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**The Effect of the Application of *E-Learning* on the Use of *Edmodo* with *Whatsapp* Assisted on the Learning Outcomes of Students on the Concept of Sound Waves**

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**Abstract -** This study aims to see the learning outcomes of students in the application of *e-learning* in the use of *whatsApp* assisted *edmodo* on learning outcomes in the concept of sound waves. In addition, students' responses to the treatments given are also observations as material for the evaluation of researchers. The research method used was experimental with a quasi-experimental approach as a research method. The implementation was carried out at SMA Negeri 1 Gorontalo even semester of the 2019/2020 academic year, with the research subjects of class XI IPA 8, with a total of 20 students. Data collection on learning outcomes was carried out based on the results of test results by students. Analysis of research data using data normality test and statistical t test. Based on the results of the hypothesis, it is known that the t value is 5.53 where this price is greater than 1.72 which is the price of the table, then H0 is accepted and H1 is rejected, so that there is a significant positive effect using *whatsApp* assisted *edmodo* on learning outcomes in the concept of sound waves. Judging from the mean value of the pretest and posttest students from the experimental class, it can be concluded that the increase in student learning outcomes on the concept of sound waves has a strong effect criteria.

**Keywords**: *E-learning, Edmodo* with *Whatsapp* assistance*,* Learning Outcomes

1. **INTRODUCTION**

Educators have an important role in shaping human resources to become more qualified, so that learning in the mastery of science and technology must be better. In the learning process, there are two important things that support a quality of learning, namely methods and media. The position of learning methods and media is closely related because the main function of learning media is as a teaching aid that supports the use of learning methods used by educators.

Information Technology (IT) is able to become a media and a broad learning resource, enabling students to learn independently. The need for IT-based teaching and learning concepts and mechanisms is something that needs serious attention. This concept known as e-learning has an effect on the transformation of conventional education into digital form. This is in line with the opinion (Hanum, 2013) that e-learning is aimed at making a transformation of the learning process in schools or colleges into a digital form bridged by internet technology.

Currently the *e-learning* program is a hot topic of conversation among educators, parents and students due to conditions and circumstances that demand e-learning. According to (Rusli et al, 2017: 74) e-*learning* is learning centered on students using electronic media or learning based on information technology or multimedia.

Since the *Covid-19* pandemic that occurred around the world, all teachers have been required to carry out learning activities from home. *E-learning* is one that is required in the world of education from elementary to tertiary level. In general, universities have an e-learning learning system created, but activities are very limited. Especially for Gorontalo State University, it already has e-learning through SIAT. The *Covid-19* emergency response requires lecturers and students to study and carry out online learning (Arota et al, 2020).

The use of *e-learning* as technology also needs a plan to be able to carry out effective learning and improve student learning outcomes. The atmosphere of *e-learning* will force students to play a more active role in learning, this is because *e-learning* requires students to look for other learning materials or resources with their own efforts and initiatives.

The emergence of e-learning shows the various kinds of online learning media used by teachers such as *google classroom, schoology, edmodo* and others. Of the various kinds of learning media that exist, the writer is more interested in using *edmodo* as an e-learning medium. *Edmodo* is one of the e-learning media in Indonesia, *edmodo* is interactive which is equipped with communication facilities between students and educators, among educators, and parents who can be connected with educators and students as well as other learning resources that can be accessed by students.

Edmodo is described as using a social networking concept that resembles *Facebook*, so that this system has features similar to *Facebook*, and even almost everyone says that *Edmodo* is the *Facebook* for educational schools. This is in line with the opinion (Kamarga, 2011) that *edmodo* is designed to be school-based to support the learning process. Apart from social networking among its users, *edmodo* is equipped with several learning activities, such as quizzes, assignments, polls, grade books, libraries, award badges, and parent code. For teaching materials, *edmodo* supports teaching materials in the form of files and links.

The problem around us is that the use of gadgets as information technology is underutilized in the education sector, instead it is used for things that are less useful, such as the use of online and offline games as well as excessive use of social media which is dominated by teenagers or students. *Whatsapp* as one of the most influential social media and is widely used by people in Indonesia. This is because *WhatsApp* messenger is an information technology application that is very easy to use as a communication tool (Sahidillah & Miftahurrisqi, 2019).

