

Implementing Quizlet for Improving EFL Students' Vocabulary Learning Within Flipped Classroom

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Abstract

This English language learning initiative, focused on acquiring new vocabulary, implemented a Flipped Classroom approach utilizing Quizlet as a Mobile-Assisted Language Learning (MALL) program for the experimental group. The research took place at SMA Muhammadiyah 1 Gresik, East Java, Indonesia, during the 2023/2024 academic year. The homogeneity of the 59 samples was verified through Levene's test, with a significance value of 0.060 based on average pre-test scores, indicating homogeneity as the significance level was >0.05 . Subsequently, pre-test and post-test data were collected from 12th-grade students in the social sciences and humanities (IPS/Shosum) program. Descriptive statistics were applied to analyze both groups' pre-test and post-test data, along with the non-parametric Mann Whitney T-Test, resulting in an Asymp. Sig. (2-tailed) value of 0.071, indicating rejection of the alternative hypothesis as it exceeded 0.05. Nevertheless, it is imperative to address various aspects in future research and practice to explore further potential benefits or drawbacks of incorporating Quizlet in the flipped classroom, including aspects like student engagement, motivation, and long-term retention of material. Additionally, subsequent studies could delve into evaluating the effectiveness of combining Quizlet with other instructional methods or technologies within the flipped classroom framework.

Keywords: Vocabulary Learning; Flipped Classroom; Mobile-Assisted Language Learning; Quizlet

1. Introduction

In today's interconnected world, there is a significant demand for competence in the English language, which serves as a global means of communication (Fauziningrum et al., 2023). And makes English language proficiency in communication is highly important, considering that we are also now in the new era of Industry 4.0 (Putra, 2023). To achieve this goal, vocabulary proficiency is an absolute requirement that must be possessed by an individual in order to communicate effectively (Fitri & Ma'rifah, 2022). According to (Ghanbaran & Ketabi, 2014; Masoud, Aldahami, & Aljehani, 2020; Min, 2013) Vocabulary proficiency is a fundamental requirement at all stages of a learner's progression in acquiring a second language, and effective communication support on having a substantial vocabulary. Furthermore, the acquisition of vocabulary plays a pivotal role in mastering second language skills.

Hence, Vocabulary learning becomes a crucial aspect in language proficiency, as vocabulary serves as the most fundamental standard for effective communication skills (Teng, 2023). Numerous studies have also indicated that a broad vocabulary is highly important for EFL learners to express their ideas, comprehend spoken and written texts, and participate effectively in communicative situations (Isakovna & Kosimov, 2023). Nonetheless, the initial examination undertaken by the researcher exposed the ineffectiveness of English vocabulary instruction conducted by



educators, primarily due to time constraints. In a classroom with 30 students, the teacher allocated only 45 to 55 minutes for teacher-centered English instruction, resulting to the inefficacy of the learning process. Also, The fact that teacher-centered learning strategies are now considered less superior compared to active learning strategies, one of the active strategies that has emerged as a result of the search for strategies that meet the evolving needs of the new era and has been well-received by educators and academics is the *Flipped Classroom Model* (Gustian et al., 2023).

Implementing the *Flipped Classroom* (FC) has also emerged as an innovative approach to learning and teaching where the roles of instruction and homework are reversed, and learning takes place differently. In that way, students encounter fresh content beyond the classroom, primarily through video lessons, enabling them to study in their own environment. This is facilitated by the ability to pause, rewind, and rewatch the video material (Hsieh, Huang, & Wu, 2017; Mo, 2023; Masyhadi, Arifani, & Asmara, 2022). This model is also supported by technological improvements in the field of education specifically on Mobile-Assisted Language Learning (MALL), Creating an innovative and creative learning environment that can be more easily implemented by teachers due to The advancement of technology as an instructional medium has become quite proficient, especially during the era of the Industry 4.0 revolution in the education sector (Darise, 2019; Azhari et al., 2023a)

