Continuous Education : Journal of Science and Research
Volume 6 Issue 1 March 2025
Journal Homepage:
https://pusdikra-publishing.com/index.php/josr

The Effect of Quantum Learning Method Toward Students Vocabulary Mastery in Grade V of SDN 03 Pakan Labuah

Sri Novelta Agustia[1], Loli Safitri[2], Melyann Melani[3], Syahrul[4]
[1,2,3,4] *Universitas Islam Negeri Sjech M. Djamil Djambek Bukittinggi, Indonesia*
Corresponding Author: srinovelta@gmail.com

ARTICLE INFO
Article history:
Received
21 March 2025
Revised
25 April 2025
Accepted
15 April 2025

ABSTRACT

This study explores the effect of the Quantum Learning method on vocabulary mastery among fifth-grade students at SDN 03 Pakan Labuah. The research used a quasi-experimental design, where an experimental group taught using Quantum Learning and a control group receiving traditional teaching methods. Data were collected through pre-tests and post-tests measuring students' vocabulary mastery. The results demonstrated a significant improvement in the experimental group's vocabulary scores (p-value = 0.000), suggesting that the Quantum Learning method had a positive impact on vocabulary acquisition. However, no significant difference was found between the experimental and control groups when comparing overall vocabulary mastery scores (p-value = 0.242). Despite this, the experimental group outperformed the control group in post-test results, further supporting the effectiveness of the Quantum Learning method in enhancing vocabulary mastery. This study contributes to the growing body of research on innovative teaching methodologies, offering valuable insights into the application of Quantum Learning in language education. Future research should focus on exploring long-term effects and the role of contextual factors in the method's effectiveness.

Key Word *Quantum Learning, Method Toward Students Abilitiy, Vocabulary Mastery.*

How to cite https://pusdikra-publishing.com/index.php/josr

INTRODUCTION

Vocabulary is a key component of language that students should have because it supports the four language skills. According to Richard, vocabulary is a key component of language proficiency and plays a major role in determining students' speaking, listening, reading, and writing (Jack, 2022). This helps students to better demonstrate their skills. Students do not know how to demonstrate their skills if their vocabulary is limited.

One of the components of learning English is, among other components, understanding the vocabulary of the English language itself. Thornbury argues that little can be conveyed without grammar, and nothing can be conveyed

without vocabulary (Scoot Thornbury, 2002). Here are the conclusions of language experts on the importance of vocabulary learning. If students lack vocabulary, they will have difficulty listening, reading, writing, and speaking (Kardena, 2016). If students have sufficient vocabulary, they can understand messages or information and easily extract ideas from texts (Reflinda, 2017). Moreover, students cannot speak English fluently without a dictionary and cannot understand the meaning of what the speaker is saying to them. If students have limited vocabulary, they cannot organize their thoughts into sentences. There are several methods that teachers can use to teach English vocabulary to students, one of which is quantum learning.

Quantum learning is one of the learning methods that can create a classroom environment and make students interested in learning. Quantum learning is learning that creates a comfortable, interesting learning environment, and can transform students' natural abilities and talents into knowledge that is useful to themselves and others. According to Selman and Seman, quantum learning is a quantum learning method that can make students learn without learning, that is, students learn without feeling difficult to learn because students see what they are learning as part of their lives (Selman, 2009). Furthermore, according to Bobby DePotter and Mike Hernatsky, quantum learning is a set of teaching methods and philosophies that have been proven to be effective in schools for all types of people and all ages. In conclusion, quantum learning is a series of learning methods that improve comprehension and memory, as well as make learning fun and rewarding.

