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The Effect of Google Classroom-Based Learning on Written Skills of 10th Graders

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ABSTRACT

Communication skills are one of the skills that students must have in the Industrial Revolution 4.0. Based on the preliminary study at a public senior high school in Karanganyar, Central Java, students' written skills are still low due to the inaccurate method used by teachers. The applied knowledge that utilizes information and communication technology is needed to improve students' written communication skills. This study aimed to determine the effect of Google classroom-based e-learning on students' written communication skills. This research was a quantitative descriptive study. Students' written skills were measured using the written communication skills assessment instrument developed by Sonseca et al. (2015), which contains ten indicators. The data analysis technique used in this study was the paired sample t-test to compare the results of the pretest and post-test and the N-gain test. The results showed that the correlation value between indicators on the instrument was between 0.388 to 0.567, which means that all indicators used in the research instrument were valid. Besides, Cronbach's alpha value is 0.625, which means that the research instrument is reliable. The pretest means the score was 1.30, and the post-test means the score was 2.85. The results of the paired sample t-test showed a significant value of 0.000, and the results of the N-gain test showed a result of 0.41. Based on the tests' results, there are differences in students' written communication skills between before and after Google classroom-based e-learning.

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Keywords: E-Learning, Google Classroom, N-gain, Written Communication

INTRODUCTION

Education is a primary need for humans. Education can be done anytime and anywhere. Education is also a means of developing the potential to become creative, productive, virtuous, and responsible people. The development of the millennial era demands that humans become intelligent, selective, and competitive individuals to solve the problems they face (Rohana, 2017). Intelligence can be developed with an education system that can shape humans into creative, innovative, collaborative individuals, able to communicate well and solve problems at hand (Dipalaya, Susilo, & Corebima, 2016).

The ability to communicate is one of the essential skills of the 21st century (Sugito, Mulyani, Hartono, & Supartono, 2017) that each individual needs to master to achieve educational success (Wahyuni, Masih, & Rejeki, 2017). Communication is the essential skill of reading, writing, speaking, and listening. Mbowe in Komba (2014) stated that communication skills are a process that involves writing language, reporting, correspondence, and mastering the delivery of writing and speaking correctly. Meanwhile, Iksan et al. (2012) stated that communication skills are the process of exchanging information from someone who provides information both verbally and non-verbally to the recipient of information. Communication skills are divided into three types: oral, written, and interpersonal communication skills (Koehler & Hains-Wesson, 2018).

Written communication skills are communication activities using language media in written or meaningful words accompanied by the completeness of punctuation (Effendy, 2012). Students are expected to learn, think, and reason about something connected and conclusions drawn to produce systematic ideas through written communication skills (Effendy, 2012). Writing and written communication skills also include the use of images and data (Sparks et al., 2014), which aim to inform and convince readers (Arputhamalar & Kannan, 2016). Written communication skills can be in memos, proposals, papers, or reports (Arputhamalar & Kannan, 2016).

The observations made at Senior High School of Kebakkramat, Karanganyar, showed problems in communication skills, primarily written communication skills. Research conducted using the instrument of written communication skills developed by Sonseca et al. (2015). Based on observations made in Kebakkramat Senior High School, ten indicators of written communication skills show an average score of 12.71. Based on an instrument developed by Sonseca et al. (2015), the score ranges from 8 <15 falls into the low-medium category. The development of information and communication technology has penetrated all fields, one of which is education (Bagon, Gačnik, & Starčič, 2018).

The development of information and communication technology in education requires teachers and students to master the technology to support a more effective and efficient learning process (Bagon et al., 2018). Therefore, it is necessary to apply information and communication technology in learning to support students to become active individuals to achieve meaningful and interactive learning (Al-Hariri & Al-Hattami, 2017). One of the learning methods that integrate information and communication technology is e-learning (Afrianto, 2012). Ariani (2018) defines e-learning as the use of multimedia and internet technology to improve the quality of learning by facilitating access to learning resources for remote services and collaboration. One form of e-learning that is often used is flipped classrooms (Ariani, 2018). One of the virtual flipped classrooms is Google classroom.

Google Classroom is an ideal learning multiplatform for improving communication skills (Solikh, Sulisworo, & Maruto, 2018). Google Classroom provides many features that help teachers manage class, manage study time, and improve communication with students without space constraints (Iftakhar, 2016). One of the features that support communication skills is the communication feature. With this feature, teachers and students can communicate by paying attention to sound and correct language rules and can exchange information

without any time and space limitations. Also, both can take advantage of the communication feature to attach files in various forms to improve communication skills (Iftakhar, 2016). Based on the background described, a study entitled "The Influence of Google Classroom-Based E-Learning on Written Communication Skills of Class 10th MIPA 5 of Public Senior High School of Kebakkramat, Karanganyar" will be carried out.