Several Education revolution investigations are found that Mobile-Assisted Language Learning (MALL) is a relatively new development stemming from further inquiry into the Computer-Assisted Language Learning (CALL) field (Teng, 2023). Even if the use of CALL has been considered to yield satisfactory outcomes with significant values based on statistical calculations in previous research, the transition from CALL to MALL brings additional advantages due to its mobility, allowing users to engage in language learning anywhere and anytime (Lin & Lin, 2019). Also with the support of a study conducted by (Foti & Mendez, 2014) in New Jersey, United States, They stated that the use of smartphones, and tablets in vocabulary learning has been implemented as e-learning tools and various types of MALL-based learning tools that should be present and must be used during the learning process. This is driven by the necessity to stay constantly connected with the goal of enhancing autonomous learning (Nguyen, Nguyen, Nguyen, Mai, & Le, 2022). Furthermore, The widespread presence and ease of access to mobile devices, including smartphones and tablets, have revolutionized the manner in which people interact with information and educational opportunities which the current generation of teenagers in Indonesia, their proficiency in operating smartphones and other similar gadgets is noteworthy. However, the majority of them still use these devices primarily for entertainment and have not redirected their use toward productive activities, especially in the educational aspect (Azhari et al., 2023b; Wulantari, Rachman, Sari, Uktolseja, & Rofi'i, 2023).

The integration of the online platform Quizlet.com, It was a (MALL)-based educational media program, a free website providing learning tools for students, such as flashcards, study modes, and games which have possibilities to improve vocabulary learning by its features. It was created by a high school student named Andrew Sutherland in 2005. On this website, there are more than 50 million sets or more by now of flashcards created by users all over the world (Sippel, 2022). It also offers free access to its core features, and its services are available in 130 countries across 18 different languages. Additionally, it provides a mobile-friendly learning environment and tool, available for free download on mobile devices through Google Play and the App Store. This platform holds significant potential for improving foreign language and vocabulary instruction, making it an essential tool. Therefore, it is crucial to investigate the impact of Quizlet on the vocabulary learning of secondary school students, as this research is expected to provide valuable insights for students, educators, curriculum developers, and parents seeking more effective and efficient vocabulary learning (Cinar & Asim, 2019). Several experimental studies also have been conducted to investigate the advantages of Quizlet's features in enhancing vocabulary comprehension (Nguyen, Nguyen, Nguyen, Mai, & Le, 2022; Dreyer, 2014; Tosun, 2015; Vargas, 2011). and it is provided positive feedback in vocabulary learning.

And the implementation Flipped Classroom Model focusing on vocabulary collocation and grammatical structure (Suranakkharin, 2017; Chicaiza Chango, 2023) . And Grammatical Mastery (Masyhadi et al., 2022). It has been proven to provide a positive impact on the improvement of learning.

According to (Cinar & Asim, 2019) who had conducted research to assess the impact of using Quizlet in vocabulary learning and vocabulary retention with 71 ninth-grade students in Tepebaşı District, Eskişehir, Turkey, during the 2018-2019 academic year. There were an Experimental Group (N=35) and a controlled Group (N=36). The researcher administered a total of eight lessons over a span of four weeks. The experimental group demonstrated markedly superior scores in both the vocabulary post-test and retention test compared to the control group ($p < 0.05$). Conversely, a notable decline was observed in the control group's scores ($p < 0.05$). According to the evaluation of the learning outcomes, this study utilized vocabulary test scores, vocabulary retention tests, and questionnaires as measurement tools. The research results indicate that the implementation of Quizlet in English vocabulary learning can make a positive contribution to improving students' understanding of vocabulary.

In this research, It is targeted that students are expected to engage in a dynamic and effective vocabulary learning experience. Therefore, Quizlet as an online-based teaching aid, is used as a technology and digital media to

improve of English vocabulary learning through the Flipped Classroom Model. It is expected to have a positive impact when integrating these strategies and technology in vocabulary teaching.