There are advantages and disadvantages to quantum learning. As for its advantages, according to Sukriya, quantum learning has several advantages: first, it focuses on using learning strategies that are more suitable for students' long-term memory than handwriting. Second, it can be a collaborative learning experience for students, allowing them to see their potential. Third, the learning activity is more active and increases students' interest. Fourth, it helps teachers create a positive classroom environment for students because it changes the learning situation from tiring learning to fun learning (Ziyo, 2022). Meanwhile, the weaknesses are as follows: first, it requires the teacher's experience and skills. Second, it takes a lot of time. Finally, teachers need to present topics related to students' experiences. From the above explanation using the quantum teaching method, it can be concluded that the quantum teaching method has advantages for students and teachers and is an effective method used in schools, especially in elementary schools. This method has several weaknesses, namely, requiring experience, skills, teacher time, and presenting topics related to students' experiences.

Additionally, a study at Northwood High School in Woodstock, Illinois, found that vocabulary scores increased by 13.8 percent and word recognition scores increased by 11.5 percent after one week of quant learning. This means that quantum learning can play a significant role in accelerating students' ability to acquire new vocabulary. The improvements in vocabulary scores and word definitions in just one week demonstrate that this method is highly engaging and effective in facilitating active learning. These results highlight the potential of quantum learning to bridge the gap in traditional teaching methods by creating an interactive and stimulating learning environment that supports vocabulary learning.

Language plays a fundamental role in human communication, and vocabulary is a crucial component in the acquisition of any language. Vocabulary acquisition is essential for students because it serves as a foundation for developing listening, speaking, reading, and writing skills. In the context of English as a foreign language, students often struggle to expand their vocabulary due to a lack of engaging learning strategies. Traditional methods of teaching vocabulary are often monotonous, leading to low student motivation and retention. As a result, there is a great need for innovative teaching approaches that enhance vocabulary acquisition and provide a more effective learning environment.

Quantum Learning is a teaching method that combines various teaching methods to create a dynamic and engaging classroom environment. It emphasizes active learning, multi-sensory engagement, and meaningful associations to improve students' comprehension and retention. Designed based on the principles of accelerated learning, Quantum Learning incorporates visual, auditory, and kinesthetic elements to stimulate different cognitive pathways. This method is expected to increase students' ability to acquire and retain vocabulary more effectively than traditional approaches by making learning fun and interactive.

The effectiveness of the Quantum Learning Method has been widely recognized in various educational contexts. Studies have shown that this approach improves students' cognitive abilities, enhances critical thinking skills, and increases overall academic performance. However, its specific effects on vocabulary acquisition among elementary school students have not yet been fully explored. Given the importance of vocabulary in language learning, it is necessary to investigate whether the Quantum Learning Method can significantly contribute to improving students' vocabulary acquisition, especially at the elementary school level.

Teaching English as a foreign language in the Indonesian educational context presents its own challenges. Many primary school students have limited exposure to English outside the classroom, making it difficult for them to practice and reinforce their vocabulary skills. Furthermore, traditional teaching methods often rely on rote memorization, which does not promote deep understanding or long-term retention. The introduction of innovative teaching strategies such as quantum learning can address these challenges by providing a more stimulating and effective learning experience.

One of the key aspects of Quantum Learning is its emphasis on creating an optimal learning environment (Sesmiarni Z, et all, 2020). This method promotes a positive classroom environment where students feel comfortable and are encouraged to actively participate. By incorporating music, storytelling, and collaborative learning activities, Quantum Learning aims to make vocabulary learning more fun and less stressful. This approach is consistent with research findings that emotional engagement plays a crucial role in memory retention and learning.

Additionally, Quantum Learning encourages active student engagement through interactive exercises and collaborative learning. Instead of passively receiving information, students are encouraged to discover meanings, make associations, and apply newly learned words in meaningful contexts. This hands-on approach allows students to gain a deeper understanding of vocabulary and use it confidently in communication. By developing a sense of ownership of their knowledge, students can retain and apply their vocabulary effectively.

Another important advantage of quantum learning is its adaptability to different learning styles. Each student has a unique way of processing information, and traditional one-size-fits-all teaching methods may not meet the diverse learning needs of each student. With its multisensory techniques, quantum learning engages visual learners through imagery and mind mapping, auditory learners through discussions and mnemonics, and kinesthetic learners through physical activities and role-playing. This flexibility ensures that all students, regardless of their preferred learning style, can benefit from this approach.

