The Effectiveness of Blended Learning on Students' Scientific Article Writing Skills

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ABSTRACT
Students enrolled in general Bahasa Indonesia courses at universities must learn to write scientific articles. Students struggle to write scientific articles because it is difficult to find writing topics. Students also struggle to come up with creative ideas for scientific articles. Furthermore, the situation of students who work while studying facilitates the use of the blended learning method. Because it is supported by three face-to-face learning components, e-learning empowerment, and mobile learning, the collaboration of blended learning components has a positive impact on student learning development. Learning to write scientific articles was done in a hybrid fashion during the covid-19 pandemic. During the pandemic learning process, blended learning proved to be an extremely effective solution. The study employs an experimental design with research samples drawn from UPB State Administration students in the odd semester of 2021/2022. The findings revealed that blended learning was very effective in improving students' learning outcomes for writing scientific articles. Based on the results of statistical tests, the following conclusions were reached. First, the blended learning method has an effect on students' learning outcomes when it comes to writing scientific articles because $t_{hit} =$ 4,11 and $t_{table} = 1{,}657$ means t $t_{hit} > t_{tabel}$ with dk=25. Second, $F_{hit} < F_{tabel}$ (0,30 < 1,25), for interaction $\propto = 0{,}05$, indicates that there is no interaction in learning to write scientific articles using the blended learning method.

***Keyword**: Blended learning, scientific article.*

1. INTRODUCTION

Writing scientific articles is included in the university Bahasa Indonesia general course curriculum. Writing scientific articles is a requirement for students learning Indonesian. Students are expected to write scientific articles with integrity, effectiveness (Kurniawan, 2017), and originality so that they can be published in national journals and seminar proceedings. In order for students to be able to produce scientific articles, it is necessary for them to have access to learning strategies that can help them overcome obstacles.

According to the findings of observations and conversations with students, students struggle to write scientific articles since it is difficult to discover themes and titles for scientific papers. Actually, the lecturer provided a list of ideas to be used as titles for scientific publications while teaching students how to write them. However, students struggle to turn themes into titles and titles into scientific publications. Students who study while working make it difficult for them to concentrate when studying. Students who arrive on college are already tired from studying shifts, despite the fact that writing scientific articles demands a high level of focus and recall.

Students also struggle to come up with fresh topics for scientific articles. Ideas become capital for students in order for them to write correct and high-quality scientific publications. Writing scientific articles is a type of writing in which creative ideas and ideas based on observations, research, experiences, case studies, literature studies, or literature studies are expressed (Bliuc et al., 2007). Writing scientific articles must be useful and complete, as well as free of plagiarism. Based on Turnitin checks, students must be able to compose scientific articles with a maximum similarity rate of 20%.

Title, author information, abstract, introduction, methodology, discussion, conclusion, and bibliography are all required for creating a scientific article. Students take directions and systematics for writing scientific articles seriously and are eager to follow them. The required writing style is Times New Roman 12 and the minimum page length for the scientific publications is 10.

In order to write scientific articles based on student difficulties, a blended learning strategy is required. Learning to produce scientific articles using blended learning is quite successful (Burhanuddin, 2022). Face-to-face learning, e-learning, and mobile learning are all included in the blended learning strategy. Students can study online from home using Microsoft Teams 365, face-to-face on campus, use e-learning material, and access mobile learning to write scientific publications. Furthermore, students are permitted to evaluate journals in order to get references and widen their perspectives in relation to scientific themes and articles. Students are instructed to comprehend the subject (Klentien & Wannasawade, 2016) and research relevant journals with the titles of scientific publications under consideration in order to collect quality and relevant citations and quotations.

In addition to teaching students how to write scientific articles, the campus offers free internet hotspots, e-repository services, access to publications as references and citations, and hybrid learning. Students are led to comprehend scientific articles, their characteristics, technical writing, advice for writing scientific articles, and the ability to publish scientific papers in journals and seminar proceedings while learning to write scientific articles.

Students are given the opportunity to consult reference sources both online and offline while learning to produce scientific articles. Students can also access e-learning material handouts given by the campus. Mobile learning can be utilized to access the KBBI V application, the General Guidelines for Indonesian Spelling (PUEBI), and other applications that aid in the learning process of writing scientific papers.