The main objectivity of this research is to identify the impact of using *Quizlet* on students' vocabulary learning using the *Flipped Classroom Model*. To achieve this goal, the following question has been investigated: Does the implementation of using *Quizlet* within *Flipped Classroom Model* significantly affect vocabulary learning in 12th-grade EFL students in SMA Muhammadiyah 1 Gresik?

The aim of this research is to provide an evaluation of the use of *Quizlet* application as a teaching tool in the *Flipped Classroom Approach*, which is expected to support English language learning, particularly vocabulary learning, for middle to upper-level EFL students. The final research results are expected to be useful for all educators at the secondary school level in Indonesia to create more varied and creative learning conditions in preparation for the Education 4.0 era. Furthermore, the research outcomes is hoped to contribute to the advancement of knowledge and research in the future.

2. Methodology

2.1 Research Model/Design

The study employs a quantitative design for examining the statistical data, specifically the students' scores on pre-tests and post-tests. These scores allow researchers to assess the impact of utilizing *Quizlet* in a flipped classroom on students' vocabulary learning. A quasi-experimental approach as the research design selected for this study is aligned with the study's objectives. A quasi-experiment, sometimes referred to as a 'field experiment' or 'in-situ experiment,' is a research design where the researcher has restricted influence and authority when it comes to choosing study participants (Masyhadi et al., 2022). On this particular occasion, the researcher lacked the capability to employ random participant assignment or guarantee the selection of an ideal homogeneous sample. However, quasi-experiments continue to offer valuable insights for the progress of research (Leedy, 2015).

The primary objective of experimental research is to explore a theory; thus, the study aims to investigate the impact of implementing *quizlet* in a flipped classroom context to improve vocabulary learning in order to overcome the gaps. In the experimental group, students received specific interventions or treatment, while in the control group, students did not undergo any. The experimental group experienced intervention in the form of a flipped classroom using *Quizlet*, while the control group continued a conventional teaching, with the teacher as the primary source of knowledge. This research incorporates three variables: flipped classroom, vocabulary learning, and *Quizlet*. Vocabulary learning serves as the dependent variable, while flipped classroom and *Quizlet* are the independent variables.

2.2 Participants, Instrument and Procedures

The study comprises two distinct groups: the experimental group (N=29) and the control group (N=30). Both groups completed identical pre-tests and post-tests, with the experimental group receiving additional interventions through the implementation of a flipped classroom using the *Quizlet* application, while the control group received traditional non-flipped teaching without any additional treatment. Therefore, the researcher's first objective is to compare the pre-test and post-test results of students in both the control and experimental groups, aiming to assess the impact of employing the flipped classroom method via the *Quizlet* application on their Vocabulary proficiency.

Assessment and comparison of results from both groups are displayed in the table chart provided below:

Group	Pre-Test	Treatments	Post-Test
Experimental	XII – Shosum C	XII – Shosum C	XII – Shosum C
Control	XII – Shosum B	-	XII – Shosum B

Table. 2.2.1 *Quasi-experimental design involving pre-test and post-test.*

XII Shosum C , XII Shosum B : Pre-test conducted before the treatment
 XII Shosum C : The treatment
 XII Shosum C , XII Shosum B : Post-test administered after the treatment

In this scenario, the researcher will work with two groups selected from 2 different classes with the total of number participant of 59 Samples: the experimental group (N=29) and the controlled group (N=30). Both groups will be subjected to identical pre-tests and post-tests. The experimental group will receive treatment in the form of a flipped classroom via the *Quizlet* application to improve their vocabulary proficiency. Which the procedures of the flipped classroom using *quizlet* are shown down below:

- 1) Preparation

a. WhatsApp Group Communication:

In addition to creating a WhatsApp group, establish clear guidelines for communication within the experimental group, such as designated timeframes for asking questions and receiving responses, and encourage peer-to-peer support and collaboration.

b. Introduction of Flipped Classroom Method:

Along with using Quizlet, consider incorporating other interactive online learning tools or platforms to cater to different learning styles and preferences of students.

