The influence of Edmodo application toward students understanding of slat hydolysis topic

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Abstract. The research aims at investigating the influence of Edmodo application toward students understanding of the slat hydrolysis topic. It is a quantitative research with a non-equivalent control group design. The samples for each experimental class and control class were 25. The data collection was by objective test as the instrument that consisted of the salt hydrolysis material. The technique of data analysis to verify the hypothesis applied t-test. Based on the statistical test result, the average value of post-test for the experimental class using the Edmodo application was 79.73, while the average value of post-test for the control class using the Edmodo application was 55.46. The data analysis result for students understanding shows that the tcount was higher than the table or 20.06 > 1.67 at a significance level of 0.05, which means that H1 was accepted and H0 was rejected. Therefore, it can be concluded that there is an influence of Edmodo application toward students understanding in the slat hydrolysis topic.

1. Introduction

Education is very important for the progress of a nation, where the advancement of the civilization of a nation depends on the progress of the nation's education. Education is a human effort to cultivate and develop the innate potentials both physically and spiritually in accordance with the values that exist in society and culture. An important factor in efforts to improve the progress of a nation such as the Indonesian nation is human resources. Efforts have been made to develop human resources in almost all lines of life of the people of a nation, including in the field of human resources in the field of education itself. As stated in government regulation No. 19 of 2005 concerning National Education Standards, one of the standards that must be developed is a process standard because it is related to the implementation of learning in educational units to achieve a quality education process. The quality of students is determined by the quality of the Achievement activities that students produce depends on how the learning process is experiencing. Less good student learning methods can come from students, teachers, and their learning environment. Therefore, an effort is needed to improve student learning, especially in chemistry subjects [1], in the category of understanding includes seven cognitive, namely interpreting, exemplifying, classifying, summarizing, inference / inferring, comparing and explaining [2].

The fact shows that in SMA Negeri 1 Suwawa generally experience difficulties in studying chemistry. The difficulties experienced by students in studying chemistry are reflected in their low learning achievement. If this problem is allowed to drag on, it will not only cause students to be underachieving at that time, but the big impact is that these students find it even more difficult to adjust to subsequent chemistry lessons. To overcome this, the writer through this research wants to provide a
solution in the form of technology media-based learning in chemistry subjects, especially in solution material. The use of technology media in learning cannot be avoided anymore, it is recommended because the development of student life is now in accordance with technological advances where they are on the side of the most people who easily absorb and adapt this technology. [3]. Industrial technology 4.0 currently has its use in various aspects of human activities, both individuals, groups and society in general, including in the field of education. Era technology 4.0 requires the use of digital technology in the learning process or known as cyber systems. Access to technology is very easy and smooth to become a scourge for teachers to develop information technology-based learning, besides making it easier to use information technology it can also streamline time considering the lack of learning time of students [4].

Concept understanding consists of two words, namely understanding and concept. According to the large Indonesian dictionary understanding is something that we understand and we understand correctly. Concept understanding consists of two words, namely understanding and concept. According to the large Indonesian dictionary understanding is something that we understand and we understand correctly [5].

Edmodo is a media application that has quite a lot of features to improve learning, and the most important thing is that the Edmodo account can be used without paying, and the Edmodo account is specifically designed for school-based use. Edmodo is designed specifically for school-based learning because to support the learning process in today's modern era, Edmodo is also equipped with several learning activities, such as quizzes, assignments, polls, grade books, libraries, award bags, and parent codes. As for teaching materials, Edmodo supports teaching materials in the form of files and links.

Edmodo is a very attractive medium for teachers and students according to social media elements that resemble Facebook. A teacher can easily manage a system that provides the best features and features that are very practical, so that teachers can always be connected with students anytime and anywhere, and can easily manage student activities. Learning activities that can be used are in accordance with the features provided by Edmodo media, namely content sharing or sharing of learning materials, assignments, quizzes, polls and it is very possible for discussions to occur in the comments column.

Edmodo can also be used as a learning communication platform in supporting student learning at the individual, group and whole class level, both inside and outside the classroom, which is commonly used in all formal and informal learning settings, which greatly allows students to collaborate, communicate, submit assignments and upload and download study references for students, and can also make online quizzes, there are also notification news and event agendas [6].

The best asset in students is the collective ability of students to learn quickly and adapt intelligently in unpredictable situations. Edmodo is an ad-free and safe online learning environment, as well as games that can disturb students, and students can communicate with other students both about lessons, homework, and collaborating with friends [7]. The use of facilities in web learning, which aims to provide in-depth material which can also be questions and solutions, subject matter, virtual practicum, exams, and assignments. Web-based learning is able to foster student interest and student independence to construct their own knowledge, with an increase in concept mastery, an increase in science generk and students who can give good responses [8].