METHODS

This research was conducted in Class 10th MIPA 5 of Public Senior High School of Kebakkramat, Karanganyar, in the 2019/2020 school year. The validity and reliability test of the written communication skills instrument was carried out on 30 science students of grade 10 senior high school in Surakarta. This research design is the Pre-Experimental Design, which uses the pretest and post-test in one study group. Pretest data was obtained by giving an assignment in writing a report on a biology subject before applied google classroom in the learning process. Meanwhile, the post-test data was obtained by providing an assignment in writing a report on a biology subject after applying google classroom in the learning process. The following is a table of the research design used:

Table 1. Research Design

Pretest	Treatment	Post-test
Y ₁	X	Y ₂

Note:

Y₁ = score before treatment

X = treatment with the application of Google classroom-based e-learning

Y₂ = score before treatment

The population in this research was all science students of grade 10 Kebakkramat Senior High School. The sample in this research was all students of Class 10th MIPA 5 Public Senior High School of Kebakkramat, Karanganyar. The saturated sampling technique did the sampling. The data collection technique used the observation sheet of students' written communication skills based on the instrument developed by Sonseca et al. (2015) with ten indicators. The criteria for the level of students' written communication skills are presented in table 2.

Table 2. Written communication skill level criteria

Low	Low-Medium	Medium	Medium-High	High	Master
0 to <8	8 to <15	15 to <33	33 to <40	40 to <46	46 to 50

(Sonseca et al., 2015)

The data prerequisite test used the normality test and the homogeneity test. And then, the data was used to test the hypothesis using the paired sample t-test and N-gain test. N-gain test is calculated using the following formula:

$$N\text{-gain} = \frac{\text{Post-test score} - \text{Pretest Score}}{\text{Maximum score} - \text{Pretest Score}}$$

The criteria for grouping the results of the N-gain test according to Hake (1999) are presented in table 3.

Table 3. N-gain grouping criteria

Range	Criteria
$\geq 0,7$	High
0,3 to $< 0,7$	Moderate
$< 0,3$	Low

(Hake, 1999)

RESULTS AND DISCUSSIONS

The data presented in the form of pretest and post-test scores of each indicator used the observation sheet of written communication skills for class 10th MIPA 5 Public Senior High School of Kebakkaramat, Karanganyar. Both data were analyzed based on indicators to see differences in students' written communication skills before and after implementing Google classroom-based e-learning.

The prerequisite test results used the normality test and the homogeneity test. The normality test used is the Kolmogorov-Smirnov. The results of the Kolmogorov-Smirnov normality test can be seen in table 4.

Table 4. Normality Test results

	Kolmogorov-Smirnov ^a		
	Statistic	df	Sig.
Pretest	,144	34	,073
Posttest	,176	34	,079

a. Lilliefors Significance Correction
(SPSS, 2020)

Table 4 shows that the pretest significance value is 0.073, and the post-test significance value is 0.079. Based on the decision criteria according to Nismalasari, Santiani, & Rohmadi (2016), if the Kolmogorov-Smirnov significance value is > 0.05 , then the data is normally distributed. Thus, the pretest and post-test data used were normally distributed.

The results of the homogeneity test using the Levene test can be seen in table 5.

Table 5. Homogeneity Test results

Levene Statistic	df1	df2	Sig.
,749	1	66	,390

(SPSS, 2020)

Table 5 shows that the Levene test with a significance level of 5% has a significance value of 0.390. According to Nismalasari et al. (2016), based on the decision criteria, if the significance value is > 0.05 , the data variance is homogeneous.

The results of the average pretest and post-test scores for each indicator indicate that the average post-test score is higher than the average pretest score. The average pretest and post-test scores for each indicator can be seen in Table 6.

