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Flip-Book Based on Screencast-O-Matic (SoM) Video as An Asynchronous System

The Impact on University Students' English Learning Outcomes

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ABSTRACT

This study aimed to improve students' English skills after using a Flip-book based on Screencast-O-Matic Video as an asynchronous system. This study employed a quantitative approach that is mainly focused on true experimental research design, particularly a pre-test-post-test control group design. The population in this study was university students who studied the Economics, Civil Engineering, Environmental Engineering, Informatics Engineering, Public Administration, and Marine Science Study Program of Universitas Pasifik Morotai. At the same time, the sample was 152 university students. In this study, a simple random sampling technique was used. Mann-Whitney U test was carried out in data analysis techniques. The Kolmogorov-Smirnov test was conducted to determine the normality of the data, and a homogeneity test was implemented to determine the variance of each group. The finding demonstrated that the data was not normally distributed due to Sig. value less than 0.05 (< 0.05). Indeed, the mean Sig. value of the homogeneity test was 0.114, greater than 0.05, implying that the data was homogeneous. The Asymp value was derived from the results of the Non-parametric Mann-Whitney U test. Sig. (2-tailed) of 0.000 (< 0.05). As a result, it was reasonable to state a difference in average students' English learning outcomes while using the Flip-book based on the Screencast-O-Matic learning model compared to conventional models. Afterward, the researchers used the N-gain interpretation with five categories to compare the effectiveness of Flip-book based on the Screencast-O-Matic Video learning model applied to the experimental group and

the conventional model applied to the control group. Based on the N-Gain Score test results for the experimental group, the average value of 56.1354 or 56% fell into the quite effective category, with a minimum score of 25.00 and a maximum score of 91.30. Indeed, the N-Gain score for the control group was 21.1750, or 21 percent, when including the ineffective category, with a minimum score of -12.00 and a maximum score of 57.58. It can be concluded that the use of the Flip-book based on the Screencast-O-Matic learning model was quite effective in improving the learning outcomes of English courses for Universitas Pasifik Morotai students. In contrast, the use of conventional learning models was ineffective in improving the learning outcomes of the English courses for Universitas Pasifik Morotai students.

Keywords
Asynchronous System
English Learning
Flip-Book
Learning Outcomes
Screencast-O-Matic Video

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Introduction

Digitalization is now an efficient instrument in both daily life and education. Nowadays, educational institutions are forced to incorporate digital technologies into instructional classes to enhance students' knowledge and critical thinking skills for the digital age. Moreover, Digital technology incorporated into the instructional environment is easily accessible for both educators and students to perform optimally in the digital realm. Furthermore, Technologies can explore a rapidly increasing role in education, whether in the school environment, administration, teaching-learning process, and other activities. There is an enormous opportunity for instructors and learners to use virtual tools to facilitate the educators' and learners' performance in the school context [1] [2]. According to Assan et al. [3], there are some influential and appropriate moments in integrating digital tools in an instructional classroom. The study noted that practitioners could manage and use digital technologies in a valuable and authentic form. Schools are provided with Technology infrastructure; physical and non-academics can utilize physical resources and even information systems to incorporate their classical teaching approaches into innovative instructional methods. Indeed, Mayes [4] said that the potency of instructional technology had been widely discussed and debated over the last decade and cannot be denied that it is commonly used in both ESL and EFL classrooms. Instead, since the pandemic has successfully bombarded the entire world, universities have

had massive crisis-response migration to digital learning, supporting the online learning platform [5].

Innovative digital applications are not created by coincidence in many institutions; they require careful planning and development, sharing with students to transmit expectations, introduction, and management [6][7]. Open learning or OL will be even more sustainable, and learning strategies will become more adaptable if the obstacles faced are thoroughly investigated and converted into chance [5]. The success of online discussions is heavily influenced by instructional design [8] [9]. In some cases, in developing countries, institutions have not fully embraced digital transformation in education. It takes time for academics to transform to digital-based learning [10]. Adawi [11], it is necessary to note that multimedia technology for e-learning applications such as synchronous systems in some countries has advanced. However, Indonesia's general conditions will have significant problems, especially with minimal network systems in rural areas. Indeed. Another study that investigates parental economic inequality is one of the barriers to implementing online learning. Demirbilek [12] discovered that students from low-income backgrounds have a more difficult time adapting to educational technologies. This is because students only use devices and internet access at school. Even Lara & Adie [13] confirm this statement in their latest study, which reveals that, along with the increasing level of poverty in the community, the rate of internet accessibility is dropping rapidly. The implication is that students with low socioeconomic status are most vulnerable to falling behind or facing more significant challenges in online learning. According to Dewi [14], other factors that play a significant role in determining student success when learning is a lack of attention and concentration to the instructional system by educators and learning media that are not in tune with the needs of students.