In addition to increasing vocabulary, Quantum Learning helps develop critical thinking and problem-solving skills. This method helps students analyze word meanings, recognize patterns, and make connections between different linguistic elements by engaging them in interactive and thought-provoking activities. These cognitive skills are essential for language acquisition and can contribute significantly to students' overall academic success.

Despite its potential benefits, implementing quantum learning in elementary schools can present certain challenges. Teachers need adequate training and resources to effectively implement this method in their classrooms. In addition, integrating quantum learning into an existing curriculum requires careful planning to ensure that learning objectives are met without disrupting the required curriculum. Therefore, further research is needed to examine the long-term impact of this method on vocabulary acquisition in different educational settings.

With these considerations in mind, this study aims to investigate the effectiveness of the Quantum Learning method in improving vocabulary among fifth grade students of SDN 03 Pakan Labuah. By comparing the vocabulary of students taught using Quantum Learning with those taught using traditional methods, this study aims to provide empirical evidence on the impact of this approach. The findings contribute to the growing body of knowledge on innovative language teaching methods and provide practical insights for teachers seeking to improve English vocabulary.

Ultimately, the success of vocabulary learning depends on the effectiveness of the instructional strategies used in the classroom. If quantum learning is effective in increasing vocabulary, it could serve as a valuable alternative to traditional teaching methods. This study not only explores its potential benefits, but also highlights the need for continuous improvement and adaptation of teaching practices to meet the changing needs of students in language learning.

In conclusion, vocabulary acquisition is an important aspect of language learning, and the "Quantum Learning" method offers a promising approach to enhance students' vocabulary acquisition and retention. By creating a stimulating and interactive learning environment, this method has the potential to transform traditional vocabulary instruction and improve learning outcomes. This study aims to address this research gap by examining the effectiveness of Quantum Learning in primary school English language teaching, with the hope of providing valuable insights for teachers, policymakers, and researchers in the field of language teaching.

Based on preliminary research, through observations and interviews during the Fieldwork Practice (PPL) on November 1, 2023, researchers identified several problems in SDN 03 Pakan Labuah. The first problem is that students do not do the lessons well. Second, most students are not interested in vocabulary. Some students consider English lessons to be unimportant. They consider English lessons to be very difficult because the spelling and pronunciation of English are different. In addition, based on the observations

made by the researchers, the following problems were identified: Third, teachers use traditional teaching methods. In the traditional method, teachers explain the material in front of the class, and students only listen, take notes, and follow the teacher's instructions without involving students in developing their skills. Fourth, students' English proficiency is still low. As a result, students' English proficiency is insufficient, as evidenced by the average daily score of 69.46. This score is below the minimum standard for English proficiency, which is 75 points.

RESEARCH METHOD

This study used a quantitative research design with a quasi-experimental approach to investigate the effect of the quantum teaching method on vocabulary acquisition among fifth grade students at SDN 03 Pakan Labuah. Two groups participated in this study: the experimental group (VA class, n=26) taught you to sing using the quantum teaching method, and the control group (VB class, n=25) taught you to sing using the traditional teaching method.

This study aimed to determine the effect of the Quantum Learning Method on the vocabulary acquisition of fifth grade students of SDN 03 Pakan Labuah. The research data were obtained through pre- and post-tests administered to the experimental and control groups. Before applying the Quantum Learning Method, the pre-test average scores of the experimental group showed that most students had relatively low vocabulary. On the contrary, after being treated with the Quantum Learning Method, the post-test results showed that the students' vocabulary had significantly improved.

This study used a quantitative research design with a quasi-experimental approach to investigate the effect of the Quantum Learning Method on vocabulary acquisition among fifth grade students at SDN 03 Pakan Labuah. Two groups participated in this study: the experimental group taught using the Quantum Learning Method (VA class, n=26) and the control group taught using the traditional teaching method (VB class, n=25).