As a result, the efficacy of blended learning in learning to write scientific articles can influence cognitive and raise student learning outcomes scores (Ardiansyah & Nana, 2020). Furthermore, learning makes use of cutting-edge technologies (Rasheed et al., 2020). This research is necessary because the blended learning method is suitable for overcoming difficulties in learning the abilities of writing scientific papers for students in higher education.

2. METHODS

The study employs an experimental design with research samples drawn from UPB State Administration Study Program students in the odd semester of 2021-2022. There were 26 students in the research sample. This study used statistical tests, such as normality, homogeneity, and hypothesis testing. The research technique entails distributing questionnaires and tests to the research sample during the study. The data analysis technique involves utilizing statistics to analyze the findings of questionnaires issued to pupils. Then, based on the findings acquired by pupils, student test results are examined.

3. RESULT AND DISCUSSION

a. Score of Learning Results for Writing Student Scientific Articles

The analysis of scores obtained the highest frequency in the interval class 9499, as many as 4 people, with the highest frequency percentage of 15.28 percent. The interval class 64-69 has the lowest frequency, as many as 24, with the lowest percentage of 15.38 percent. The following is the frequency distribution of test results for authoring student scientific publications.

Table 1. Frequency of Student Scientific Article Writing Test Results

No	Interval Class	Class Limit	X	*F*	%

1	64-69	63,5−69,5	66,5	4	15,38
2	70−75	69,5−75,5	72,5	6	23,07
3	76−81	75,5−81,5	78,5	6	23,07
4	82−87	81,5−87,5	84,5	3	11,53
5	88−93	87,5−93,5	90,5	3	11,53
6	94−99	93,5−99,5	96,51	4	15,28
		Total		**26**	**100%**

b. Normality Test of Student Scientific Article Writing Results

Table 2. Normality Test of Student Scientific Article Writing Results

No	Xi	Fi	$Xi - \bar{x}$	$Fi.Xi$	$Fi.Xi^2$	Fk	Zi	$F(Zi)$	$S(Zi)$	$\lvert F(Zi) - S(Zi) \rvert$
1	**65**	4	-15,57	260	16900	4	-1,52	0,0643	0,153	0,089
2	70	2	-10,19	140	9800	6	-1,02	0,1539	0,230	0,076
3	75	4	-5,19	300	22500	10	-0,52	0,3015	0,384	0,083
4	80	6	-0,19	480	38400	16	-0,01	0,504	0,615	**0,111**
5	85	3	4,80	270	21675	19	0,48	0,6844	0,730	0,046
6	90	3	9,80	280	24300	22	0,98	0,8365	0,846	0,0096
7	95	4	14,80	380	36100	26	1,48	0,9306	1	0,0694
Jumlah		**26**		**2085**	**169675**					

