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THE EFFECTIVENESS OF SELF-COMPETENCY TEST WITH EDMODO TO IMPROVEMENT STUDENT'S SELF-CONFIDENCE

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ABSTRACT

This study aims to analyze whether the computer-based self-test program can increase students' self-confidence in physics subjects and analyze whether the computer-based self-test program developed can increase effectiveness in processing competency test results accurately, practically and effectively. This research is a research and development with the development process using the ADDIE model which includes the stages, namely; Analyze, Design, Development, Implementation, and Evaluation. The subjects of this study were students of SMA Muhammadiyah Medan. The instruments used are testing aspects of functionality, usability, and student self-confidence questionnaires. Based on the results of expert validation on the functionality test, a percentage of 94.15% was obtained with very good criteria and already met the functionality aspect, the results of expert validation on the usability test obtained a percentage of 93.65% with very high criteria and already met the usability aspect. Furthermore, the percentage of students' self-efficacy questionnaires/questionnaires is 82.15% with very high criteria.

Keywords: Competency Test, Edmodo and ADDIE Model

INTRODUCTION

Advances in communication technology, especially computers, have a broad impact on all aspects of human life. These advances brought humans to a new civilization and way of life. Advances in information technology also have an impact on the world of education. Munir believes that multimedia has the potential to offer learning opportunities in new ways. The use of computers in learning can involve students actively and provide feedback on the learning process (Sudar, 2014).

One of the uses of computers in the field of assessment in the world of education is known as CBT (Computer Based Testing). CBT is defined as a series of computer-based tests or assessments, whether it involves a standalone computer or connected to the internet and most of the questions use multiple choice forms (Jimoh, 2012). The questions presented in the written test can be converted into digital tests and accessed by students via computers. CBT also allows the development of questions that integrate film, sound and animation in it so that the form of questions can be designed more contextually.

Learning media has special benefits, namely; (1) delivery the material can be uniformed, (2) the learning process becomes more interesting, (3) the learning process students, students are more interactive, (4) the amount of study time can be increased, (5) the quality of learning students and students can improve, (6) the

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learning process can happen anytime and anywhere (7) the teacher's role can change in a more positive and productive direction (Handika, 2012).

In addition, learning media must have conditions. Educational factors, including accuracy or the suitability of the learning media with the goals or competencies that have been set and must be achieved by students according to the applicable curriculum. Manufacturing Engineering Factors, Include truth or scientific concept, material and shape is strong, durable, not easy changes, so that it can be combined with learning media or other tools Beauty, this includes the elastic shape, the right size and the right color combination interesting, so that it attracts the attention and interest of students to use it (Asyhari, Silvia, 2016)

According to Jabar (2013), electronic learning is a type of learning that allows the delivery of teaching materials to students using the internet, intranet, or other computer network media. Edmodo is an online-based learning media which contains material, assignments, quizzes, scoring, and can be divided into several classes according to the number of classes taught by a lecturer (Nugroho, 2012).

Gruber in Nasrullah, et al (2017) revealed that Edmodo is a type of communication and information technology in the form of a social networking website similar to Facebook which is used for the learning process so as to facilitate the learning process for both educators, students and parents that can load various media in the form of images, animations, text and sound.

Edmodo is a safe and free social network-based learning that makes it easy for teachers to create and manage virtual classes so students can connect with classmates and teachers anytime and anywhere. Edmodo was developed by Nicolas Borg and Jeff O'Hara as a learning platform to collaborate and connect between students and teachers in sharing educational content, managing assignments and handling notifications of each activity.

According to Stroud (Jabar, 2013), several advantages of Edmodo compared to other platforms are; 1) Edmodo guarantees user convenience and security, because participants can also access Edmodo on their mobile phones; 2) educators can collect materials in the library feature; 3) Edmodo provides quick and easy access; 4) parents can know the learning process and can communicate with educators; 5) educators can share files, ideas and materials with other teachers. Edmodo is a social learning platform for teachers, students and parents. Teachers are also able to post grades, assignments and quizzes to students. Students can submit homework and view their grades and comments. Teachers may have posted about their assignments. Teachers can also create polls and post topics for discussion among students. Teachers can differentiate and individualize learning through the creation of subgroups. In the course after each course period the teacher closes out the network and creates a new one for the next course. Edmodo is a free and secure learning platform. This website looks similar to Facebook, but is much more private and secure for a learning environment.

