

Improving Student Learning Experiences Using Modular Technology Optimization: Object Oriented Dynamic Learning Environment Learning Development

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ABSTRACT

This study aims to determine the effectiveness of using Moodle-based e-learning to increase student learning outcomes in the introductory material of accounting 2 at Andalas University, Payakumbuh campus 2. Learning using one of the open source e-learning software based on Moodle is a student learning process that has just been implemented at Campus 2 Payakumbuh. The research sample is students of the second semester of economics faculty. The design used in this study is probability sampling. Data were collected using a questionnaire sent to students who are still active in college and who are taking introductory accounting 2 at Andalas University, Payakumbuh campus (125 people). The data obtained were analyzed using the smart PLS version 3.0 application. The results of the analysis show that the material given by the lecturer before the use of moodle shows a significant effect of 35.6% on student understanding, whereas after using moodle it is found to have an effect of 20%. This means that the understanding of students before using Moodle is higher than after using Moodle. Based on the results of this study, it can be concluded that the use of Moodle-based e-learning for introductory accounting 2 is less effective in improving student understanding, however, using moodle will further improve learning methods and enrichment of material but not understanding of introductory accounting learning. While the implications of this study are: can be accepted as a contribution to improving student experience and understanding both traditional / conventional learning and by using the Moodle system.

Keywords: *Moodle-based e-learning, learning experience*

1. PRELIMINARY

The 1945 Constitution states that the goal of the State is to educate the nation's life. And Law No. 12 of 2012 describes higher education (article 4) states that the functions of higher education are: a). 'Developing abilities and shaping the character and civilization of a nation with dignity in order to educate the nation's life: b). developing an innovative, responsive, creative, skilled, competitive and cooperative academic community through the implementation of the Tridharma of Higher Education and; c). developing science and technology by paying attention to and applying Humanities'. All of them are in line with the

wave of the creative economy civilization that places human creativity as the main production in economic activity (Howkins, 2001).

Education plays an important role in the development and continuity of a nation. With education, it is hoped that human beings who have a strong soul and spirit will be born in supporting and implementing development in accordance with national goals. For the development of quality human resources which are the most valuable assets in the development of the country, education is needed. Good and bad educational processes can be seen from the learning given.

Based on the results of analysis / observation and interviews at lectures, it is known that there are still many students who are less active in discussing and delivering results, making assignments, late submitting assignments, lack of independence in reading literature and students tend to imitate without curiosity how to solve problems. The learning process is still dominated by lectures and tutorials in front of the class, although the supporting facilities for the learning process are adequate such as a computer laboratory, which is equipped with a computer along with an LCD and a sound system, and an integrated network system that connects to the internet (wifi) network has been developed.

The use of this conventional method does have the advantage of being able to make students have the same view in a short time and learning objectives can be conveyed easily (Moestofa and Sondang, 2013). However, the use of this conventional method has a weakness, namely that in addition to causing verbalism, it also does not invite students to actively find material independently, because students will be less invited to think and live the message conveyed (Wahyuni dan Maureen, 2010). The face-to-face learning method that is usually done in the classroom is a traditional and conventional learning method. This conventional method is applied usually due to limited time in teaching. This limitation can be minimized by utilizing learning media in order to further increase benefits such as more clarity of information, clarifying presentation, improving learning processes and outcomes. This is in line with the opinion of Arsyad (2011) which states that the use of media is to reduce the limitations of space, senses and time.

2. MEDIA

The use of learning media is very important to support the success of the learning process in the classroom, one of which is computer-based learning media (Prasetya, et al., 2008). The use of computer media is designed to motivate students and increase their knowledge and skills (Amayati and Mariono, 2010). Therefore, the media needed is the use of computer-based electronics and the internet with e-learning using Moodle technology. Moodle is an online media (web based) that has changed the learning media that is usually offline.

The formulation of the problem in Based on the description above, the problem formula of this research is how much influence the modular technology of

object-oriented dynamic learning environment (module) has on student learning outcomes in accounting introductory material in semester 2. The purpose of this study is to determine the effectiveness of using Moodle-based e-learning with increasing student understanding of introductory material on accounting 2 at Andalas University campus 2 Payakumbuh.

3. RESEARCH METHODS

This research was conducted at the Faculty of Economics, campus II Payakumbuh, West Sumatra in the even semester 2019/2020. This research is an explanatory research through hypothesis testing. By using 2 versions of statistical analysis, namely regression analysis and structural equation modeling (SEM). Sampling was done by using propulsive sampling technique, namely by taking 4 classes. The research design used is. The independent variable in this study is the use of learning media and learning methods. The dependent variable in this study is an increase in learning experience.

The method of data collection was carried out by observation, test, questionnaire and interview methods, the form of the instruments used were: syllabus, learning implementation plan, Moodle-based e-learning media, affective assessment observation sheets (attitudes), assessment observation sheets and questionnaire sheets used for know student responses to learning. The analysis used in this study was SEM PLS version 3.0. In addition, the analysis for the cognitive aspects is the difference between the two averages and the student test results, namely the Mid-Semester Examination (UTS) and the Final Semester Examination (UAS). The description of the research studied is illustrated in Figure 2 below :

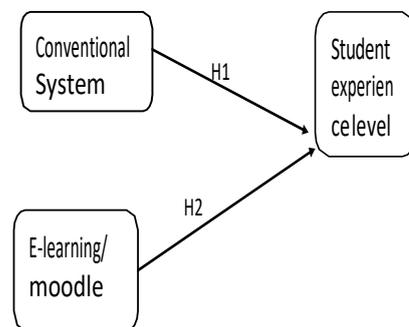


Figure 2
Research conceptual framework

4. RESULTS AND DISCUSSION.

The results of this study include learning outcome data from the psychomotor, affective, and cognitive aspects. Assessment of the psychomotor aspects of students is taken from observations during class (before the UTS / using a conventional system) and at the time of UAS (after using e learning). The results of the analysis of the observation of students' psychomotor scores for each aspect can be presented in Figure 1