Statistical analysis using t-test revealed that there was a significant difference between the post-test results of the experimental and control groups (Khairani, et all, 2025). The mean post-test score of the experimental group was higher than that of the control group that continued to use traditional learning methods. This indicates that the Quantum Learning Method significantly contributes to the increase in students' vocabulary compared to traditional learning methods. In this study, a vocabulary test consisting of 20 multiple-choice questions was used as a pre-test and post-test. The sample was selected based on similar performance in English. The validity of the test was confirmed

by expert evaluation, and the reliability was confirmed by the Aiken index (0.867), which indicates high reliability.

The data collected from the pre-test and post-test results were analyzed using statistical methods, specifically the t-test, to determine whether there was a significant difference in vocabulary acquisition between the two groups. Normality and homogeneity tests showed that the data met the assumptions for parametric analysis, which allowed the use of the t-test. The results showed a significant increase in vocabulary acquisition for the experimental group (p-value = 0.000), indicating the effectiveness of the quantum learning method. However, no significant difference was found between the experimental and control groups in general vocabulary acquisition (p-value = 0.242). These results help to understand the potential of quantum learning in improving language learning, especially vocabulary acquisition.

RESULT AND DISCUSSION

Result

Data description

This section describes the data collected from the students' pre- and post-tests. The results are tabulated using the Sturges formula, which is used to determine the distribution of scores.

a. Pre-check students' vocabulary

The scores of students in the experimental and control groups based on the preliminary test results can be seen in the table below:

Table 1 .
Initial Test Scores for English Vocabulary

Hose	Test	Control
50-56	3	3
57-63	2	1
64-70	7	9
71-77	3	3
78-84	5	4
85-91	6	5
92-98 years	Number 0	Number 0
99-100	Number 0	Number 0
general	26	25

As can be seen from the table above, in the experimental class, there were 3 students in the 50-56 range, 2 students in the 57-63 range, 7 in the 64-70 range, 3 in the 71-73 range, 5 students in the 71-73 range, 5 students in the 86-87 range,

and there were no students in the 85-91 range or 92-100 range. Meanwhile, in the control class, there were 3 students who scored 50-56 points, 1 student who scored 57-63 points, 9 students who scored 64-70 points, 3 students who scored 71-73 points, 4 students who scored 78 points. 85-91 range, and no students scored 92-100.

The aboe assessment can also be seen in the graph below:

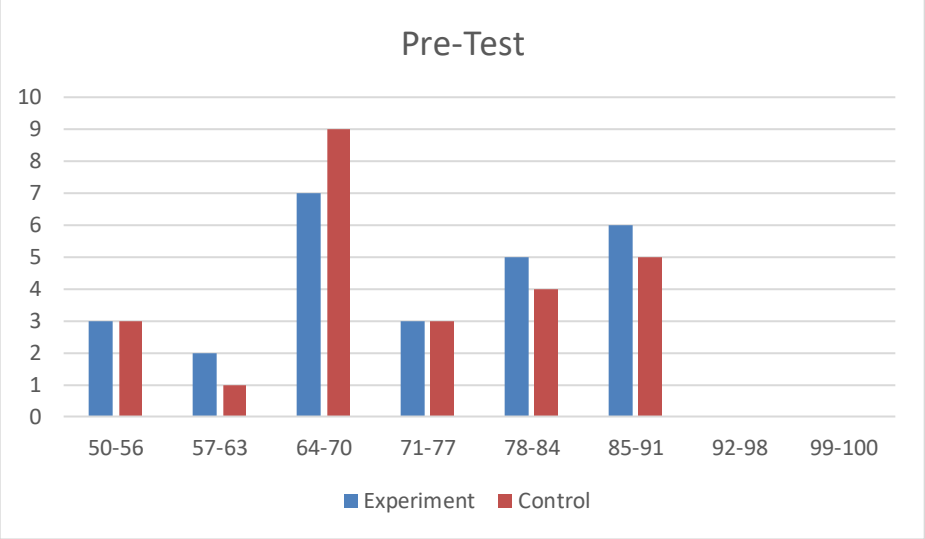

Figure 1.
Pre-test assessment of students' vocabulary

Additionally, the overall statistics of the pre-test results can be seen in the table below:

Table 2.
Pre-test results statistics

	Test	Control
Remember	73.3	72.6
Minimum score	50	50
Maximum score	90	90

Based on the table above, the average value of the initial test of the experimental class was 73.3, the minimum value was 50, and the maximum value was 90. Meanwhile, the average value of the control class was 72.6, the minimum value was also 50, and the maximum value was also 90.

b. Assessing students' post-exam vocabulary

The final test results of the experimental and control group students can be seen in the table below:

Table 3.
Vocabulary scores after the test

Hose	Test	Control
50-56	1	3
57-63	2	Number 0
64-70	4	6
71-77	4	2
78-84	2	4
85-91	8	7
92-98 years	1	3
99-100	4	Number 0

According to Table 3, in the experimental class, there was 1 student who scored 50-56 points, 2 students who scored 57-63 points, 4 students who scored 64-70 points, 4 students who scored 71-77 points, 2 students who scored 71-77 points, 2 students who scored 7-88 points, 1 student who scored 85-91 points, 92-98 points, and 4 students who scored 99-100 points.

Meanwhile, in the control class, 3 students scored 50-56 points, one student scored 57-63 points, 6 students scored 64-70, 2 students scored 71-77, 4 students scored 78-84, 7 students scored 859, and no students scored 8389.

The above assessment can also be seen in the graph below:

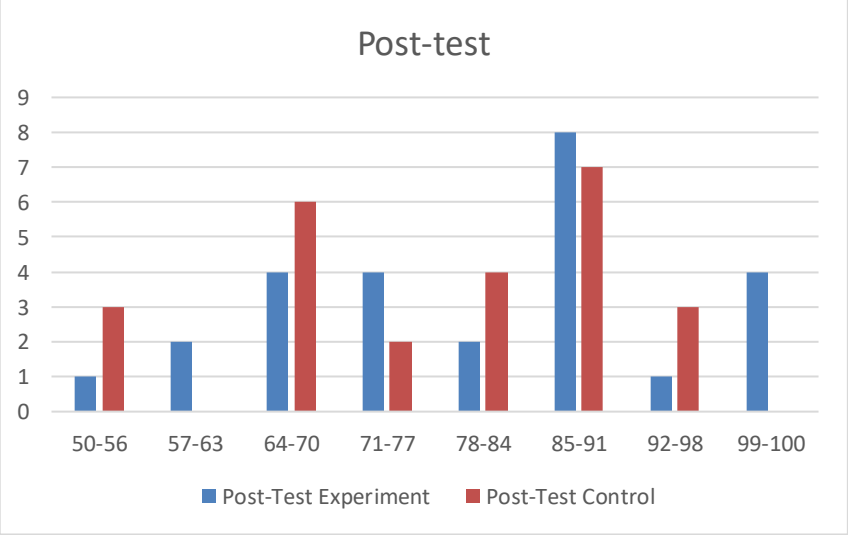

Figure 2.
Assessment of students' vocabulary after taking the test

Additionally, the overall statistics of the post-test results can be seen in the table below:

Table 4.
Post-test results statistics

	Test	Control
Remember	80.8	76.4
Minimum score	55	50
Maximum score	100	95

Based on Table 4 above, the average score on the final inspection of the experimental class was 80.8, the minimum score was 55, and the maximum score was 100. Meanwhile, the average score of the control class was 76.4, the minimum score was 50, and the maximum score was 95.