This study aims to analyze whether the computer-based self-test program with Edmodo can increase students' self-confidence in physics subjects and analyze whether the computer-based self-test program developed can increase effectiveness in processing competency test results accurately, practically and effectively. The purpose of using Edmodo media in learning can be explained as follows: a. Improving the quality of student learning, b. Changing teacher teaching culture, c. Changing passive student learning to an active learning culture, so that

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independent learning is formed, d. Expanding learning opportunities for students, e. Develop and expand new products and services

Independent competency test provides an opportunity for students to test their competence independently. With the help options that can be arranged by students themselves and the choice of the level of difficulty of the questions, it is expected to be able to measure expectations in students' self-efficacy so that learning achievement results are obtained. This research needs to make a computer system that can ease the burden on teachers and students in carrying out the competency test which is a learning measurement and evaluation tool. The intended computer system is the development of a computer-based competency test.

The results of the interaction between the human person, the environment and interrelated behavior give rise to the concept of self-efficacy. According to Ramey, self-efficacy is defined as a person's belief in his ability to complete a task or achieve something (Moorefield-Lang, 2010).

Based on the results of observations, it is necessary to strive for the development of computer-based student competency tests. Independent competency tests and technology-based physics learning can be used to harmonize interest in learning physics with student physics learning outcomes. The system used is a computer system using the edmodo program. Develop independent competency tests by innovating in the form of computer programs to increase students' self-confidence and the effectiveness of managing competency tests. The development of competency tests is carried out because of the importance of building a system that is able to process the implementation of computer-based independent competency tests, helping to foster an attitude of independence and self-confidence of students in carrying out competency tests and processing grades quickly, precisely and accurately and can be used as school records.

METHODS

This research was conducted at SMA Muhammadiyah 2 Medan. The research method used in this research is research and development. The research and development model used in developing computer-based student competency tests using Edmodo is the ADDIE model. The selection of this model is based on the consideration that this model is easy to understand, besides that this model was developed systematically and based on the theoretical basis of the competency test design developed.

The data collection techniques used in this study were (1) Interview, this technique was conducted by the researcher on one of the physics teachers at SMA Muhammadyah 2 Medan to obtain information about the use of computers in students' self-competence tests. The process of testing the competence of the students of SMA Private Muhammadiyah 2 Medan so far is still done manually and is less effective. Many stages are carried out during the competency test, namely, starting from the teacher making a question script, then the questions are typed and reproduced in sheet form, then students answer the questions on the question sheet that has been given, then the test results are checked manually by the teacher and grouped based on basic competencies. To get value. Furthermore, the subject teacher submits to the homeroom and administration for filing.(2) Pretest and posttest, the pretest is carried out before the implementation of the

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independent competency test by giving an initial test to measure the level of students' self-confidence in physics lessons, while the posttest is carried out after the pretest is carried out by using a competency test product using Edmodo to determine the increase in students' self-confidence in physics lessons . (3) Questionnaire, namely collecting data on the feasibility of the media created. This questionnaire is used to collect data related to software quality testing, namely testing from the functionality and usability aspects.

The application of the competency test using Edmodo is carried out after the competency test product developed is declared valid and meets practicality. The trial used the One group pretest-pasttest study design, where the pretest was carried out using a written question sheet and the posttest was carried out using competency test products

Functionality aspect analysis is related to the software's ability to meet user needs. The percentage is obtained by using the following calculation:

$$\textbf{Eligibility Percentage} = \frac{\textbf{observed score}}{\textbf{expected score}} \textbf{ x 100\%}$$

Analysis of usability aspects related to the ease of software to be used by users. Testing usability aspects with a Computer Usability Questionnaire System (CSUQ) questionnaire developed by IBM uses a Likert scale as a measurement scale. According to Sugiyono(2010), the answers to each instrument using a Likert scale have a very positive to very negative gradation. The Likert scale used in the CSUQ instrument uses a scale of 5.