In *whatsapp* messenger there is a group chat feature which is very easy to use to form an online discussion forum (anywhere and anytime). The use of *whatsapp* by students is only limited to communicating, it doesn't take advantage of the sending features in the form of files, videos and teaching materials that support the learning process and increase their knowledge (Sahidillah & Miftahurrisqi, 2019).

Research (Hapsari & Ariana, 2015) Most internet users in Indonesia are adolescents with an age range of 15-24 years with a percentage range of 26.7% -30%. The ease of internet access does not always have a positive impact. Nearly 80% of adolescents aged 10-19 years spread across 11 provinces in Indonesia are addicted to the internet, and most teenagers use the internet for things that are not supposed to be. 24% admitted to using the internet to interact with unknown people, 14% accessing pornographic content, and the rest for online games and other purposes.

Based on the description above, the formulation of the problem in this study is "How is the effect of the application of e-learning learning on the use of *WhatsApp* assisted *edmodo* on student learning outcomes on the concept of sound waves?".

1. **METHODS**

The research method used in this study is an experimental method with an experimental design of One Group Pretest-Posttest Design. This design is a research technique by giving a pretest before treatment and posttest after being given treatment. This research design can be shown in table 1 below.

**Table 1.** Research Design

|  |  |  |
| --- | --- | --- |
| ***Pre test*** | **Treatmen** | ***Post test*** |
| X1 | P | X2 |

Information:

X1: Learning outcomes before treatment

P : Treatment, using *whatsapp* assisted *edmodo*

X2 : Learning outcomes after treatment

The treatment in this study refers to the use of *edmodo* assisted by *WhatsApp.* The pretest and posttest were in the form of essay questions totaling 11 numbers with sound wave material at the cognitive level of understanding (C2), applying (C3), and analyzing (C4). The learning aspects in the classroom can be shown in table 2 below.

**Table 2.** Learning Aspects

|  |  |
| --- | --- |
| **Aspek** | **Kelas Eksperimen** |
| Nature of Meeting | Online |
| Learning Materials | Sound Waves |
| Time | 8 Hours of Learning |
| Meeting | 5 times Meeting |
| Learning Media | *Whatsapp* Social Media and *Edmodo* |
| Learning Tools | Laptop/*Computer*/*Smartphone* |
| Learning Methods | Discussion, Assignment and Evaluation |

1. **RESULTS AND DISCUSSION**

**Results**

* Hypothesis testing

Hypothesis testing aims to determine whether there is a positive effect of the treatment given on student learning outcomes. The results of the hypothesis statistical test obtained can be seen in table 3 below.

**Table 3.** Hypothesis Testing Results

|  |  |  |  |
| --- | --- | --- | --- |
| **Class** | **Tcount** | **Ttable** | **Status** |
| Experiment | 5.53 | 1.72 | H0 be Accepted |

Based on table 3 shows the calculation of the hypothesis test, it is obtained that tcount > ttable for the level α = 0.05. Then H0 is accepted and H1 is rejected. So that the application of *e-learning* on the use of *Whatsapp* assisted *Edmodo* has a significant positive effect on student learning outcomes on the concept of sound waves.

* *Effect Size*

To see the effect size of learning outcomes in e-learning learning on the use of *Whatsapp* assisted *Edmodo* using an essay test of 11 question numbers with 6 indicators. The effect size can be considered as a measure of the meaning of a study. Based on the data analysis of the pretest and posttest results at the beginning and at the end of the meeting, the average score of students' learning outcomes tests and the effect size can be seen in table 4 below.

**Table 4.** Recapitulation of Average Learning Outcomes Tests and *Effect Size*

|  |  |  |  |
| --- | --- | --- | --- |
| **Test** | **Average** | ***Effect Size*** | |
| **Score** | **Criteria** |
| *Pretest* | 43.25 | 1.56 | *Strong effect* |
| *Posttest* | 68.83 |

Based on table 4, it can be interpreted that the use of *WhatsApp* assisted *Edmodo* has increased in student learning outcomes with an average pretest or before treatment value of 43.25 and a posttest or after treatment value of 68.83 with an effect size value of 1.56 Strong effect criteria. The effect size value for each level of cognitive questions can be seen in Figure 1 below.

**Figure 1.** Effect size of each Cognitive Level Problem

Based on Figure 1 above, the effect size of each cognitive level of questions, be it C2, C3 or C4, has a value of 1.41 where this value is included in the strong effect criteria.