c. Video Content Creation:

Ensuring that the video presentations are not only concise (within 5 to 10 minutes) but also engaging and visually appealing to maintain student interest and attention throughout the duration of the video.

d. Video Hosting Platform Selection:

Evaluate different video hosting platforms to ensure accessibility, ease of use, and compatibility with the devices used by students. Additionally, consider platforms with features such as analytics to track student engagement with the videos

e. Online Vocabulary Practices Enhancement:

Provide clear instructions and guidelines for students on how to access and utilize the *Quizlet* activities effectively for self-study. Consider incorporating a variety of practice activities on *Quizlet*, such as flashcards, matching games, and quizzes, to cater to diverse learning preferences.

2) Scheduling

a. Timely Intervention Implementation:

Developing a detailed schedule outlining specific deadlines for creating, uploading, and sharing video presentations and Quizlet activities to ensure timely access for students before offline classes. Considering using project management tools or calendars to organize and manage the scheduling process efficiently.

b. Flexibility and Adaptability:

Anticipate potential disruptions or delays in the scheduling process and have contingency plans in place to mitigate any unforeseen challenges. Prioritize flexibility in the schedule to accommodate adjustments based on feedback and student needs.

3) Applying

a. WhatsApp Group Communication Monitoring:

Implement a system to monitor student engagement and participation within the WhatsApp group, such as periodic check-ins or discussions related to the video presentations and Quizlet activities. Encourage active participation and collaboration among students to foster a supportive learning community.

b. Self-Study Activity Facilitation:

Providing additional resources or support materials to accompany the Quizlet activities, such as study guides, reference materials, or supplemental videos, to enhance student comprehension and retention of the course content.

c. Assessment of Student Preparation:

Implementing strategies to assess student readiness and comprehension of the pre-class materials, such as reflection assignments, to gauge their level of preparedness before offline classes. Use the feedback gathered to tailor instruction and address any areas of confusion or misunderstanding during face-to-face sessions.

Moreover prior to implementing the study, the researcher will administer a pre-test to both classes to assess students' vocabulary proficiency test before any treatment is applied it is also to know the homogeneity of both participants. Following this, the experimental group will undergo four treatment sessions. After the treatment, post-tests will be conducted for both groups, and the outcomes will be calculated and compared using the T-Test.

As additional context, during these four sessions for each class, the researcher implemented project-based learning with both groups and engaged them in discussions about 'Becoming an entrepreneur.' Within this specific subject, the objective was to familiarize students with vocabulary related to entrepreneurship. For the experimental group, the researcher uploaded videos via videy.co and provided Quizlet links outlining the tasks for the upcoming session, such as 'Delivering a brief presentation on initiating a business.' Participants in the experimental group were encouraged to utilize Quizlet for self-practice and to discover new vocabulary for their preparation of tomorrow's

presentation of the students. And once the class was in session, the experimental group immediately conducted a simple presentation in English in the front individually, which had been introduced through a video link, and utilized new vocabulary they acquired from Quizlet. As for the Controlled group, the researcher employed a traditional approach by providing a teacher-centred presentation through PowerPoint, lasting approximately 15 to 20 minutes. Subsequently, the Control group was tasked with preparing and jotting down their ideas, a process that consumed the entire 55-minute session, with none of them being fully prepared to present their ideas.

3. Findings & Discussion

After conducting the Pretest in the Experimental class (N=29) and the control class (N=30) at SMA Muhammadiyah 1 Gresik, the results of the pretest showed that the average score for the experimental class was 65.4, while the average score for the controlled class was 60.9. These average score results indicate that the experimental and controlled groups are homogeneous. This was further confirmed by the calculation of One-way ANOVA (Levene's test of equality of variance) using SPSS v.22, with a significance level of 0.060, which is greater than 0.05, indicating that the data distribution is homogeneous.

