

# STRENGTHENING SCIENCE VOCABULARY OF GRADE 10 STUDENTS IN POST-PANDEMIC LEARNING THROUGH PROJECT SCIVOC

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**Abstract:** Pandemic has posed many challenges to society, especially in the education sector. In the conduct of the face-to-face classes after the two years of distance learning, it was evident that the learners had difficulty in understanding Science-related terms. This study focused on a strategy, namely “Project SciVoc: 1 Minute to Define It!”, a game-based activity which aims to help Grade 10 learners understand Science concepts. In every session, students were given a minute to write down all the terms and corresponding definitions they had learned from the previous lessons. Selected Grade 10 students of Plaridel Integrated National High School were the respondents of the study. Mixed methods of quantitative and qualitative research were utilized. For quantitative data, learners’ scores in a long quiz on topics on Plate Tectonics with and without the implementation of the project for the First Quarter of the School Year 2022-2023 was compared. Students had also answered questionnaires using Google Form for their insights of the said activity. The results revealed a significant increase on learners’ score in their long quiz in Plate Tectonics when Project SciVoc was implemented. The results implicate that (1) learners’ vocabulary can be strengthened through game-based activity; (2) learners’ vocabulary can be enhanced through a routine; and (3) learners’ experience and feelings during the activity help them remember and understand concepts. Strengthening learner’s vocabulary is a must for our learners to understand concepts in different learning areas and can be achieved in a collaborative effort of learners, teachers, and community.

**Keywords:** Science vocabulary, strategy, time pressure, post-pandemic

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## Introduction

Vocabulary is a collection of terms, alphabetically arranged with corresponding definitions. It is essential for teachers to strengthen students’ vocabulary to help them understand topics across learning areas. As cited by Rofieq and Fauzi (2022), it is essential in science education to master lower thinking skills to be able to achieve higher order thinking skills. As the students attended their face-to-face classes this post-pandemic time, effects of the two-year distance learning were evident. It was observed by UNICEF in the study they conducted that the two-year distance learning was a long-lost learning time for the students, especially to those low- and middle-income countries (Broom, 2022). In 2018, the result of PISA revealed that Philippines was the second lowest in Science and Mathematics with 357 and 353 mean score, respectively. In the current survey of UNICEF in partnership with UNESCO, less than 15% of Filipino children can read a plain text, making our poverty learning at 85% (Conoza, 2022).

In this situation of our learners, it is everybody's job to help them catch up with almost 1.8 trillion hours of in-person learning that they have lost during the pandemic (UNICEF, 2021). In the study conducted by Murray & Mereoiu (2015), they stressed that parents and teachers, in collaboration with the community must share one mission on serving our learners and improving their outcomes.

On the first three weeks of face-to-face classes, it was observed a low passing rate of students in Science 10 with a topic of Plate tectonics. For a 10-item quiz, majority of the students have a mean score of 5.41. It was also evident during discussions that few students can recall the terms discussed in the previous lesson. The Department of Education urges teachers to produce learning recovery strategies that will help students to be on track, especially on literacy and numeracy.

Previous studies have suggested that games can be of great help in enhancing students' academic success. Whang and Zheng (2020) define game-based learning as establishing an environment, digital or non-digital, that enhances students' acquisition of certain skill. It can be physical activities on groups or by individual and can be done in any part of the learning episode. It is a student-centered approach that integrates games in the teaching-learning process (Gee, 2014). In addition, Sudarsono and Riyanti (2021) cited that games in teaching vocabulary motivate students and enhance good communication skills. According to Garris, Ahlers, and Driskell (2002), as cited by Fairfield (2019), students are motivated when they are challenged to test their knowledge and skills. It helped the students to be more motivated and excited during each session which scaffolds meaningful learning. Moreover, this helps the students identify their strengths and weaknesses in understanding a certain lesson.

Game-based learning leads to students being more responsible for their learning. Whang and Zheng (2020) cited that game-based learning indicates higher self-efficacy among students than the traditional method of learning. Aslanabadi and Rasouli (2013) also stressed that games help students boost their confidence. Students tend to help their classmates to understand their topics because they feel the confidence in teaching their classmates. Through this, they also help themselves retain the lessons that they have learned.

As the students cope with the effects of a 2-year hiatus in education, it is empirical to bring back to basics to help them understand complex concepts. Project SciVoc: 1 Minute Challenge adheres to strengthen students' vocabulary concerning terms in Science 10, particularly in the topic of Plate tectonics. This is a game-based strategy where students are asked to write down at least one term that they can still recall from the previous discussion in a 1-minute period.

