

Assessing Recorded Lectures' Effectiveness for Enhancing Grammar Mastery in a Flipped Classroom Model

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ABSTRACT

Examining recorded lectures' effectiveness to teach grammar in the context of flipped classroom model has not been widely researched. Furthermore, this type of teaching has not been frequently used in the research area which applies English for Specific Purpose (ESP) materials that require special treatment in teaching grammar. This study, therefore, aims to uncover the unknown research findings by implementing quasi experimental research by involving two classes in Mechanical Engineering department. Both classes were given pre-test before treatment to ensure the similarity of initial grammar skills and post-test after treatment to know the impact of recorded lectures in flipped classroom model for students in experimental group. Data gained through independent t-test from SPSS indicated that there was a significant impact of the treatment on students' mastery in grammar proven by the significant value of 0.05 (above 0.05) Since this type of teaching has been proven to be effective for teaching grammar especially in the context of ESP, lecturers who teach in the same setting are suggested implement recorded lectures.

Keywords:

Flipped Classroom, Recorded Lectures, Grammar Mastery

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Introduction

The presence of online video-sharing platforms shifts human's way of acquiring new information and skills. Traditionally, people attend courses, trainings, and workshops to be able to do or make something. Nowadays, these goals can be achieved much more simply through online video-sharing platforms like YouTube where people have numerous playlists of tutorials to learn from. Education practice previously done in class now takes the benefit of YouTube which allows lecturers to spread their ideas with no restrictions in terms of time and space as long as an internet connection is available (Weiland 2023). Fortunately, access to technology and the internet for utilizing YouTube has become easier and cheaper which makes the integration of teaching and learning by using YouTube gain popularity (Haleem, Javaid, Qadri, & Suman. 2022).

By incorporating the platform described above into the teaching and learning activities, both lecturers and students certainly procure plentiful benefits. With YouTube, now lecturers have the option to modify their way of delivering teaching materials. In traditional classes, lecturers who teach in more than one class have to explain the same materials to all classes they teach which surely drains their time and energy (Phulpoto 2022). This drawback can be diminished by the existence of YouTube where lecturers can record materials they want to teach to their students and upload them on YouTube. This type of material is well-known as recorded lectures (RL). From the side of the students, learning through RL is scientifically proven by Al-Qudah (2024) and Lim, She, & Hassan (2022) that RL is effective in adjusting the learning pace of each dissimilar student. Those who have difficulty at a certain point of the video have access to re-watch the content to eliminate their confusion.

RL can be presented during classroom sessions by consuming classroom time, and also prior classroom sessions by implementing the concept of flipped classroom model (FC). In the FC, the learning materials are given before classroom time to give students a chance to review the learning materials. Consequently, there will be spare time in classroom sessions that can be used extensively for knowledge application. Several researchers have proven the effectiveness of FC in enhancing students' learning outcomes (Aydin & Demirer, 2022), increasing students' motivation to receive the learning materials (Chou, Chen, & Hung, 2021), and gaining positive perceptions from students (Afrilyasanti, Cahyono, Astuti 2018).

Although there have been lots of studies discussing the effectiveness of RL materials in the context of English Language Teaching (ELT), less is known about its effectiveness when RL materials are presented in the (FC) model. Research from Paramita, Setyono, Yuliantini, & Suciani (2023) only tested the impact of implementing FC on students' achievement without mentioning specifically the type of learning materials. On the contrary, research from Zhang, Leung, Tan, & Xian (2022) merely tested RL without mentioning specifically the classroom model used for the study. Therefore, it is vitally important to test the combination of RL and the FC model on students' learning outcomes. Evaluating the efficacy of RL on FC model will enrich previous research findings as it reaches the spot that previous studies never addressed. In addition to that, past studies about the effect of RL on teaching specifically grammar materials are relatively hard to find in research journals on ELT context. This study, therefore, is hoped to add valuable input for grammar lecturers as a consideration to deliver their grammar materials in the form of RL.

Method

The present study utilized quasi-experimental research by involving 2 classes of mechanical engineering students that were chosen purposively. These 2 classes were chosen among 5 available

classes in which the selection was based on their grammar pre-test scores by considering the closest mean difference. English for this department is given for specific purposes to equip the students with necessary English in the workplace of mechanical engineering and it is given twice during their study. The students who were involved in this study were the first-grade students who took this course for the first time.

To get the answer for this study, the researchers allocated 8 meetings including the pre-test and the post-test for 2 months. The grammar materials given to students were tenses and active-passive sentences with the topic of mechanical engineering field. The grammar pre-test, mean score analysis, and class selection were administered on the 12th of February 2024. After administering these agendas, treatment for the experimental class and teaching activity for the control class were given on 19-25 February 2024 for six meetings and it was followed by a grammar post-test on 1 April 2024.