Test of Homogeneity of Variances

Pretest - Result

Levene Statistic	df1	df2	Sig.
3.681	1	57	.060

3.1.1 The Results of Pretest Data Analysis on the Homogeneity of Students in XII Shosum C & B

In this quasi-experimental study, the researcher utilized a population of 59 participants from the 12th-grade classes in the Shosum B & C programs. For this research, the researcher did not have permission to randomly select participants, as the school management had already designated students according to predetermined criteria. The total participants were divided into two classes: Class XII - Shosum B (N=30) as the control group and Class XII - Shosum C (N=29) as the experimental group. Before administering any treatment to the experimental group, the researcher conducted a pretest containing questions on vocabulary comprehension, such as antonyms, synonyms, and definitions of English words related to the topic of "Entrepreneurship Management," for both the experimental and control groups.

Following the administration of the pre-test, the experimental group initiated the treatment, while the control group did not undergo a similar treatment. Each group had a total of 5 sessions. The applied intervention involved utilizing a flipped classroom with the Quizlet application serving as a supportive tool. Throughout the execution, the researcher introduced project-based learning to both the experimental and control groups. The project-based learning conducted comprised four syntactic structures or guidelines to define the stages of project-based learning, capturing the overall progression or arrangement of learning activities in this study. These structures offered general guidance for determining the teacher's or instructor's actions, their sequence, and tasks assigned to students. To elaborate further, here are a few of the employed syntactic structures:

1. **Assignment of a project related to the discussion topic "Entrepreneurship Management"**: Initiation involved assigning a project task to students, encouraging them to observe and reflect on "Entrepreneurship Management." The researcher provided guidance on the project task. In this phase, two methods were employed: a treatment using a flipped classroom combined with Quizlet as a supportive medium in the experimental group, delivered through a video. In contrast, the control group experienced this phase conventionally.
2. **Designing project planning**: At this stage, students formulated a plan or strategy to execute the project. The researcher instructed students to plan concrete steps required to achieve learning objectives. During the implementation, students developed a project plan encompassing steps, necessary resources, and team organization if needed. In this stage, the researcher once again applied two methods: treatment in the experimental group and conventional methods in the control group.
3. **Creating a project schedule as a tangible step of a project**: The schedule delineated for each meeting and discussion in each session was as follows:
 - a. Introduction, Research, and Planning (1 meeting):
 - i. Introduction to entrepreneurship management concepts and business plans.
 - ii. Presentation of learning objectives and final project results.
 - iii. Formation of project teams.

- iv. Assignment of tasks and responsibilities among team members.
- v. Research on key elements in a business plan (e.g., vision, mission, market analysis).
- vi. Planning the structure and content of the mini business plan.
- b. Business Plan Development (1 meeting):
 - i. Creation of a mini business plan based on the planned structure.
 - ii. Collaboration in the team to ensure each element of the plan is well represented.

In stages 1 and 2, the experimental group received treatment in the form of explanatory videos of the above points related to the topic "*Entrepreneurship Management*" through a flipped classroom, supported by the Quizlet application. The control group received this stage conventionally through face-to-face learning without treatment.

- c. Presentation and Reflection (2 meetings):
 - i. Preparation of team presentations.
 - ii. Presentation of the mini business plan and explanations of each element.
 - iii. Question and answer session and feedback from classmates.
 - iv. Individual and team reflection on the learning obtained.
- d. Assessment and Evaluation (1 meeting):
 - i. Evaluation of the mini business plan based on predetermined criteria.
 - ii. Assessment of the presentation and engagement of team members.
 - iii. Final reflection and improvements for the next project.

In stages 3 and 4, both the experimental and control groups followed conventional face-to-face methods.

4. **Monitoring project activities and progress:** In this phase, students actively participated in monitoring and evaluating the activities and progress of the project they were working on. This involved monitoring the steps taken, collecting data, and evaluating the achieved results. In this stage, the researcher used conventional methods for both the experimental and control groups.