Discussion

The results of this study are consistent with previous studies on quantum learning methods for improving students' English language skills. Previous studies by Zia, Novy, and Heewong have consistently shown that quantum learning has positive effects on various aspects of English language learning, including academic performance, vocabulary acquisition, and other skills. This study provides a foundation for understanding how quantum learning can contribute to an active and engaging learning environment.

Zia's research focuses on overall effectiveness and engagement in English language learning. The study found that quantum learning helped overcome common problems in English lessons, such as monotonous activities and mismatches between teaching methods and learning styles. The average score of 75.03 students exceeded the minimum proficiency criteria (MFC), indicating its effectiveness. Similarly, Zia noted that student engagement increased during the lesson, with 9.5% of students actively participating, indicating that the method encouraged active participation (Ziyo Syukriya, 2020.

Novy's study specifically examined the effects of quantum learning on vocabulary acquisition. The study used chi-square and t-tests to analyze the data and found statistically significant improvements in students' vocabulary. This supports the conclusion that quantum learning is effective in addressing specific skill areas in English language learning (Yunitasari Novi, 2018).

In her study of quantum teaching for teaching speaking skills, Hiwon took into account the variability of students' self-confidence. The results showed that quantum teaching was more effective than direct teaching in improving certain competencies, especially for students with high self-confidence. Furthermore, the interaction between teaching methods and student characteristics highlighted the flexibility and inclusiveness of the quantum teaching method.

This current study builds on previous findings by providing additional evidence of the effectiveness of quantum tutoring in vocabulary acquisition. The results of the first hypothesis test showed that students' vocabulary scores increased significantly after the introduction of quantum tutoring, as indicated by a small alpha value (0.000<0.05). This is consistent with Novy's findings, which support the ability of this method to increase vocabulary.

However, in the current study, the second hypothesis test found no significant difference in vocabulary acquisition between students taught with and without quantum instruction (sig value = 0.242 > 0.05). This is contrary to the findings of Ziyo and Noviy. This suggests that factors such as instructional implementation, teacher experience, or student engagement levels may influence the results. Further research on these variables may clarify these differences.

Finally, the third hypothesis test showed that students in the experimental group performed better than the control group on post-test scores, with a mean score (80.8 > 76.4), a maximum score (100 > 95), and a minimum score (55 > 50). This supports Zia and Novy's conclusions about the overall effectiveness of the method and is consistent with Hevon's statement that quantum learning can produce better results than traditional learning methods.

This study aimed to determine the effect of the Quantum Learning Method on the vocabulary acquisition of fifth grade students of SDN 03 Pakan Labuah. The research data were obtained through pre- and post-tests administered to the experimental and control groups. Before applying the Quantum Learning Method, the pre-test average scores of the experimental group showed that most students had relatively low vocabulary. On the contrary, after being treated with the Quantum Learning Method, the post-test results showed that the students' vocabulary had significantly improved.

Statistical analysis using t-test revealed that there was a significant difference between the post-test results of the experimental and control groups. The mean post-test score of the experimental group was higher than that of the control group that continued to use traditional learning methods. This indicates that the Quantum Learning Method significantly contributes to the increase in students' vocabulary compared to traditional learning methods.

Quantum Learning Method is a learning method that emphasizes creating an engaging, interactive learning environment and incorporates various techniques such as visualization, music, and emotional involvement into the learning process. The results of this study show that this method has a positive effect on increasing the vocabulary of fifth grade students at SDN 03 Pakan

Labuah. This increase is related to several key factors that support the effectiveness of the Quantum Learning Method.

First, this method allows students to learn in a more creative and less boring way. The use of audio-visual aids and association techniques makes it easier for students to remember and understand the meaning of new words. It makes it easier for students to relate the words they are learning to previously known experiences or concepts, thereby improving their memory.

Second, the Quantum Learning method emphasizes active participation of students in learning. More interaction between students and teachers and students encourages them to use new knowledge in different contexts. Discussion exercises, word games, and conversation simulations help students gain confidence in using the knowledge they have learned.

