Comparative Analysis of E-learning Methods to Improve Students English Outcome during Covid-19 Pandemic Period

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Abstract. The result of the English Proficiency Test (TOEP) of UMS students in the first and second periods of 2021 shows an increase in student failures, from 33.96% to 50.82%. The increase of TOEP failures means the possibility of mistakes and deficiencies in the teaching and learning process, in point of fact that learning in the Covid-19 pandemic era does not allow face-to-face lectures. The purpose of this research is to compare the results of the class-based learning model with the two e-learning model- Schoology and Open Learning. The aids of this research are projected to provide an advice to the university in choosing e-learning platform to reduce student failure rates in the TOEP exam. This research uses Analysis of Covariance (ANCOVA) to compare differences in learning outcomes between the three groups of students- traditional class, e-learning Schoology and e-learning Open Learning groups. The assumption test of linearity and homogeneity of the data has been fulfilled by showing a significance value of 0.891 which is greater than the 5% significance limit. The results show that there is a statistically significant interaction between learning methods and GPA for their effect on students^ TOEP scores. Research also shows that on average students using the Schoology platform have the highest TOEP scores compared to other methods. This condition is indicated by the average value of 422.99 which is higher than the other group methods.

Keywords: TOEP, Schoology, Open Learning, Covid-19

1 Introduction

The supper of Covid-19 has caused to the cessation of educational institutions in Indonesia and also all over the world. This condition tried the readiness of universities to deal with an emergency that needs the assistance of innovative technology containing hardware and software to facilitate effective online learning. The pandemic situation fast-tracked the development of the online teaching-learning atmospheres in order not to be disrupted the learning process. There are many universities have become concerned in how to best provide course content online, participate learners and conduct assessments. Therefore, Covid-19 although being a danger to civilization, has advanced institutions to spend an investment in online learning.

Online teaching learning system has converted as a wide-spread training over the ages as integrated tool and technology in education. Prior readings represent its practice. Smart and Cappel (2006) inspect students' awareness of integrating online modules in two undergraduate commercial courses where students accomplished online learning modules earlier before class discussion. The effects reveal that members in an elective course ranked the online modules meaningfully better than those in a required course. Commonly, members in the elective course ranked the online modules marginally positive while those in the required course rated them marginally negative. These results acclaim that teachers should be selective how they integrate online units into traditional, classroom-delivered courses. Sharpe and Benfield (2005) examine the students understanding of online learning at Oxford Brookes University. They underlined several collective themes in the student's online learning experience and praises suggestions such as the emotionality of the student practice and concern about time and time organization. Furthermore, online learning improvements based on modifications to conventional pedagogy remind the most contradictions in student insights. Fedynich, Bradley, and Bradley (2015) inspected graduate students' perceptions of online learning. The conclusion exposes that communication between students and the instructor has a main influence on their satisfaction. Additional tests recognized that learner was sufficient support that linked to campus resources, and the necessity for varying instructional strategy and delivery to help students' desire to study. In difference, learners were greatly satisfied with the clarity and organization of education using sufficient resources. The teacher's role was recognized as being important to students' satisfaction. In alignment with this, the assumption of an Indonesian study on the students' perception of using e-learning shows positive reactions to the assessment, learning outcomes, and evaluation (Mu'in and Amelia, 2018). Those studies may create positive responses in a well-established situation and way up into advanced implementation of online learning.

Providing the possibility of online learning, Aparicio, Bacao, and Oliveira, T (2016), divides online learning into two major areas; learning, and technology. Learning is the cognitive process for achieving knowledge, and technology is the instrument to support the process of accomplishing. The implementation of technology can be various, such as the use of self-paced independent study units, asynchronous interactive sessions (where participants interact at different times), or synchronous interactive settings. The application of learning and technology is best viewed from the students' perception because they have direct experience of it. As an illustration, the piloted research by Armstrong (2011) on the students' perceptions of online learning and instructional tools shows that the students do not recognize the negative attributes of technology to be inherent. Conversely, online learning implementation in rural areas may have more difficulties than it seems but few studies can be found.

The advantages of web-based learning are many and varied. The researchers have demonstrated the advantages of web-based learning such as time saving, cost reduction and space saving, and increased learning opportunities for non-school students. Moreover, experts predict that in the next few decades, more than 50% of the student population will learn using technology and online learning. Compared to traditional systems, web-based technologies can make students more motivated and interested because they

can access multimedia and other innovative tools. Online learning not only develops learner interaction, but also provides a positive learning environment. When they do trials with online questions, such as multiple-choice questions and short answer questions, the system will respond directly and provide feedback in the form of available corrections.