After all data were collected, they were analyzed statistically by using SPSS. Normality tests were administered to ensure that all data in this study were normally distributed by using Kolmogorov and Smirnov tests. Subsequently, all data sets were analyzed by using an independent t-test to uncover whether the mean scores were significantly different or not. The flow of data analysis is presented in Table 1.

Table 1

Statistic Calculations Implemented in the Study

Statistic	Function
Kolmogorov Smirnov test	To know data normality from pre-test and post-test
Homogeneity test	To know the homogeneity of the data between four classes in electrical engineering department
Independent t-test	To know mean difference from students' scores both in pre-test and post-test between experimental class and control class

Findings

Normality test result

Grammar pre-tests for five classes were analyzed to ensure the normal distribution of the data which is presented in Table 2.

Table 2 Normality Test Result by Using Kolmogorov-Smirnov

Kolmogorov-Smirnov			
Class	Statistic	df	Sig.
TM1A	.159	23	.139
TM1B	.170	23	.084
TM1C	.152	23	.180
TM1D	.137	23	.200
TM1E	.127	23	.200

From the result of Table 2, it is known that all data for the pre-test are normally distributed proven by the significant level in the Kolmogorov-Smirnov test that was more than 0.05. Therefore, mean score analysis by using a homogeneity test can be administered.

Homogeneity test results for pre-test scores

To make sure that the control and experimental group have equal grammar skills before research, grammar pre-test scores were analyzed by using an independent t-test which is presented in Table 3.

Table 3 Homogeneity Test result

		Levene statistic	df1	df2	Sig.
Scores	Based on mean	2.221	4	110	.071
	Based on median	2.020	4	110	0.97
	Based on median and with adjusted df	2.020	4	92.220	0.98
	Based on trimmed mean	2.170	4	110	0.77

Table 3 showed that the significant level was more than 0,05 (0.71) which indicated that students' skills in grammar for five classes were not significantly different. Among four available classes, classes 1A and 1B were chosen for this study since those classes have the closest mean difference.

Independent t-test results for post-test scores

After given 6 meetings of treatment, a post-test was administered in which the results were analyzed by using an independent t-test (shown in Table 4).

Table 4 Independent T-Test Result

	Levene test for equality of variances	t-test for equality of means							95% confidence interval of the difference	
		F	Sig.	t	df	Sig2	Mean dif	Std error dif		
Equal variance assumed	2.703	.107	2.939	44	.005	3.478	1.184	1.093	5.864	
			2.939	33.08	.006	4.478	1.184	1.071	5.886	

Table 4 proved that the use of RL in the FC platform could enhance students' mastery of grammar which was indicated by the significant value of 0.107 (above 0.05) with a mean difference of 3.478.

Discussion

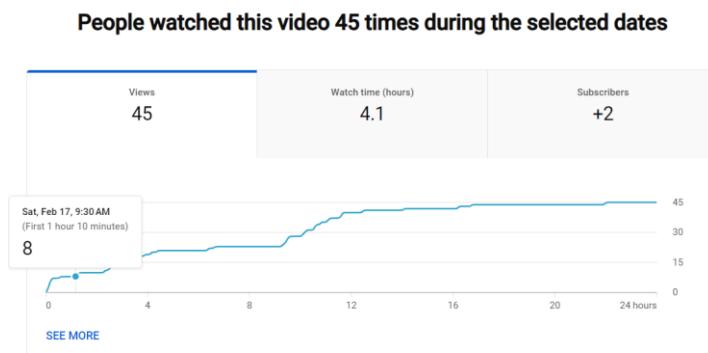
As learning media that has plentiful features, RL outperformed reading-based content which became the main resource of students in the control group in many ways. Students in the experimental group have freedom in terms of time to access the RL in their leisure time which differs from one student to another. In addition to that, as seen from the results of YouTube video

analytics, several students access the videos more than one time so it is more suitable for diverse classes to match students' dissimilar learning paces. Video analytics also shows that there are some points on the video that attract the most attention from students so the most important or the hardest part of the video can be reversed until students' confusion can be diminished. Types of devices used by the students also confirmed that the use of RL gave students with flexibility to suit the types of devices they owned.

RL given for students are set to private so only students with invitation links can access the videos. This setting was used to prevent non-research participants from accessing the videos which makes video analytics harder to be analyzed. Figure 1 and Figure 2 show the results of accessing time done by students in the experimental group.

Figure 1

Accessing time from students in the experimental group (morning)



Realizing that students can learn best when they are prepared to receive materials, the features of RL provide students with the flexibility to access videos which are in line with the results of past studies (Jayasinghe, Liyanage, & Jayathilake 2018 and Nkomo and Daniel 2021). To give readers a glimpse of the condition in this research area, mechanical engineering students have a lot of practicum and projects for their main courses (one practicum course may take up 8 learning hours). This leaves inadequate time for students to review supplementary courses like English on campus. RL is surely appropriate as the answer to this problem as Figures 1 and 2 showed that students have the freedom to access the video when they are ready to receive the materials. Fewer students access the video in the morning as there are still lots of things to do on campus. In contrast, the number of students accessing video in the evening is increasing significantly which indicates that at this time, students have done their job at campus and are ready to receive new materials.