$\bar{x} = \frac{\sum Fi.Xi}{n} = \frac{2085}{26} = 80{,}19$

$Zi = \frac{Xi - \bar{x}}{S}$

$\text{SZ}i = \frac{Fk}{n}$

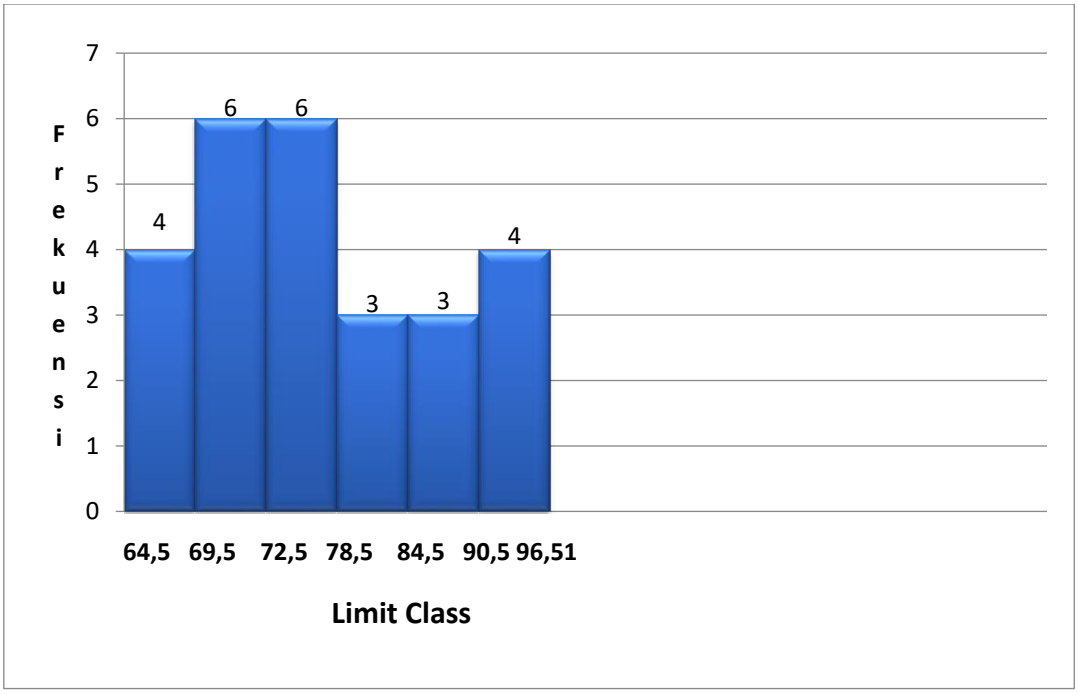
$S^2 = \sqrt{\frac{n\,(\sum Fi.Xi^2) - (\sum Fi.Xi)^2}{n(n-1)}}$

$= \sqrt{\frac{26(169675) - (2085)^2}{26(26-1)}}$

$S^2 = \sqrt{98{,}96}$

$S = 9{,}94$

From the table obtained L_{hit} = 0,111, sedangkan L_{tabel} t the real level $\propto$ (0,05) 0,196. So, because $L_{hit} < L_{tabel}$, t can be concluded that the data is normally distributed.



Gambar 1. Histogram of Learning Outcomes to Write Scientific Work

The normality test of student learning outcomes in writing scientific articles using Liliefors is shown in the following table.

Tabel 3. Normality Test Score Learning Results Writing Student Scientific Articles

No	Sample		∝	L_0	L_t	Description
1	Class	n = 26 $\bar{x}$ = 80,19 Fi. Xi = 2085 Fi. Xi^2 = **169675** S^2 = 98,96 S =9,94	**0,01**	0,111	0,196	Normal

The resulting L_0 in table 3= 0,1251, while L_t pada (∝) 0,05=0,190. From these results it is stated that. So, the results of the student's scientific article writing skills test are normally distributed because L_0 = 0,111 < L_t.= 0,196.

c. Homogeneity Test Score Learning Results Writing Student Scientific Articles

Homogeneity test on the test scores for writing scientific articles using the F test formula.

Tabel 4. Homogeneity Test of Learning Outcomes in Writing Scientific Articles

No	Sample	N	S^2	F_{hit}	F_{tabel}	Description
1	Experiment Class	**26**	**98,96**	**0,30**	**1,25**	**Homogen**

In table 4, the resulting F_{hit} is 0,30 dan F_{tabel} = 1,25. It can be concluded that the class has a homogeneous variance because F_{hit} < F_{tabel} pada dk=25 for the sample on the test scores for writing scientific articles.

d. Uji Hipotesis

Hypothesis testing was carried out to see the effectiveness of blended learning on scientific article writing skills. In the following, the hypothesis test is carried out as follows.

Tabel 5. Hypothesis

No	Sample	N	S_{gab}	$\propto$	dk	t_h	t_t	Description
1	Experiment Class	26	**9,94**	**0,05**	**25**	**4,11**	**1,657**	Accept H_1

The resulting t_{hit} is 1,657 and t_{tabel} = 1,657 (dk 25). t can be concluded from the table that H_0 rejected dan H_1 accepted because $t_{hit} > t_{tabel}$. It can be concluded that the score of learning outcomes of scientific article writing skills has a significant effect using the blended learning method.

e. The Effectiveness of Blended Learning on Scientific Article Writing Skills

Blended learning is a highly successful way for learning to write scientific publications. Students are taught perceptions about the content for writing scientific articles while learning to compose them. Students are provided open access to information so that they may understand and actively write scientific articles. Students are exposed to hybrid learning. Some students study online from home, while others attend class in person. This is still done effectively so that students can gain experience writing scientific articles and publish them in journals, conferences, and book chapters.