The results of the respondents' answers can then be calculated the highest and lowest values as follows:
Maximum Score = Number of Respondents x Number of Question Items x 5
After the highest value is obtained, it becomes a reference for determining the percentage with the following formula:

$$\frac{\textbf{Total Score}}{\textbf{Maximum Total Score}} \textbf{ x 100\%}$$

RESULT & DISCUSSION

Based on the results of the initial test (pre-test) it is very helpful to see the development of students' self-confidence at the beginning of learning without using edmodo and after being given learning treatment using edmodo the results obtained are very high and increase compared to when not using the Edmodo application. The use of edmodo can help students develop competence in the ability to use media, virtual collaboration and cognitive management which is in line with research results (Gomez, Magrenan&Orcos, 2015). This is done in utilizing ICT from nearby sources such as wifi, smartphones, computers, laptops and internet cafes as expressed by (Shams-abadi, Ahmadi&Mehrdad, 2015)

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The results of testing the functionality of the percentage value of 94.15%. Then the value is converted to qualitative data, based on the media product rating scale from the percentage score obtained, the quality of the functionality software has a "Very Good" scale. It can be said that it meets the quality standards in the functionality aspect because the success percentage value is more than or equal to 80%. it can be concluded that the computer-based competency test of students' self-efficacy has met quality standards in the functionality aspect.

The usability test results percentage of 92%. The test results are converted into a qualitative scale then the results are "Very High". The criteria for a software is said to meet the quality standards of the usability aspect if the result of the percentage value of usability testing is more than 70%. So it can be concluded that this research has met the quality standards in the usability aspect.

Based on the results of the student self-efficacy questionnaire on the computer-based independent competency test, the percentage was 82.15%. Then the test results are converted into a qualitative scale so that the results are "Very High". So it can be concluded that the system used is running well, can help improve student self-efficacy in physics subjects and can increase student effectiveness in the use of computer-based competency test programs in physics subjects. Where the effectiveness states that the effectiveness of implementing computer-based independent competency tests is determined by four indicators, namely program quality, suitability of students' knowledge levels, incentives (teacher preparation in motivating students to use the program), and time (shortening the time used by students and teachers).

No.	Kategori	Persentase	Kriteria
1.	*Functionality* Media	94.15%	Very Good
2.	*Usability* Teacher	92%	Very High
3.	Student self-confidence questionnaire before treatment	55.81%	Enough
4.	Student self-confidence questionnaire bafter treatment	82.15%	Very High
Average		81.30%	Good dan Very High

Table 1. The results of the Computer-Based Student Self-Competency Test Assessment using Edmodo to increase Students' Self-Confidence By Expert Teachers, Teachers and Students of Physics Subjects

The results showed that there was a significant difference in the ability of students who had not used Edmodo media and students who had used Edmodo media. This is based on the results of the questionnaire obtained which obtained a very high value compared to the previous one. Based on these results, it can be concluded that there is an increasing difference between the abilities of students who have performed independent competency tests with Edmodo and the abilities of students who have not performed independent competency tests with Edmodo.

Edmodo media is a social media platform that is often described as facebook for schools and can function much more as needed. Edmodo is an interesting application for teachers and students with social elements that resemble Facebook, so

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that students are more interested in participating in the learning process. Edmodo, which is also collaboration-based, is an application that is quite safe for teachers and students to use. A teacher, school, can easily manage a system that provides the best features and practically eliminates our anxiety about activities that students usually do with the internet, especially Facebook. With this platform it will be easier to monitor student interactions in Edmodo. No one can enter the room without an invitation, and students can't use it to connect with strangers as is the case on facebook, and can easily find out if there's a violation/foreigner enrolled in an edmodo managed class.

CONCLUSION

From this research, it can be concluded that the independent competency test development in this research: (1) has met the standard of functionality aspect, which is effectiveness in processing the competency test results accurately, practical and effective. (2) that this research has met the standards of usability aspects, namely the ease of the software to be used by users and (3) Based on the results of the student self-efficacy questionnaire on the computer-based independent competency test, the results are "Very High" it can be concluded that the system used is running well, can help increase student self-confidence in subjects physics.

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