Table 6. Average Pretest and Posttest Scores

Indicators	Average Score	
	Pretest	Post-test
Effective introduction	1.21	3.29
Main objectives and ideas	1.15	2.12
Students present results and well-founded	1.74	3.65
Conclusions appropriated and concise	1.32	2.32
The report is clear, structured, and coherent	1.29	2.97
Formal style and format	1.21	2.88
Grammar (orthography)	1.21	2.35
Appropriate technical language	1.12	2.38
Discuss and justifies the information presented	1.41	2.65
Effectively uses graphical resources giving quality to the report	1.06	3.32
Total Score	12.71	27.94

Based on the Sonseca et al. (2015) instrument, the highest scores pretest and post-test of each is 50, which is included in the master category. Meanwhile, the lowest scores pretest and post-test of each is 0, which is included in the low category. Table 6 shows that the average pretest score before treatment was 12.71. Based on Sonseca et al. (2015), the score range 8 to <15 falls into the low medium category based on the written communication skill level category. Meanwhile, the average post-test score after being given treatment in e-learning based on Google classroom was 27.94. The score range 15 to <33 falls into the medium category. These two results indicate that the application of Google classroom-based e-learning can improve students' communication skills.

The results of hypothesis testing using the paired sample t-test can be seen in table 7.

Table 7. The results of the paired sample t-test

	T	Sig.
Paired sample T-Test	21,526	0,000

(SPSS, 2020)

Table 7 shows that the value of t_{count} is 21,526 with a significance of 0.000. While the value of the T-table with a significance level of 5% and df of 33 is 2.03452. Based on these results, the T-count value is higher than the T-table value. If the significance value of the paired sample t-test results <0.05 and $t_{\text{count}} > t_{\text{table}}$, then H_0 (there is no difference between pretest and post-test) is rejected, and H_a (there is a difference between pretest and post-test) is accepted. Thus, there are differences in students' written communication skills between before and after Google classroom-based e-learning.

The results of the N-gain test are presented in table 8.

Table 8. N-gain test results

Indicators	N-gain	Category
Effective introduction	0.55	Moderate
Main objectives and ideas	0.24	Low
Students present results and well-founded	0.59	Moderate
Conclusions appropriated and concise	0.27	Low
The report clearly, structured and coherent	0.45	Moderate
Formal style and format	0,44	Moderate
Grammar (orthography)	0.30	Moderate
Appropriate technical language	0.31	Moderate
Discuss and justifies the information presented	0.34	Moderate
Effectively uses graphical resources giving quality to the report	0.57	Moderate
Mean (Average)	0.41	Moderate

The results of the N-gain test based on table 8 show that eight of the ten indicators used have increased in the moderate category. At the same time, the other two indicators have increased in the low category. The N-gain average value is 0.41, which is in the medium category. The average N-gain test results show that the average of all indicators of writing communication skills between before and after the implementation of e-learning based on Google classroom has increased in the moderate category.

Based on the results of hypothesis testing, it is known that the application of e-learning based on Google classroom can improve students' written communication skills. The improvement of written communication skills experienced by students is in the medium category based on the N-gain grouping criteria, according to Hake (1999).

The Usage of google classroom in learning is helping students to share information related to material accompanied by various forms of literature that can be sent via attachment features. The amount of literature received by students can increase student knowledge. Then, increased student knowledge causes the emergence of a more profound student curiosity about something. It can encourage online discussion among the students, and the teacher can monitor them. Online discussion activities can be used as a problem-solving step to obtain the correct learning concept about a material. It can minimize the accuracy of misconceptions in students. Thus, students can present the material correctly, completely, structurally, and coherently when writing reports. Online discussion through google classroom can also add new terms for students so that the students' vocabulary increases and students can use terms correctly and appropriately. Google classroom also can be linked with google docs. Google docs provide a spelling check facility that functions to edit spelling and language. Hence, the student can learn about spelling and vocabulary so that the communication skills can improve (Putri, 2017)

When the information is completed with a concise and appropriate conclusion, the message recipient, who does not have much time to bring the complete information, can receive the essence of the information conveyed by looking at the conclusion. A formal writing style and format can increase the reader's reading interest in understanding the message. The use of images or graphics in writing can also increase the quality of written communication and convince message readers that the information conveyed is correct.

Based on the research results presented, it is known that Google Classroom use in learning can improve written communication skills. According to Subandi et al. (2018), interactive written communication could be built through Google Classroom. Putri (2017) also said that Google classroom is an effective communication medium that supports learning.

CONCLUSION

Based on hypothesis testing through paired sample t-tests, it can show that there are significant differences between before and after the application of Google classroom-based e-learning. Meanwhile, based on the results of hypothesis testing through the N-gain test, it shows that the resulting N-gain value of 0.41 is in the medium category. Thus, it can be concluded that the application of Google classroom-based e-learning can improve the written communication skills of class 10th MIPA 5 at Public Senior High School of Kebakkramat, Karanganyar, in the moderate category.

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