Face-to-face learning to write scientific publications is actually more successful for pupils than online learning from home. Students complain about faulty internet networks, insufficient internet quotas, professors' voices that are not properly heard when delivering material, and some even fall asleep when studying online from home. It is less effective, thus students choose to learn face-to-face in class, even though they must follow the COVID-19 health protocol during the endemic time.

Learning is accomplished in a hybrid manner by combining three components of blended learning: face-to-face, e-learning, and mobile learning (Husamah, 2014). One component of blended learning in scientific article writing skills is face-to-face learning. Students rate face-to-face learning as effective because it makes it easier for them to absorb student learning materials. Students can question professors directly and even debate with their peers. Students agree that face-to-face learning is more enjoyable and free of impediments.

The second component makes use of e-learning. Students can access e-learning at any time and from any location, making it convenient for them. Students get free access to the e-learning service http://elearning.upbatam.ac.id and the repository http://repository.upbatam.ac.id. The given e-learning makes it very simple for students and instructors to access lecture material at each meeting. Students who study online or in person can use e-learning at any time.

Mobile learning is the third component. Mobile learning is a type of learning that uses an Android-based application to complement course content for scientific article writing. Students can use the KBBI V program, General Guidelines for Indonesian Spelling (PUEBI), and paraphrasing to help them write scientific articles. Students produce scientific articles using the General Guidelines for Indonesian Spelling (PUEBI) (Oktavia & Hulu, 2017). All of these applications help students learn to write scientific articles. It can also be used to track plagiarism results from student scientific papers. Furthermore, in order to write scientific publications, pupils must have a large vocabulary (Susanto et al., 2020). Mobile learning can boost students' learning motivation and increase critical thinking skills (McCann, 2015; Augustina et al., 2022).

Blended learning can have an impact on student learning results. The turnitin yield level was also less than 20% after the turnitin check was performed on each student's scientific paper assignment. As of June 2022, the results of the assignment to write student scientific publications had resulted in the publication of six student articles.

Table 6. Publication Results and Outputs from Student Scientific Article Assignments

No	Students Name	Journal Link	Published Edition
1	Indar Jaya	https://idebahasa.or.id/escience/index.php/home/article/view/19	Desember 2021
2	Telutci	https://idebahasa.or.id/escience/index.php/home/article/view/20	Desember 2021
3	Stanley	https://jurnal.radenwijaya.ac.id/index.php/NIVEDANA/article/view/324	Desember 2021
4	Gusnia	https://journal.stisipolrajahaji.ac.id/index.php/jisipol/article/view/65/65	Februari 2022
5	Resa Desmisari	http://ejournal.baleliterasi.org/index.php/alinea/article/view/172	April 2022
6	Suryani Barimbing	https://idebahasa.or.id/escience/index.php/home/article/view/21	Mei 2022

Gambar 2 Proses Pembelajaran Menulis Artikel Ilmiah

f. CONCLUSION

The research was conducted to see the effectiveness of blended learning on students' writing scientific article skills. Learning is carried out in a hybrid way by applying three components of blended learning, namely face-to-face, e-learning, and mobile learning. The collaboration of the three components is very helpful and overcomes the problems faced by students in learning to write scientific articles. First, the data is normally distributed because L_{hit} = 0,111, while L_{tabel} at the level of significance $\propto$ (0,05) 0,196. Second, the data has homogeneous variance because the resulting 0,30 dan F_{table} = 1,25. at dk=25. Third, blended learning has an

effect on scientific article writing skills with t_hit generated is t_{hit} = 1,657 dan t_{table} = 1,657 (dk 25). t can be concluded from the table that H_0 rejected dan H_1 accepted because $t_{hit} > t_{table}$.

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