores above 70. The result is KKM school, giving the action on the second cycle shows the number of students who achieve the KKM is 88.89% with an average post-test score in the second cycle are: 73, 37 on cognitive aspects, and 85.18% with an average value of 84.07 in praktikum.siswa report. Therefore, researchers decided to discontinue the action in the form of learning materials applying the experimental method based on the concept of the everyday factors that affect the rate of reaction.

B. Analysis of Data

Phase analysis begins by reading all the data obtained from various cycles, including the following:

1. Cognitive Learning Test Results

Acquisition percentage of students score above KKM posttest cycle I and II are presented in a diagram as shown below:
Figure 4.1 Diagram of Percentage of Students in Top Rated Postes KKM
(a)

Average Value Student Results (b)

Figure 4.1 a shows an increase in the number of students scoring above the KKM. In the first cycle, the number of students who score above KKM posttest increased from 3.70% to 88.89%. For the second cycle, the average achievement of the pretest, posttest, and n-gain students in cycle I and II are presented in a diagram as shown below:

Based on Figure 4.1 b, it can be seen that after the implementation of an experimental method based on everyday materials in cycle I and II, cognitive learning outcomes of students have increased. From the average value of the pre-test 26.96 into 47.82 0.31 gain on the n-cycle I. While on the second cycle of the average value of the pre-test 73.37 and 25.37 into n-gain 0.65.

2. Results Practicum Reports

Obtaining the percentage of the value of the student lab reports above KKM cycle I and II are presented in a diagram as shown below:
Figure 4.2 shows an increase in the number of students who scored in the lab report on the KKM is the first cycle the number of students who score above KKM lab results as much as 59.26% and the second cycle increased to 85.18%.

C. Discussion of Findings of Research Results

First cycle lasts for $3 \times 2 \times 45$ minutes or three meetings. Sub concepts taught in this learning process is sub-concepts: molarity, and the rate of the reaction order. Practicum is held on the first cycle as much as 1 times, i.e. on the production of salt solution. After the learning process in the first cycle is completed, the next at the end of cycle evaluation of student learning outcomes (test) to determine the student’s ability to grasp the concepts that have been discussed and used before the matter has been tested prior to the students of class XII Science 1 MAN Cipondoh which has obtain the reaction rate concept.

The achievement test results of the first cycle can be seen that after the implementation of an experimental method based on everyday materials, cognitive learning outcomes of students has increased. From the average value of the molarity concept, and the order of the reaction rate on the pre-test: 26.96 became 47.82 and 0.31 with n-KKM gain of 3.7%. Apparently mastery learning in the first cycle is not yet meet the target set in the indicators of success that at least 75% of students scored KKM is ≥70.

For the assessment of practical reports, penilaian aspect refers to the systematic and content of the report based on the assessment indicators that have been made. The lab report student outcome data are shown in Figure 4.3 above, Figure 4.3 shows the number of students who scored above the lab reports KKM cycle I still have not met the targets set out in the indicators of success that is at least 75% of students scored KKM i.e ≥70. As a result, only 59.26% of students who get the KKM. There are several factors that cause the failure indicator is set as follows:

1. Practice is held on the first cycle is too simple.
2. The teacher was not invited students to more interaction in the implementation of the action.
3. The teacher did all activities according to the indicators set.

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Ahmad Sofyan dkk, *Evaluasi Pembelajaran IPA Berbasis Kompetensi*, hal. 83
While in the second cycle lasts for $4 \times 2 \times 45$ minutes or four meetings. Subconcepts taught in this learning process is sub-concept: Factors that affect reaction rates, collision theory and the role of a catalyst in living things and industry. After the learning process in the second cycle is complete, then at the end of cycle evaluation of student learning outcomes (test) to determine the ability of students to absorb the material that has been discussed and used before the matter has been tested prior to the students of class XII Science 1 MAN Cipondoh which has acquire the concept of factors that affect the rate of reaction.

The achievement test results of the second cycle can be seen that after the implementation of an experimental method based on everyday materials in the second cycle, cognitive learning outcomes of students has increased. From the average value of the pre-test 73.37 and 25.37 into n-KKM gain of 0.65 with 88.89%. For a lab report outcome data also showed an increase in the number of students scoring above the KKM is the first cycle number of students who scored above the lab reports KKM much as 59.26% and the second cycle increased to 85.18%. The amount of mastery learning in this second cycle has exceeded the target set in the indicators of success that is at least 75% of students scored KKM is $\geq 70$. Because it is already achieving success indicators set the action in the form of provision of learning to apply the experimental method based on everyday materials discontinued. There are some things you consider are:

1) The teacher has been excellent in teaching and practice added up to 4 times the practical implementation so that students are more interested, interested and motivated students to chemistry and so much more given the strengthening of the existing theories.
2) The teacher has been successful in getting students to better interact in the implementation of the action.
3) the optimal observer in performing their duties in observing each student activities undertaken during the administration of the act and also teachers.
4) The worksheets are very helpful in implementing the students practices.

An increase in the number of students who reached the KKM on cognitive aspects and results of lab reports that the cognitive aspects of the first
cycle of 3.70% increased to 88.89%, the results of the first cycle lab reports 59.26% increase to 85.18%. The percentage of students who reached the KKM has exceeded the target of 75%.

CONCLUSIONS

Conclusion

The results of the study revealed that the application of the experimental method on chemical subjects especially on the concept of reaction rate using everyday materials can improve student learning outcomes. In the first cycle, the average value of n-gain of 0.31 increased to 0.65 in the second cycle and an increase in the number of students who reached the KKM namely: in the first cycle of 3.70% increased to 88.89%.

Note: KKM / Minimal Mastery Criteria
LKS / Worksheet

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