However, to tackle those barriers, the researcher is interested in researching an asynchronous system. This learning system is hugely beneficial for students who live in rural areas with limited internet access and decide to study at home. This type of learning aids the teacher in delivering material and improving students' comprehension of the material provided by the teacher [15]. Through the asynchronous system, students can communicate with educators and other students flexibly through the online platform. Although there is no instant engagement, tools like discussion boards and e-mails allow it to happen afterward. Using this learning system, students can learn independently, from anywhere, and in any atmosphere. In a "learner-centered pedagogical framework," the students are authorized to have more control over when, where, as well as how they expect to take on additional responsibilities on their learning and maximize efficacy [16]. Asynchronous system learning is more than just a way to get information. This learning system can significantly improve the conceptual quality of the learning environment and learning outcomes. Asynchronous online

learning promotes high-level learning and fosters cognitive development that leads to deep and meaningful learning outcomes. It entails shifting from the transmission and assimilation of large amounts of information to the interactive and constructive potential of Asynchronous-based learning on the ability to support virtual inquiry communities without jeopardizing learners' time and space independence [17]. Students learn independently in this system, and they are given a small amount of time to think about and comprehend the material without being pressured by educators [18].

One application that makes use of an asynchronous system is Screencast-o-Matic video. Screencast-o-Matic can record webcam activity. This Screen Recorder is typically used to record and share videos on blogs, YouTube, and MP4 files. This system can modify the classroom atmosphere to make it appear as if the learning activity occurs in a traditional or face-to-face setting [19]. This device can be distributed in a variety of ways [20]. The study was carried out by creating electronic learning media using Screencast-O-Matic video-based Flip-Books as an asynchronous system to increase the variety of English learning models in rural areas as a facility to support the teaching and learning process and not just implementing teaching materials but also create exciting scenarios with involvement to invite students to be active and constructive in the process of learning English. To realize e-learning capable of increasing cognitive student ability. When converting electronic learning into language instruction, it is critical to consider the most recent SLA/FLA development principles and theories [16].

Some previous research discussed the creation and advancement of different educational media through SoM without considering the limitations of rural areas' internet networks [19][21][22][23][24]. The purpose of this study is to optimize the variation model of English learning by using Flip-Book-based Screencast-O-Matic Video as an asynchronous system at the Universitas Pasifik Morotai, which is located in a rural area. This study aimed to see how much students' English proficiency improved after using Flip-Book-based Screencast-O-Matic Video as an asynchronous system and how effective this learning model is in English classes.

Material and Methods

This study was conducted in the regency of Pulau Morotai, specifically at the Universitas Pasifik Morotai. The researcher determined that the study population consisted of Universitas Pasifik Morotai students who enrolled in General English Education courses as part of their study programs in Environmental Engineering, Civil Engineering, Informatics Engineering, Marine Science, Economics, and Public Administration. The sample for this study consisted of 152 second-semester students. This study employed a simple random sampling

technique. Quantitative research used a quasi-experimental design with a pre-test-post-test control scheme. One group was treated as the treatment group in this study, while the other was not treated and taught using conventional methods. The test was repeated twice in both groups, before and following treatment. The experimental class received treatment for fourteen meetings, each lasting 45 minutes.

Table 1. Sample Distribution on Each Study Program

No	Study Program	Sample (N)
1	Civil Engineering	20
2	Environmental Engineering	12
3	Informatics Engineering	25
4	Marine Science	15
5	Public Administration	44
6	Economic	36
Total		**152**

Table 1 shows that the sample was 152 students from six distinct study programs: civil engineering, environmental engineering, informatics engineering, marine science, public administration, and economics. All students were divided into two groups, experimental and control, with 76 samples collected.

The independent variable (X) was a variable whose variation affects other variables. In contrast, the dependent variable (Y) was a research variable used to determine the magnitude of another variable's effect or influence. The variables in this study were as follows: Independent variable (X): Flip-book based on Screencast-o-Matic Video as an asynchronous system; Dependent Variable (Y): Students' outcomes in English learning.

This study collected data using a test technique. The test was designed to assess students' English proficiency following a flip-book based on Screencast-o-Matic as an asynchronous system. The test was conducted twice before treatment (pre-test) and once following treatment (post-test). Essays and multiple-choice questions were included in the test; there were 20 multiple-choice questions and 10 essay questions.

The data analysis technique used is the statistical formula for the Man Witney U Test. With the assistance of SPSS 23. If the significance was greater than 0.05, the distribution was said to be normal; if the significance was less than 0.05, the distribution was said to be abnormal. In this study, the homogeneity test was used to determine whether the variance of each group to be analyzed was statistically similar. If the significance level (p) is greater than 0.05, the variance is homogeneous; if the significance level (p) is less than 0.05, the variance is heterogeneous. The researchers used the N-gain interpretation (Table 2) to compare the

effectiveness of the Flip-book based on the Screencast-o-Matic learning model applied to the experimental group to the conventional model applied to the control group.

