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The Use of Rubik Cube Media to Improve Students' English Vocabulary Madrasah Aliyah Maarif Roudlotut Tholibin

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ABSTRACT

The English vocabulary mastery plays a crucial role in students' language proficiency and communication skills. However, many students struggle with memorizing and effectively using new vocabulary. This study investigates the effectiveness of using Rubik's Cube as a learning medium to enhance students' English vocabulary at Madrasah Aliyah Ma'arif Roudlotut Tholibin. The research employs a Classroom Action Research (CAR) method, following the Kemmis and Taggart model, consisting of four stages: planning, action, observation, and reflection. The study involves students from class XI, divided into two groups (XA and XB), using a combination of observations, questionnaires, tests, and documentation for data collection. The findings indicate that integrating Rubik's Cube into vocabulary learning improves students' retention, motivation, and engagement. The study also highlights the potential of game-based learning in fostering an interactive and enjoyable learning environment. These results provide valuable insights for educators in developing innovative teaching strategies to enhance English vocabulary acquisition.

Keywords: *English Vocabulary, Game-Based Learning, Rubik's Cube, Student Engagement, Classroom Action Research*

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INTRODUCTION

English proficiency, particularly vocabulary mastery, plays a crucial role in effective communication, both orally and in writing. According to (Kuncoro, 2017), vocabulary mastery significantly influences students' ability to speak English fluently and understand materials presented in class. However, many students face challenges in memorizing and applying vocabulary effectively (Maulani et al., 2022). One of the external factors influencing students' learning success is the use of appropriate learning media (Nurrohman, 2021). Media can provide an attraction in learning English and students will have more fun in learning English (Shofiyuddin, 2016). Without a channel or media, the information to be conveyed cannot be conveyed optimally and can even be misinterpreted (Nurrohman, 2021).

The integration of innovative learning media, such as game-based media, has been shown to increase student engagement and retention of new vocabulary (Gibran et al., 2024). One emerging medium in education is Rubik's Cube, a widely recognized puzzle that has been adapted as an interactive learning medium. Research suggests that puzzle-based games, including the Rubik's Cube, can enhance cognitive abilities, problem-solving skills, and language retention (Tantri et al., 2024).

Rubik's Cube is a 3D combination puzzle invented in 1974 by Hungarian sculptor and architecture professor Ernő Rubik (Zeng et al., 2018). Rubik named his invention Magic Cube, which was later patented in Hungary and first sold through the Ideal Toy Corporation. In 1980, the Ideal Toy company changed the name of the magic cube to "Rubik's Cube" (Nuryati, 2019). And to date, more than 350 million Rubik's Cubes have been sold worldwide (Liwandouw & Wowor, 2015).

At Madrasah Aliyah Ma'arif Roudlotut Tholibin, the traditional approach to teaching English has led to challenges in vocabulary acquisition due to limited access to electronic learning tools (Abror et al., 2025). A pre-survey conducted in this study showed that students responded positively to interactive learning techniques, indicating the potential effectiveness of Rubik's Cube as a vocabulary learning aid. Rubik's Cube, with its structured patterns and color-coding system, can provide a visual and kinesthetic approach to vocabulary learning, making the process more engaging and enjoyable (Saraswati et al., 2020). The use of educational games can increase students' interest in learning, especially among students who have a higher tendency towards more visual and practical learning methods (Tisngati, 2022).

A study by Shofiyuddin (2016) demonstrated that incorporating the Rubik's Cube in learning irregular verb forms helped students improve their vocabulary retention (Shofiyuddin, 2016). Similarly, a study by Rambe (2019) on card games for vocabulary learning found that game-based methods increase motivation and learning effectiveness (Rambe, 2019). These findings align with the game-based learning theory, which suggests that educational games can create an immersive and enjoyable learning environment, leading to better student outcomes (Savitriana & Anjarwati, 2024).

The objective of this research is to evaluate the effectiveness of using the Rubik's Cube as a medium for improving students' English vocabulary at Madrasah Aliyah Ma'arif Roudlotut Tholibin. The use of educational games can increase students' interest in learning, especially among students who have a higher tendency towards more visual and practical learning methods (Tisngati, 2022). This study aims to measure vocabulary improvement, analyze student engagement, and identify potential challenges in implementing Rubik-based learning.

By introducing the Rubik's Cube as a vocabulary learning tool, students can develop a more interactive and structured approach to memorization. The use of images or visual symbols that are connected to specific words or concepts can strengthen students' understanding and recall (Nurdyansyah, 2019). The study also aims to provide educators with alternative teaching strategies that align with modern educational trends. As game-based learning continues to evolve, incorporating innovative techniques into traditional classrooms can significantly improve learning outcomes (Iskandar et al., 2023).