Third, an interesting and stress-free learning environment increases students' motivation to learn. This study found that students in the experimental group were more interested in learning mathematics than the control group. This factor led to better results in the post-test than the experimental group.

Fourth, the Quantum Learning Method also allows for a multisensory approach where students can learn through different sensory channels such as auditory, visual, and kinesthetic. This increases learning effectiveness because students do not just memorize words orally, but experience and absorb them in different forms of activity.

Fifth, using the "Quantum Learning" method in vocabulary learning also has a positive effect on students' communication skills. Students are more accustomed to using a broader range of concepts in speaking and writing, so their ability to communicate well improves.

Sixth, the results of this study are consistent with several previous studies showing that Quantum Learning is effective in improving students' understanding of various subjects. Quantum Learning-based education not only improves math mastery, but also other cognitive skills such as critical thinking and creativity.

However, there are several challenges in implementing the Quantum Learning method. One of them is the willingness of teachers to use this method. In order to optimally apply the principles of Quantum Learning in the teaching process, teachers need to have a good understanding. In addition, educational tools and media support are also important factors for the success of this method.

The results of the interviews with the teachers who participated in this study revealed that the Quantum Learning method requires more advanced

planning than traditional methods. Teachers need to develop varied and interesting activities so that students remain motivated throughout the learning process. However, teachers also recognize that this method has a real positive impact on student motivation and learning outcomes.

Thus, according to the results of this study, it can be concluded that the Quantum Learning method significantly contributes to increasing students' vocabulary. Implementing this method in English language learning in primary schools can be an effective alternative to improve the quality of teaching and students' learning outcomes.

It is recommended that further studies be conducted on a larger scale, with a larger sample size and a wider variety of learning materials. In addition, other factors that may affect the effectiveness of the Quantum Learning method should be deeply analyzed to enrich the understanding in the field of education.

CONCLUSION

Finally, a comparative analysis of the post-test results for both groups showed that students trained using the quantum teaching method showed overall improvements in vocabulary acquisition. The experimental group showed higher mean scores (80.8 vs. 76.4), maximum scores (95 vs. 100), and minimum scores (55 vs. 50) than the control group. These results support the third hypothesis, which is that the quantum teaching method promotes better vocabulary acquisition than the traditional teaching method. Overall, this study highlights the potential benefits of the quantum teaching method and highlights the need for further research to consider contextual variations and optimize its implementation.

REFERENCES

ACAT, M. B., & AY, Y. (2014). A study on the effects of the quantum learning approach on the achievement, retention and attitude of 7th grade primary school students in science. Journal of the International Association for Research in Teacher Education Research, 5(2), 11–23.

Aebersold, J. A., & Field, M. L. (1997). Developing a course of study. Ambridge University Press, 49–58.

Dennis, W. S., & Huebert, L. J. (1975). Introduction to educational policy research. Education and Urban Society, 7(3), 211. https://doi.org/10.1177/001312457500700301

DePorter, B., & Hermakki, M. (2013). Unleashing the genius within. Bandung: Kaifa.

DePorter, B., & Hernacki, M. (1999). Quantum learning: Making learning convenient and enjoyable. Bandung: Kaifa.

Erlidavati. (2016). Quantum learning in teaching reading comprehension. Journal Can Be, 7(1), 48–49.

Erlinda. (2006). Quantum learning in teaching reading comprehension (Vol. 7, p. 44).

Firdani, L., Safitri, L., Syafitri, W., & Kardena, A. (2025). IMPROVING STUDENTS'VOCABULARY MASTERY USING SCATTERGORIES BOARD GAME AT SECOND GRADE OF SMP N 4 BUKITTINGGI. EDU RESEARCH, 6(1), 1136-1142.

Gay, L. R. (2012). Educational research: Competencies for analysis and application. New York: McMillan Publishing Company.

Irwandi. (2018). Teaching vocabulary to young learners. In Proceedings of the Sixth International Conference on English Language and Teaching (ICOELT) (p. 42).