2. Methods
The method in this study is a quasi-experimental with non-equivalent control group design and a quantitative approach.

2.1. Research population and sample
The population in this study were students of class XI IPA SMA Negeri 1 Suwawa. Sampling was done by using purposive sampling technique.
2.2. Data collection techniques and data analysis

Data collection techniques in this study were collected through observation and objective test instruments. The test used is a multiple choice test which functions to measure the ability to understand concepts. This test is carried out twice, namely before treatment (pretest) and after treatment (posttest). The data analysis techniques used are:

- The data normality test is needed to determine whether the data taken comes from a population that is normally distributed or not. Statistically it can be used with the Liliefors method to test the hypothesis,
- The homogeneity test is carried out to ensure that the sample has homogeneity variance in the Berllet test
- The t\text{count} statistical test was used to test the hypothesis of the study. The hypothesis reads: accept \text{H}_1: there is an effect of the use of Edmodo on the understanding of the salt hydrolysis concept of SMA Negeri 1 Suwawa students if t\text{count} > t\text{table} in another case \text{H}_0 is accepted.

3. Results and discussion

The purpose of this study was to determine whether there was an effect of giving Edmodo learning applications with Discovery Learning. The data from the results of this study are in the form of the average score of the conceptual understanding ability of the pretest and posttest for the EDModo application learning model and discovery learning, with a sample size of 50 students consisting of 25 students in the experimental class and 25 students in the control class. The data collector used in this study was a test in the form of multiple choices, namely to measure the ability to understand the concept of salt hydrolysis, then processed quantitatively by using a specified statistical test. Data collection was carried out twice, namely in the form of pretest and posttest simultaneously both in the experimental class and control class. From the results of the pretest and posttest the average can be taken as follows.

| Instructional Model Used | Test       | Edmodo Application | Discovery Learning |
|--------------------------|------------|--------------------|--------------------|
|                          | Experiment Class | Control Class |
| Pre-test                 | 36.53      | 37.86              |
| Post-test                | 79.73      | 55.46              |

Based on the average score in table 1 above, it can be seen that there is an increase in the ability of students to understand concepts before and after learning is applied in the experimental class and the control class. However, it can be seen that the highest student concept understanding ability occurs in the experimental class, namely the class that is applied the Blended Learning learning model assisted by Edmodo applications.

The research data is in the form of a good post-test in the experimental class where the Edmodo application-assisted learning is applied and the control class with Discovery Learning, so as a requirement for hypothesis testing, the normality test and homogeneity test are carried out first. The results of the normality and homogeneity test of the data are in Table 2 and Table 3, respectively:

| No | Data | L-count | L-table | Conclusion |
|----|------|---------|---------|------------|
| 1  | Experiment | 0.147   | 0.17    | Normal     |
|    | Control    | 0.133   | 0.17    | Normal     |
| 2  | Experiment | 0.157   | 0.17    | Normal     |
|    | Control    | 0.130   | 0.17    | Normal     |
Based on the table of normality test results with a significant level of 0.05, it can be seen that the pretest and posttest data in the experimental and control classes are normally distributed. This is because $L_{\text{count}} \leq L_{\text{table}}$, thus $H_0$ is accepted.

Table 3. Homogeneity test using the Bartlett test.

| Class    | $X$- count | $X$- table | Conclusion |
|----------|------------|------------|------------|
| Experiment | 1.646      | 11.07      | Homogen    |
| Control   | 2.3        | 14.07      | Homogen    |

Based on the table of homogeneity test results above, it is found that $X_{\text{count}} \leq X_{\text{table}}$, thus $H_0$ is accepted. Furthermore, to test the research hypothesis the data used were the posttest results of both the experimental class and the control class. The results of the $t$ test analysis are as in Table 4 below:

Table 4. Hypothesis analysis using $t$-test.

| Class    | Sample | Post-test Average | $S$-Gab | $t$-hit | $t$-table |
|----------|--------|-------------------|---------|---------|-----------|
| Experiment | 25     | 79.73             | 4.32    | 20.06   | 1.67      |
| Control   | 25     | 55.46             |         |         |           |

Based on the hypothesis test data in Table 4 above, where $t_{\text{count}} > t_{\text{table}}$ or 20.07 > 1.67. This shows that the hypothesis proposed in the study which states that there is an effect of learning with the help of Edmodo application on the ability to understand the concept of salt hydrolysis in SMA Negeri I Suwawa students can be accepted.

4. Conclusion

Based on research data and calculation results, it was found that the use of Edmodo application as a support for Blended Learning has a positive effect on students' conceptual understanding. Where for the $t$ test the results obtained $t_{\text{count}} \geq t_{\text{table}}$ (20.07 > 1.67). These results indicate that there is an effect of the use of Edmodo on the understanding of the concept of salt hydrolysis in SMA Negeri I Suwawa students.

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