Thus, this study contributes to the development of innovative language teaching methods, offering an alternative that combines visual, kinesthetic, and cognitive learning strategies. The results of this research are expected to provide valuable insights for teachers and educational institutions, enhancing the overall effectiveness of English vocabulary acquisition among students.

METHOD

This study uses a classroom action research (PTK) approach known as Classroom Action Research (CAR) (Mudrikah, 2024). This research procedure follows Kemmis and Taggart model which includes four components in each cycle, namely: (1)

planning (Planning), (2) Action (Acting), (3) observation (Observing), and (4) reflection (Reflecting) (Surini, 2019).

This research was conducted by MA'arif Roudlotut Tholibin Metro Utara Metro City, Lampung academic year 2024/2025. Related to the use of Rubik's Cube to improve English vocabulary students XI MA Maarif Roudlotut Tholibin Metro Lampung. When the research is carried out in the 2024/2025 academic year,the presurvey will start on December 15 March, 2025 until it is completed.

As for the population of researchers in this penelitian, they are students of Class X MA Maarif Roudlotut Tholibin for the 2024/2025 academic year. The number of students used in this researchis divided into two classes (XA and XB). To take a sample, the sampling technique used in this study is sampling by filling out the observation sheet.

Data collection techniques of this research is observation, questionnaire, Test or assessment of learning outcomes, documentation, self-reflection, and field notes. This study is considered successful if there is a significant improvement in vocabulary mastery. Success is also measured through positive feedback from students regarding their motivation and involvement in game-based learning (Sappaile et al., 2024).

The steps of Learning Englishvocabulary using Rubik's game media in the Classroom Action Research method are carried out in several stages : 1. Planning: planning the actions to be carried out, including the selection of appropriate data collection techniques (Utomo et al., 2024). 2. Action: carry out the actions that have been planned in class (Lafendry, 2023). 3. Observation: observing and recording the results of the actions that have been carried out (Febriani et al., 2023). 4. Reflection: analyze the data that has been collected to evaluate whether or not the objectives of the action are being achieved (Suciani et al., 2023). Rubik's learning media application can foster student motivation to learn English with a lot of vocabulary mastery and increased participation/activeness of students in learning. Teachers can know varied learning strategies to improve and enhance English learning. The school becomes an active and fun student learning climate and the achievement of student learning completeness in a lesson (Rambe, 2019).

RESULTS AND DISCUSSION

The study was conducted over seven sessions with second semester high school students. The researcher started the study by conducting preliminary research. This initial stage took place during the first two weeks before the main research. The purpose of the preliminary research was to gather information and observe the English teaching and learning process at MA Ma'arif Roudlotut Tholibin, particularly in grade ten. To achieve this, the researcher observed students' English learning activities in class and conducted interviews with tenth grade students and their English teachers, focusing on the English learning process, especially their vocabulary skills.

The pre-observation results showed that students showed low interest in learning English, as reflected by their reactions during the lesson. Some students were disinterested, choosing to focus on personal activities or paying attention but not focusing on the lesson, and there were some students who were sleepy and even fell asleep in class despite the teacher's efforts to prevent it. In addition, two students expressed their dislike of being in the classroom and often asked permission to leave. On the other hand, some students seemed very interested in learning English. They were active in class, often urging their peers to remain calm and focus on the teacher's instructions. These students do not hesitate to ask questions when they do not

understand the material. When assignments are given, some students complete them independently, while others work collaboratively.

Furthermore, the results of the pre-interviews showed that most of the students struggled in learning due to their mindset that English was a difficult subject and also the irregular attendance of the teachers, which caused gaps in their understanding. While some students feel that memorizing English vocabulary is easy to do, others face difficulties, especially in implementing in a sentence. Most have never been taught specific strategies to improve their vocabulary, and rely solely on self-study methods such as memorizing and listening to English songs. Only a few have received guidance, especially through extensive reading. The assignments given are usually exercises from the textbook, which are then reviewed in class.

Pre-interviews with the English teacher revealed that all students actively participated in learning, although their English performance varied. Some students scored above the Minimum Completion Criteria (MCC), while others met or fell below the MCC. Teachers observed differences in students' vocabulary skills, with some students speaking fluently while others struggled. No alternative strategies were implemented to improve speaking skills. However, the teacher believed that a strategy using the rubik cube method could help improve students' vocabulary skills and overall language comprehension.This research took place over four sessions, and became one cycle.

The results of the cycle were analyzed through four stages of Classroom Action Research (PTK): (1) planning, (2) implementation, (3) observation, and (4) reflection (Utomo et al., 2024).