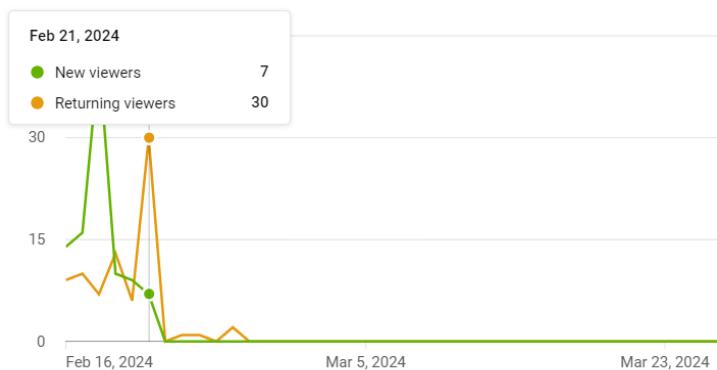
Figure 2

Accessing time from students in the experimental group (evening)



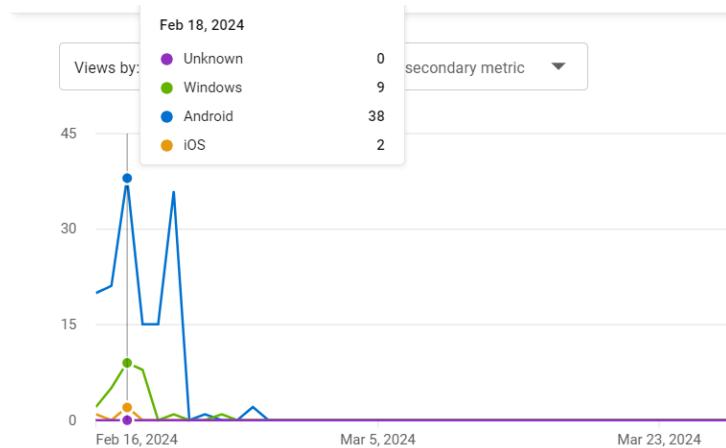
Traditional teaching provides fewer options for students to re-access the teacher's explanation from the classroom. In case they face impediments in understanding learning materials, they need to wait for the upcoming meeting to ask for clarification from their teacher (Zafar and Hafeez 2021). Conversely, RL on the YouTube platform provides flexibility for students to re-access the learning materials since the videos are uploaded to the cloud and can be re-accessed as many times as they want. This statement is proven by the video analytic on Figure 3 which shows 30 students watch the videos more than one time as they have the label as returning viewers. Understandably, students watch the contents several times as English grammar has many inconsistent patterns that differ significantly from the grammar applied in both Javanese Language as the mother tongue language by most of the students and Indonesian Language as the national language of the students (Fitriyani, Ramendra, and Swandana 2018).

Figure 3
Returning viewers for RL



Providing opportunities for students to maximize the use of TELL (Technology Enhanced Language Learning) in any form they own is key to success in applying blended learning (Hasumi and Chiu 2024). Teenagers have their preference for the technology they use to support their learning like using a laptop, tablet, or smartphone. Some may argue the use of a laptop can support their learning maximally due to its rich functions and screen size clarity. Others may have a different opinion and choose a mobile phone due to its simplicity and mobility. Fortunately, RL in the YouTube platform is compatible with all devices mentioned above so there is no reason for students to have difficulty in accessing the learning materials. The proof is shown in Figure 4 which indicates that students' devices vary and all can be used for this type of learning.

Figure 4
Devices used to access the video



Besides providing beneficial input for students, uploading RL on YouTube also serves as useful information for teachers. By looking at the “spikes” indicator from YouTube analytics, teachers can know which part of the videos gets the most attention from students. Spike’s indicator tells the teachers what to do in the classroom by focusing more on the content that students are stuck in. These parts may be very interesting for students so they want to see the parts again and again or it may be very difficult for them so they need to spend more time before they continue to the next parts.

Figure 5

Spikes that indicate most parts of the video watched and rerewatched by students



Conclusion

Statistical analysis results provide strong evidence that the use of RL in the FC model could boost students' mastery of grammar. Therefore, it is suggested that lecturers who teach in the same classroom setting and struggle to enhance students' scores in grammar implement RL. Future researchers are suggested to evaluate the effectiveness of RL in the FC model to teach another topic of grammar lessons in different classroom settings. It is also recommended to examine how students with different learning styles respond to the application of RL in FC as this kind of learning activity depends so much on students' learning styles. Since the present research merely focuses on grammar, evaluating the efficacy of RL in the FC for other language skills and masteries in English is necessary to be administered since it may produce different results.

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