Online teaching learning systems are web-based software for distributing, tracking, and managing courses over the Internet. It includes the implementation of developments in technology to direct, plan and provide the learning content, and to assist two-way communication between learners and teachers. The systems may contain features such as whiteboards, conversation rooms, surveys, quizzes, discussion forums and assignments that permit teachers and learners to communicate online and share course content. These features offer useful and suitable ways to accomplish learning goals. Universitas Muhammadiyah Surakarta are using Schoology, Open Learning, Microsoft Teams, Google Site as learning management systems along with some applications for video conferencing. Other commonly used video conferencing solutions include Zoom, and Google Meet.

With the escalation in usage of online courses during Covid-19, it is essential to measure their effectiveness with respects to teaching and learning from various stakeholders. Consequently, the existing study explores the insight of teachers and students regarding the advantages, limitations and recommendations for online learning in UMS. The findings will aid to categorize whether the Pandemic period of English study is equal to the Pre-Pandemic Period.

2   Method

The purposes of this study are to develop eLearning as English learning media and to compare the results of the classroom-based learning model with the two learning models eLearning; Schoology and Open Learning. This research provides results to advice the University to reduce the failure rate of students in the TOEP exam, and improve students' English skills in general.

The learning design scheme is shown in Fig. 1. The lesson plan begins with an introduction that contains clear instructions for students on flow diagrams and learning contracts. Subsequently, students can choose the desired branch of learning which contains learning topics for each session. Staged exams are carried out to get feedback on learning outcomes and become a means of self-correction for students for their strengths and weaknesses in understanding the course material. The learning flow is at that point continued with the Final Exam as one of the main components of the final learning outcome.
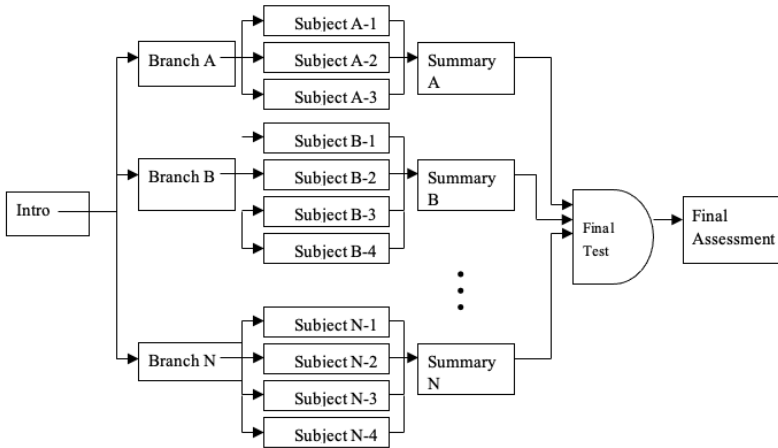
Fig. 1. Design of Structured Active Learning Method

Learning is designed with a parallel method; each student can access each branch with certain learning subjects. This is based on the purpose of learning to focus on a particular subject. The research focuses on two outputs, improvement of learning media and analysis of learning outcomes. Improvements in learning media apply a system available on schoology.com which allows teachers to manage learning materials that are prepared with student feedback features. Feedback is in the form of multiple-choice post-test questions which are appropriate with current learning topic.

Fig. 2 shows the learning framework developed through Schoology. The learning media consists of 18 learning modules and involves 60 sub-modules of material. Each module is prepared with subject related topic exercises and learning assessments.
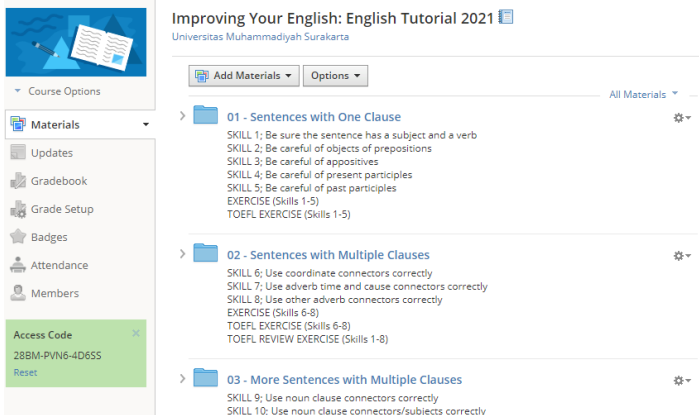

Fig. 2. Improving Your English Administrator Page in Schoology

Each module consists of several sub-materials (skills). And each skill is provided with structured exercises that allows feedback of the measurement of students' abilities in these skills.

3 Result and Discussion

This study finds out whether there were differences in student learning outcomes based on the period before and during the Covid-19 pandemic. There are three categories of students.