**Discussion**

This research, which was conducted at SMA Negeri 1 Kota Gorontalo, aims to see the effect of using *edmodo* assisted by *WhatsApp* on student learning outcomes. This research provides an alternative in teaching and learning activities between teachers and students with the current *Covid-19* pandemic state which requires learning from home. This distance learning e-learning requires internet facilities as the main factor for the smooth running of *e-learning*, this is in line with the opinion (Yazdi, 2013) that e-learning is a form of distance learning that uses electronic circuits such as the internet to convey learning content, interaction or guidance to students.

In its implementation, e-learning also requires a media or better known as a platform that can support the implementation of *e-learning* itself, one of the platforms that can be used in the e-learning learning process is *edmodo*. *Edmodo* is an attractive medium for teachers and students with social elements that resemble Facebook. *Edmodo* is often referred to as educators' *facebook* because *edmodo* is for educators and students, this is in line with the opinion (Vera & Nilam, 2019) *Edmodo* is an interesting application with social elements that resemble *Facebook* so that students are more interested in participating in *e-learning*.

The treatment or experiment of using *Whatsapp*-assisted *Edmodo* is complete, the teacher provides a posttest as a benchmark to see an increase in learning outcomes on the concept of sound waves before using *WhatsApp*-assisted *Edmodo* and after using *WhtasApp*-assisted *Edmodo*. After the pretest and posttest data obtained by the teacher, the teacher analyzes the hypothesis test data with the results of data analysis showing the use of *WhtasApp*-assisted *e-learning* has a positive effect on student learning outcomes. The effect size on the use of *WhatsApp* assisted *Edmodo* on learning outcomes obtained data analysis results of 1.56 with strong effect criteria. This is supported by previous research by (Vera & Nilam, 2019) *Edmodo*, a positive learning environment that provides a path of interaction among students and educators in an academic atmosphere, supported again by the opinion (Yazdi 2013) that *e-learning* refers to the use of the internet to send a series of solutions that can improve the knowledge and skills of learners.

1. **CONCLUSION AND SUGGESTION**

**Conclusion**

Based on the results of the research and data analysis obtained, it can be concluded that there is a significant positive effect on the use of *WhatsApp*-assisted *Edmodo* on student learning outcomes. This influence is shown through the criteria for testing the hypothesis where t is greater than t table. This means that the average value of the experimental class exceeds the minimum completeness criteria (KKM). The effect size obtained is 1.56 with strong effect criteria.

**Suggestion**

1. Lesson planning should be organized, communicative and flexible.
2. Providing more interactive learning will bring a more enjoyable learning atmosphere and is well absorbed by students.
3. The freedom or freedom for students to explore other learning sources.

**REFERENCES**

Arota Anjas., Mursalin., Abdul Haris Odja. (2020). The effectiveness of e-learning based on SETS to improve students’ critical thinking skills in optical instrument material. *Journal of physics: Conference Series. Conf. Ser. 1521 022062.*

Hanum, Numiek Sulistyo. (2013). E-Learning Effectiveness as Learning Media (Evaluation Study of E-Learning Learning Model of Telkom Sandhy Putra Purwokerto Vocational School). *Journal of Vocational Research*. Vol 3 No 1.

Hapsari, A., & Ariana, A. D. (2015). The Relationship Between Loneliness and Internet Addiction Tendency in Adolescents. *Journal of Clinical and Mental Health*, 164-171.

Kamarga, Hansiswany. 2011. Constructing Online Based History Learning: Comparison Of Learning Content Management System (LCMS) To Learning Management System (LMS). *International Journal of History Education*. Vol. XII, No. 2.

Rusli Muhammad, Dadang Hermawan, Ni Nyoman Supuwiningsih. (2017). *Innovative Multimedia Learning Basic Principles And Development Models.* Yogyakarta: Publisher Andi.

Sahidillah, Muhammad Wildan & Miftahrrisqi, Prarasto. 2019. Whatsapp as a digital media for student literacy. *Varia Education.* Vol. 31 No.1.52-57.

Vera Dewi Kartini Omposunggu & Nilam Sari. 2019. The Effectiveness of Using Edmodo-Based E-Learning on Mathematics Communication Skills. *Curere's Journal*. Vol. 3 No.2.

Yazdi, Mohammad 2013. E-Learning as Information Technology Based Interactive Learning Media. *Faristek Scientific Journal*. Vol. 2 No. 1.