Kardena, A. (2016). A need of intercultural competences in producing written language in English education department in IAIN Bukittinggi. Strengthening the Capacity of Research and Practices on English Linguistics, Literature and Education, 138.

Khairani, F., Dewi, M. P., Syafitri, W., & Safitri, L. (2025). The effect of using reflective teaching towards students' speaking ability at eleventh-grade students of SMK Gema Nusantara Bukittinggi. Jurnal Dinamika Pendidikan Nusantara, 6(1).

Lado, R. (1972). Models of difficulties in language vocabulary learning. University of Michigan Press, 6(1–2), 1.

Le Tellier, J. P. (2007). A guide to the application and study of quantum learning. Avenidadel Oro: Oceanside.

Leach, D. H. (1991). Vocabulary teaching and learning by ISP Nation. New York: Newbury House. https://doi.org/10.5070/L421005136

Merriam-Webster's. (2003). Dictionary. United States: Merriam-Webster's Inc.

Ningsih, F., Syafitri, W., Syahrul, S., & Irwandi, I. (2023). The effectiveness of blog media in improving student's ability in writing exposition text. Journal of Educational Management and Strategy, 2(1), 42–57. https://doi.org/10.57255/jemast.v2i1.214

Noonan, D. (2003). Teaching English in practice (p. 135). McGraw Hill.

Perdana, H. N. A., & Ngadiso, A. (2013). The effectiveness of quantum learning for teaching speaking, perspectives from the perspective of students' self-esteem (Master's thesis, Sebelas Maret University).

Rahayu, T., Soetarno, J., Joyoatmodjo, S., & Wahyuni, S. (2016). Implementing a quantum learning model with mind map method (Mind Mapping) to improve students' learning outcomes in studying economics at X MIA 1 SMA N 5 Surakarta in the 2015/2016 academic year. Surakarta.

Rahmawati, R., Safitri, L., Sakti, G., & Kardena, A. (2023). The Effect Of Using Semantic Mapping Strategy Toward Students Vocabulary Mastery At 8th Grade At Boarding School Jama'atul Mualimin. Jurnal Pendidikan dan Sastra Inggris, 3(2), 25-32.

Reflinda, R. (2017). The effect of learning strategy and reading interest to the reading understanding ability of students of IAIN Bukit Tinggi. IJLRES-International Journal on Language, Research and Education Studies, 1(2), 226–239. https://doi.org/10.30575/2017091205

Richard, J. C., & Renandya, W. A. (2002). Language teaching methodology. Cambridge University Press.

Selman, V., Selman, R. C., & Seman, J. (2009). Quantum learning: Learning without teaching. International Journal of Business and Economic Research, 2(4), 47–50. https://doi.org/10.19030/iber.v2i4.3787

Sesmiarni, Z., Iswantir, M., & Annas, F. (2020, February). Brain based teaching in the view of Tarbiyah IAIN Bukittinggi students. In Journal of Physics: Conference Series (Vol. 1471, No. 1, p. 012033). IOP Publishing. https://doi.org/10.1088/1742-6596/1471/1/012033

Sugiyono. (2012). Educational research methods. Bandung: Abjad.

Sukardi. (2003). Methodological debt of educational research. Jakarta: PT. Bumi Aksama.

Syukriya, Z. (2020). The effectiveness of the quantum learning method in achieving students' academic achievement in English courses and SMK No. 9 Padang (Dissertation, Padang State University). https://doi.org/10.33087/jiubj.v19i2.618

Thornbury, S. (2002). How to teach vocabulary. UK: Longman.

Yunitasari, N. (2018). The effectiveness of the quantum learning method in the daily activities of Muslim students in vocabulary class VIII MTS AL Hikmah Balekencono Batang Hari. Lampung.

Zeybek, G. (2017). Research on quantum learning. International Journal of Contemporary Educational Research, 1, 16–27. https://doi.org/10.51383/ijonmes.2017.12