1. First group named as traditional or conventional classroom. This classroom term is before the pandemic of Covid-19 (Pre-Pandemic) which is the period before the official announcement of the University of Muhammadiyah Surakarta concerning online learning (Before April 2020)
2. Second group named as Schoology classroom. The classroom term is the period since the start of the online learning policy using the Schoology platform (April 2020 to June 2021).
3. Third group named as OpenLearning classroom. The classroom period is after the second phase with the start of the online learning policy using the OpenLearning platform (June 2021 until now)

Research on the data obtained is whether there are differences in student English learning outcomes based on the three categories of student learning. Table 1 shows the learning outcomes of the data samples of each group.

Table 1. Profile of data sample to the three categories

Group	Number of Data Samples	Average of TOEP	Deviation Standard of TOEP	Average of Student GPA	Deviation Standard of Student GPA
1	246	398.07	92.16	3.20	0.26
2	246	422.99	82.01	3.16	0.27
3	246	408.70	88.65	3.15	0.27

The number of samples were was 738 students who were categorized into three groups. First group is the conventional learning group before the pandemic (before April 2020), second group is the schoology group where learning uses the online schoology platform, and third group is the OpenLearning group where learning uses the OpenLearning platform.

The study observes several scopes as follows.

1. Is there a statistically significant interaction between learning methods and student GPA in their effect on the resulting student TOEP scores?
2. Is there a statistically significant difference in the TOEP scores of students in the conventional method, the Schoology method and the OpenLearning method at the

University of Muhammadiyah Surakarta by controlling for the student GPA variable.

3. Is there a statistically significant effect or relationship between GPA on the TOEP score formed by students by controlling the learning method variable

The research first examines the assumptions of linearity and homogeneity of the data. Linear assumption is a statement that there is a statistically linear relationship between covariates and independent variables. This study uses SPSS software to assist data analysis. Data adjustments need to be adapted to the display format applied by SPSS.

Table 2 is the result of the Correlation Coefficients with Pearson's choice using the SPSS program. Determination of the linearity assumption test can be measured by comparing the value of Sig. (2-tailed) to the significance value of 5% (0.05). Table 2 shows that the value of Sig. (2-tailed) is 0.000 which is smaller than the 5% significance value.

Table 2. Correlation Coefficients of SPSS Output

		toep	ipk
toep	Pearson Correlation	1	.590**
	Sig. (2-tailed)		.000
	N	738	738
ipk	Pearson Correlation	.590**	1
	Sig. (2-tailed)	.000	
	N	738	738

**Correlation is significant at the 0.01 level (2-tailed).

Thus, this situation indicates that the assumption of linearity is fulfilled. Or in other words, there is a strong reason to use the GPA variable as a covariate. Table 3 shows the value of Sig. the variable of the learning group method is 0.000.

Table 3. Tests of Between-Subjects Effects

Source	Type III Sum of Square	df	Mean Square	F	Sig.
Corrected Model	2.134E6[a]	3	711291.480	144.208	.000
Intercept	252938.324	1	252938.324	51.281	.000
kelompok	132706.664	2	66353.332	13.453	.000
ipk	2056949.847	1	2056949.847	417.029	.000
Error	3620370.682	734	4932.385		
Total	1.298E8	738			
Corrected Total	5754245.122	737			

a. R Squared = .371 (Adjusted R Squared = .368)

Since the probability value for the learning group method variable is smaller than the 5% significance value, it can be concluded that there are statistically significant differences in the average TOEP scores of students in the conventional group, Schoology group, and Open Learning group by controlling for the student GPA variable.

Whereas the value of Sig. for the student GPA variable is also rate 0.000. Since the value is also smaller than the 5% significance value, this condition indicates that there is a statistically significant influence or relationship between the GPA variable on students' TOEP scores by controlling the learning group method. Otherwise, it can be stated, the higher the GPA, the higher the student's TOEP score will also lean towards to increase.

4   Conclusion

Laterally with the development of information technology, the implementation of eLearning platform in lectures plays an important role in the achievement of student learning. This study involved three groups of students; traditional class group, Schoology group and Open Learning group. Research shows that there is a statistically significant interaction between learning methods and GPA for their effect on students' TOEP scores. The average student using the Schoology method has the highest TOEP score compared to other methods. This condition is indicated by the mean value of 422.99. This mean value is the highest compared to the other group methods. There is a statistically significant difference in the average TOEP scores of students in the conventional group, the schoology group, and the Open Learning group by controlling for the student GPA variable. There is a statistically significant effect or relationship between the GPA variable on students' TOEP scores by controlling the learning group method. Otherwise, it can be stated, the higher the GPA, the higher the student's TOEP score will also lean towards to increase.

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