In the planning stage, the researcher developed a lesson plan to teach the rubik cube to improve vocabulary. The next stage, action, involved the researcher conducting four class sessions.

The first session was dedicated to giving a pre-test with the aim of knowing the students' ability and interest in learning (Hariadi et al., 2023). The second session, the researcher gave the students how to play rubik cube to improve vocabulary. The third session taught the students how to pronounce and use vocabulary in a sentence. And the last session, the fourth session was used for post-test with the same topic. The third stage of the Classroom Action Research (CAR), observation, was conducted simultaneously with the second stage. During the four sessions, the researcher observed the students. The action and observation steps are outlined in table 1 below.

Table.1. Stages of the research session

Meeting	Acting	Observing
	Topic	Activy
1	Pre-test	The students were asked to engage in filling out a short pretest on the material to be studied, namely vocabulary.
2	the use of rubik cubes to improve vocabulary	The students pay attention to how to use the rubik cube to find vocbulary in it,. The researcher gave each 2 people 1 rubik cube to discuss and each group was instructed to solve

		the puzzle containing vocabulary in the rubik cube.
3	vocabulary material and its usage	The students listened and observed the vocabulary material presented by the researcher, starting from the meaning and how to use it in a sentence.
4	related vocabulary post test	The students discuss the vocabulary found. They then make a simple statement from some of the vocabulary found, then present it in front of the class. The post-test was conducted after the learning session was over by doing the same as the pretest.

The last session of Cycle 1 focused on reflection. At this stage, the researcher analyzed the observation results of the teaching and learning process. Starting with the pre-test, which in general could be completed well, although some students experienced difficulties. The average score of the pretest was 55 or 38% of students scored above the Minimum Completion Criteria (KKM), while the other 13 students scored below the KKM, which is low when compared to the target of 70% of students meeting the KKM standard. . This analysis shows that the majority of tenth grade students at MA Ma'arif Roudlotut Tholibin still have difficulties in implementing vocabulary in an English sentence.

During the treatment, the researcher observed how students engaged in discussions using the rubik cube method. In the first treatment, students seemed confused and needed constant guidance at every step. They were hesitant to use the rubik cube to find English vocabulary, especially when asking questions about the vocabulary found.

Table.2. percentage of pretest and posttest results

Type	Clauses	Percentages
a) Pre-Test	80	38%
b) Post-Test	20	62%
Total	**100**	**100%**

However, by the end of the treatment, the students started to show more confidence. Some students began to actively participate in independent tasks and discussions, expressing ideas, and even asking questions about the vocabulary they found. This progress was reflected in the improvement of the post-test 1 score of 77 or 62% of the students had met the KKM score, which showed an improvement of 30% compared to the pre-test results. The findings from this cycle showed both positive and negative results. On the positive side, students showed progress in their vocabulary in speaking English and also the implementation in a sentence. On the negative side, some students remained passive and lacked enthusiasm.

This research was started with the aim to improve students' vocabulary skills by using rubik cube media in tenth grade students at MA Ma'arif Roudlotut Tholibin.

Through one cycle, the teaching and learning process of learning was implemented and went well in tenth grade students of the second semester of high school level. The research showed that the rubik cube media can improve vocabulary as well as its use in a sentence, confidence, and overall student engagement in learning English. Observations, interviews, and test scores showed a marked improvement, with students showing increased motivation and willingness to improve vocabulary. These findings are in line with previous research, which reinforces the positive impact of peer interaction on language development. Test results showed significant progress, with the average score increasing from 38% in the pretest to 62% in the second posttest, and 70% of students meeting the success criteria. These results highlight the effectiveness of the rubik cube media as a method to improve students' English vocabulary skills.

CONCLUSION

The Classroom Action Research conducted at MA Ma'arif Roudlotut Tholibin in the 2024/2025 academic year aims to improve the English vocabulary of tenth grade students through rubik cube media. Several effective techniques have been identified, including encouraging students to memorize English vocablary, allowing independent discussion, allowing mistakes to build confidence, and using pronunciation exercises, presentations, and video materials to enhance learning.

Observations, interviews, and test scores showed significant progress. Students became more engaged, improved their pronunciation, gained confidence, and showed higher motivation. Teachers also recognized that the rubik cube media was an effective method to improve students' vocabulary. The test results showed significant improvement. In the pretest, only 38% of students met the Minimum Completion Criteria (MCC), with an average score of 55. After the cycle, 62% of students exceeded the KKM, increasing the average score to 77, In this cycle students have exceeded the KKM and successfully achieved the learning objectives.

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