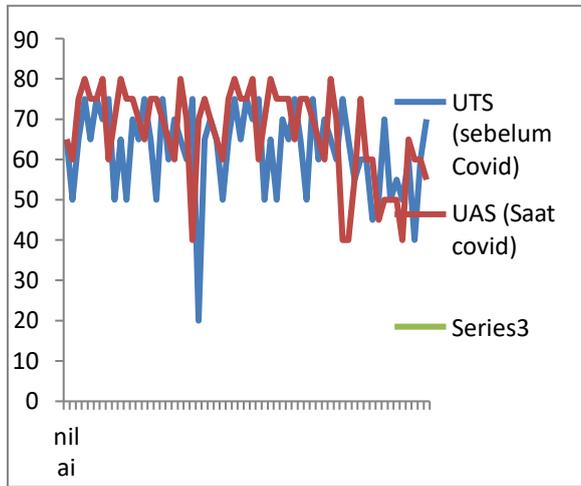


Figure 1 Mid-Term Exam and Final Exam Results Introduction to Accounting 2

Based on Figure 1 above, there is a striking difference in the UTS scores carried out with the conventional system, while the UAS is held after using the e learning system. In the figure, it is illustrated that the scores obtained by the average student range from 50-75 vulnerable numbers, while the UAS scores show values ranging from 60-80. It illustrated that the rate of of absorption of matter is increasing. This is because students after the pandemic are generally at home a lot and they use more time using computers to carry out learning and can be faster to get other supporting knowledge obtained from Google. Meanwhile, during the UTS before the pandemic, students generally studied conventionally where students only got knowledge from the enlightenment from the lecturer who was carried out in front of the class.

The use of this conventional method does have the advantage of being able to make students have the same view in a short time and learning objectives can be

conveyed easily (Moestofadan Sondang, 2013). Its weakness also causes students to be lazy to seek other information and rely solely on lecturers. Here, many students are less active, less independent, and students just imitate without any willingness to solve problems

The influence of the conventional system on the level of student understanding. To see the influence between variables in this study, you can use R Square (R²) (Hair et al., 2017). The effect of this research variable is shown in table 1 below

Table 1 Analysis of Material Absorption Before Using e learning / Moodle

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
1 (Constant)	16,476	1,868		8,821	,000
dosen	,484	,115	,356	4,224	,000

a. Dependent Variable: materi
 materi R = 0,356
 R Square = 0,127
 Sig = 000

Based on Table 1 above, it can be seen that the value of R Square (R²) for the material variable is 0.356. This value indicates that the student understanding variable can be explained by the conventional material delivery variable of 35.6% while the remaining 64.4% is influenced by other factors not explained in this study. It is found that the provision of introductory accounting course material at the Andalas University campus 2 economics faculty which has attended conventional lectures has a positive and significant effect on the level of student understanding. The amount of influence is 35.6%. This is in line with the views of Moestofa and Sondang, (2013) which state that the use of conventional methods can make students have the same view in a short time and learning objectives can be conveyed easily.

4.2 The effect of using e learning / moodle on the level of understanding of students

Meanwhile, to see the influence between after using e learning / Moodle is shown in table 2 below:

Table 2 Analysis of Material Absorption After Using e learning / Moodle

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
1 (constant)	8,756	2,488		3,520	,001
dosen	,470	,208	,200	2,259	,026

a. Dependent Variable: materi

R = 0,200

R Square = 0,040

Sig = 026

Based on Table 2 above, it can be seen that the value of R Square (R²) for business performance variables is 0.200. This value indicates that the variable student understanding can be explained by the variable of teaching material delivery by 20% and the remaining 80% is influenced by other factors that are not explained in this study. This is possible because the use of e learning applications using computers or cellphones makes students less creative and only relies on what they get from computers so that students can take notes and discuss the questions given.

This is in line with the opinion of Prasetya, et al., (2008) which states that the use of learning media is very important to support the success of the learning process in the classroom, one of which is computer-based learning media. This is in line with Arsyad, (2011) which states that in addition, learning media can overcome the limitations of senses, space and time. And the same opinion was conveyed by Amayati and Mariono, (2010) which stated that the use of computer media was designed to motivate students and increase knowledge and skills.

In addition to the open opinion questionnaire results, students also expressed some opinions that generally complained about the use of e learning, besides their unpreparedness there were also several complaints that were useful for improvements in the teaching system carried out including: There are still many students and lecturers who do not have knowledge in the use of e learning with the Moodle system. There are still many network disruptions where they live and it is difficult to access the internet, so it will take some time to fix all these complaints

5. CONCLUSION

Based on the results of the research and data analysis that has been done, it can be concluded that the use of Moodle- based e-learning is less effective on student learning outcomes, especially in introductory accounting courses. The effect of using e learning using Moodle has a slight effect, namely 20%. This is rather low compared to conventional learning systems or before using e-learning.

moodle, which is 35.6%. However, the UAS scores obtained were higher, namely in the range of 50 - 80, while before using moodle the UTS scores ranged from 40 - 70. While the results of the open opinion most of the students expected to continue using the conventional system, maybe because the introductory accounting course is a subject that involves numbers. -number and need serious attention to learn it.

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