Table 2. Interpretation Category of N-Gain

Percent (%)	Interpretation
< 40	Ineffective
40-44	Less effective
56-75	Moderately Effective
>76	Effective

Results and Discussion

This study examined second-semester students at Universitas Pasifik Morotai who were enrolled in Environmental Engineering, Civil Engineering, Informatics Engineering, Marine Science, Economics, and Public Administration study programs. Its purpose was to assess students' English proficiency following the implementation of SoM-based flip-book learning applications using an asynchronous system.

Table 3. Statistical Description between Control Group and Experiment Group

	N	Minimum	Maximum	Mean	Std. Deviation
Pre-test (Experiment group)	76	5	43	23.50	8.966
Post-test (Experiment group)	76	30	95	66.05	11.276
Pre-test (Control group)	76	5	50	24.38	9.293
Post-test (Control group)	76	13	65	40.70	12.372
Valid N (Listwise)	76				

According to Table 3, the mean pre-test score for the experimental group was 23.50, while the mean post-test score was 66.05. The mean score on the pre-test was 24.38, and the mean score on the post-test was 40.70 in the control group. According to the minimum score, the experimental and control groups had the same lowest pre-test score of 5. In contrast, the experimental group had the lowest post-test score of 30, and the control group had the lowest post-test score of 13. The experimental group's post-test received a maximum score of 95, while the control group's post-test received 65. In comparison, the experimental group scored the highest on the pre-test.

Table 4. Normality Test

Group		Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Learning Outcomes	Pre-test (Experiment group)	.104	76	.042	.973	76	.103
	Post-test (Experiment group)	.116	76	.014	.974	76	.118
	Pre-test (Control group)	.102	76	.048	.979	76	.242
	Post-test (Control group)	.123	76	.006	.974	76	.125

Table 4 demonstrated that when N > 50, normality was determined using the Kolmogorov-Smirnov method. The normality test results indicated that the data did not follow a normal distribution, as the Sig. value was greater than 0.05. (0.05).

Table 5. Homogeneity Test

		Levene Statistic	df1	df2	Sig.
Learning outcome	Based on Mean	2.532	1	150	.114
	Based on Median	2.475	1	150	.118
	Based on the Median and with adjusted df	2.475	1	149.116	.118
	Based on trimmed mean	2.524	1	150	.114

According to the data analysis presented in Table 5, the value of Sig. was greater than 0.05, indicating that the data were homogeneous.

Table 6. Non-Parametric Mann-Whitney U Test

	Students' Learning Outcomes
Mann-Whitney U	341.500
Wilcoxon W	3267.500
Z	-9.402
Asymp. Sig. (2-tailed)	.000

Based on the results of the Non-parametric Mann-Whitney U test (Table 6), the Asymp value. Sig. (2-tailed) of 0.000 less than 0.05. As a result, it was possible to conclude a difference in average student learning outcomes when using a learning model based on a Flipbook based on Screencast-o-Matic versus conventional models.

The researchers compared the effectiveness of the SoM-based Flip-book learning model applied to the experimental group to the conventional model applied to the control group using the N-gain interpretation with five categories. These were ineffective, less effective, moderately effective, and effective.

The Mean score of 56.1354 or 56 percent in the N-Gain Score test for the experimental group falls within the quite effective category, with a minimum score of 25.00 and a maximum score of 91.30. Meanwhile, the control group's N-Gain score had a mean of 21.1750, or 21% when the ineffective category was included, with a minimum score of -12.00 and a maximum of 57.58. It can be concluded that the use of the SoM-based Flip-book learning model significantly improved the learning outcomes of English courses for Pacific Morotai University students. In contrast, conventional learning models did not affect the learning outcomes of English language courses for Pacific Morotai University students.