After the administration of the post-test by the two groups, the researcher analysed the results of the pre-test and post-test for each group. The data tables can be seen down below:

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Pretest Experimental	29	20.00	95.00	64.6552	21.66840
Posttest Experimental	29	40.00	100.00	81.0345	15.31685
Pretest Controlled	30	35.00	95.00	62.1667	14.00021
Posttest Controlled	30	40.00	95.00	76.1667	11.57311
Valid N (listwise)	29				

3.1.2 Results of Pretest and Post-test Data Analysis using Descriptive Statistics (Experimental and Controlled Group)

Tests of Normality

	Class Code	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Result	Pretest Ex	.174	29	.026	.918	29	.027
	Post Ex	.174	29	.024	.890	29	.006
	Pre Con	.129	30	.200*	.970	30	.529
	Post Con	.101	30	.200*	.931	30	.052

*. This is a lower bound of the true significance.

- a. Lilliefors Significance Correction

3.1.2 Results of Pretest and Post-test Data Analysis using Normality Test (Experimental and Controlled Group)

In the control group (N=30), there is an indication of a relatively good increase in the average scores, with a difference of -14.16667 when compared to the pretest and post-test conducted in that group. And for the experimental group (N=29), there is an indication of a relatively good increase in the average scores as well, with a difference of -16.37931 when compared to the pretest and post-test conducted in that group. And for the tests of Normality, it is found that the significant value (*Kolmogorov-Smirnov*) of Experimental group (Pre and Post) Tests are indicated under 0.05, Which is not very well distributed or not normal. With this consideration, The researcher will use non-parametric T-Test by using Mann Whitney Test, because the significant value of the normality test is not > 0.05 which is shown (0.024), Therefore it is not suitable for the researcher to do independent Sample T-Test.

Test Statistics^a

	Post-test Result
Mann-Whitney U	317.000
Wilcoxon W	782.000
Z	-1.804
Asymp. Sig. (2-tailed)	.071

a. Grouping Variable: Class Code

3.1.3 Results of Post-test Data Analysis using non-parametric Mann Whitney (Experimental and Controlled Group)

According to the statistical test results, it's evident that the Asymp. Sig. value (2-tailed) is 0.071, exceeding the significance level of 0.05. Hence, the conclusion is that the "hypothesis is rejected." Therefore, it can be inferred that there is no distinction observed in the utilization of Quizlet within the flipped classroom context between the experimental and control groups employing traditional approaches.

Therefore, these results, there is not enough evidence to conclude that the use of the Flipped Classroom to improve English vocabulary mastery through the Quizlet application significantly influences twelfth-grade students at SMA Muhammadiyah 1 Gresik

4. Conclusion

Based on the rejection of the hypothesis in the statistical analysis, it can be concluded that there is no significant difference observed in the implementation of Quizlet within the flipped classroom context between the experimental and control groups utilizing conventional methods. This implies that both groups, despite using different approaches, demonstrated similar outcomes regarding the incorporation of Quizlet in their learning process.

However, it is important to consider several factors for future research and practice. Firstly, while the implementation of Quizlet did not result in significant differences between groups, it is essential to explore other potential benefits or drawbacks of using Quizlet in the flipped classroom, such as student engagement, motivation, and long-term retention of material. Furthermore, future studies could investigate the effectiveness of incorporating Quizlet in combination with other instructional strategies or technologies within the flipped classroom model. Additionally, considering the diverse learning preferences and needs of students, it may be valuable to explore the customization and adaptation of Quizlet activities to better cater to individual learning styles and abilities.

Moreover, examining the role of teacher support, guidance, and scaffolding in facilitating effective Quizlet use within the flipped classroom could provide insights into optimizing instructional practices. Additionally, exploring the impact of Quizlet implementation on different subject areas or grade levels could offer a more comprehensive understanding of its effectiveness across various educational contexts.

In conclusion, while the current study suggests no significant difference in the implementation of Quizlet within the flipped classroom context, further research is needed to explore its potential benefits, limitations, and optimal integration strategies to enhance student learning outcomes effectively.

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