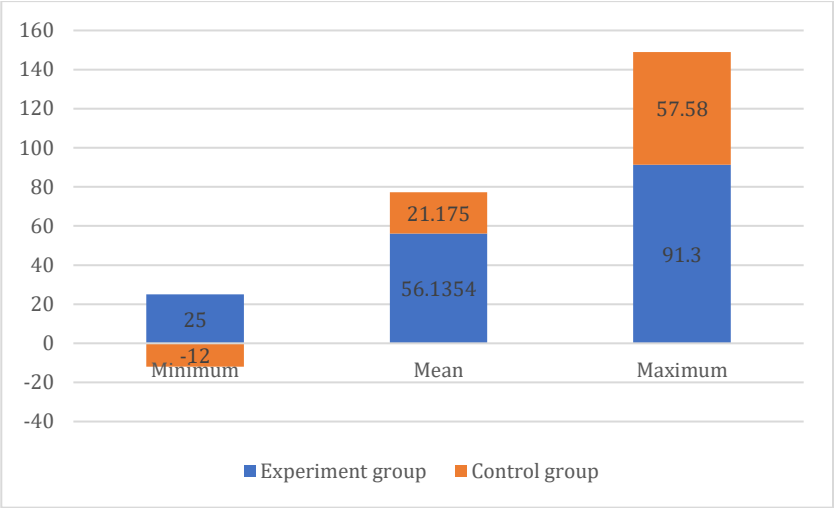


Fig. 1. N-Gain Test

In line with previous research by [25], this study seeks to identify support for creating flipbook-based digital learning tools that incorporate technology to improve scientific literacy skills. The study's findings show that students have a positive view of the potential to create and use flip-books as a form of digital learning media. The findings of this study can be used as a foundation for educators to create and implement flipbook-based digital educational media that will aid in the learning process. Abror et al. [26] findings of his study demonstrated that the digital flip-book learning media developed had been effective in significantly increasing student scores and delivering information to students in the classroom. According to Susanti [27], contextualized electronic modules associated with flip-book applications can guide students to learn more effectively. Thus, Rasiman & Pramasdyahsari [28] incorporate e-comic mathematics learning media into mathematics subjects using a flip-book maker; the findings imply that media can help students develop their critical thinking abilities and can help them develop character values such as discipline, cooperation, honesty, confidence, and perseverance.

Talebian et al. [29] highlight the importance of teaching teachers and administrators utilizing a learning platform appropriate for the individual's needs and circumstances. Indeed E-learning should be designed around the students' needs and the students' characteristic learning styles. [30]. Two factors are critical to resolving the virtual learning issue: the affordability of government policy and maximizing educator literacy in managing digital learning tools [31]. Even Experts and professionals from various fields can contribute their knowledge effectively and efficiently through ICT [32]. According to the report, dynamic learning is the most frequently used method in the virtual school environment during the global pandemic. The study area entails both synchronous and asynchronous activities [33].

Instead, Henra et al. [34] underline that Asynchronous network-based learning impacts the process of course completion. Academic members should continuously innovate with new tech and focus on the awareness of effective learning that is both powerful and successful [35]. According to Al-Mubireek [36], students recognize the benefits of merging e-learning services to help them gain knowledge and communicate more efficiently and successfully. They expressed particular optimism for e-learning systems as a multi-functional tool for language progress. Whereas Cakrawati [37] said, most students agreed that advanced instructional technologies could assist them in practicing their linguistic competence. They are acquiring vocabulary words and attempting to improve their comprehension of the lesson material. Harmony with Putri [38], the SoM application-based discovery learning model effectively assesses critical thinking and communication abilities. The use of a screen recorder (SoM) in the classroom effectively assists the learning process. After students receive the tutorial videos, there are no more complaints about technical difficulties, as the tutorial videos can be viewed repeatedly. Once the video has been downloaded, students can access it regardless of their internet connection's stability. In this case, the screen recorder can also help you conserve your internet quota [39]. Furthermore, the development of educational tools through screencast-o-matic demonstrates effective, positive, and accurate results [23]. The Screencast-O-Matic technology is intended to aid in the educational process [19]. Kurniawan et al. [23] SoM facilitated by an asynchronous system enables EFL students to improve their language skills and can contribute to ICT proficiency. In general, e-learning can help students improve their comprehension and learning outcomes, but it appears inefficient due to Internet budget constraints [40]. The government plays a significant role, particularly in procuring facilities and infrastructure to support the e-learning process. A large percentage of teachers and students believe that inadequate internet access is a fundamental issue that institutions should address.

Conclusion

Flip-book based on SoM delivered via an asynchronous system has been demonstrated to be quite effective when implemented in an English language classroom. This educational media is considered critical to incorporate into the teaching-learning process in rural areas because it can be shared in two ways: via YouTube or MP4. Whereas in this study, the researcher preferred to distribute educational materials via MP4. However, the researcher encountered numerous obstacles while conducting this research. One of them is that students' attitudes and readiness to conduct learning through these tools are still lacking; in other words, they continue to require motivation when implementing an e-learning system. Additionally, ownership of a personal electronic device is viewed as a critical issue. The majority of students

come from low-income families. Most of them lack an appropriate device for use during the learning process, resulting in a less-than-optimal teaching-learning process. Thus, the university institution must meet the needs of its students, particularly in terms of educational facilities.

Conflict of Interest

The authors should declare that there is no conflict of interest.

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