## **Methodology**

Mixed methods of quantitative and qualitative research were used in the conduct of the study. The study participants were 141 learners; 66 male and 75 female in Grade 10 enrolled at Plaridel Integrated National High School during the school year 2022-2023. Convenience sampling was used for easy access among participants. In the implementation of the teaching strategy, students are asked to write down at least one term and its definition in a 1-minute period. This was done before every learning session. After 1 minute, the students checked their papers with their seatmates and were asked to share the words they had written with the whole class. Answers were evaluated by their teacher as well as by their peers. The first topic is about the Plate boundaries where no utilization of the project was made. The topic on processes among plate boundaries used the project SciVoc. The mean scores of the students from the long quiz when using and not utilizing the said teaching strategy

were collected and compared using an independent t-test. After the conduct of the long quiz, the researcher administered the questionnaire in-person using Microsoft forms for easy data collection to determine the students' perception in the conduct of the 1-minute challenge.

## **Results**

The focus of this study is to determine the impact of Project SciVoc: 1-minute Challenge in Grade 10 learners in understanding the concept of plate tectonics. Table 1 implicates the mean score of the students with and without the utilization of Project SciVoc. At 0.05 level of significance, it can be noticed that the mean score of the students after the Project SciVoc implementation increased by 2.06 points. the computed t-value is larger than the critical value. By conventional criteria, this difference is statistically significant.

*Table 1: T-test of Independent samples for the difference of Scores in the Utilization of Project SciVoc*

Incident	Mean	SD	t-value	c-value	p-value	Decision
Without the utilization of Project SciVoc	10.041	3.20	5.5462	1.984	0.0001	Significant
Using project SciVoc	12.09	3.02				

Table 2 shows the students' perception of the implementation of the project in terms of time, motivation, and comprehension. In the aspect of time, the mean average of 3.65 with a description of agree which means most of the students are satisfied with the time allotment of writing science terms. In terms of motivation, it has an average mean of 3.68 with an interpretation of agree, which indicates that the students are motivated during the activity. Lastly, in terms of comprehension, the average mean is 3.59 with an interpretation of agree which depicts that the activity helped most of the students remember and understand the topics.

Overall, the average mean is 3.64 with a description of agree, which highlights that the students were satisfied in the conduct of the activity.

*Table 2: Students' Perception in the Conduct of Project SciVoc*

	Time	Motivation	Comprehension	Average	Description
Students' Perception in Project SciVoc	3.65	3.68	3.59	3.64	Agree

## **Discussion**

In the occurrence of pandemic, teachers seek different strategies to help the students cope up with the lesson, especially in the subjects of English, Science and Mathematics. In the conduct of this study, it can be noticed that doing the Project SciVoc: 1-minute challenge has a positive impact on the students' success rate. It can also be observed that students can develop a sense of responsibility toward their learning through game-based activities. As one of the students said,

“What I experienced in the 1 minute activity was that I learned to be responsible in understanding the lessons and topics discussed by Ma'am Arban. This is also why I tell myself that before I go to school, I have ready terms to write on the activity sheet. I realized that this was a big help to gain my confidence to share the knowledge I learned in each lessons. “

“Answering Science Vocabulary within 1 minute is a challenge that helps me a lot by reviewing and studying some words and definitions. By reviewing the definitions, my scores in quizzes got higher. And I am able to understand different terms in the lesson.”

This affirms the claim of Whang and Zheng (2020) which stated that game-based learning helps students increase their self-efficacy and develop control of their own learning. With the help of the activity, they master the lower thinking skills they need to think critically on the succeeding topics. On the process of their learning, they do group activity to better enhance their understanding of the subject. They plan their learning before the session starts to be able to successfully participate in the activity.

“Because of this activity I was motivated to study our lessons in Science. Also, my classmates and I have a little group study before our class starts. I can say that this helps us students to retain the topics and words.”

As Aslanabadi and Rasouli (2013) cited, game-based learning boosts students' confidence. In the conduct of the study, it is evident that the students initiate to learn with their peers. Peer teaching motivates students to learn and excel academically. They also experience working under pressure which stimulates thinking in most students. When they were able to write more than 1 term, they felt fulfilled and satisfied. This made them help and assist their classmates in understanding terms in science. They do group study before every session. Learners' vocabulary can be strengthened through game-based activity. Learners' vocabulary can be enhanced through a routine. They look up to what are the terms that they will write and formulate a goal of writing more than one term the next session. Learners' experience and feelings during the activity help them remember and understand concepts. Overall, the students agree that the activity, Project SciVoc:1-minute challenge helped them to learn better the concept of Plate tectonics

## **Conclusions**

A creative way of enhancing students' vocabulary in Science is continually emerging in the educator sector. It can be a trial-and-error approach, but it is needed to consider the balance of play and learning to achieve the learning competencies that the students must master. Project SciVoc 1-minute challenge not only helps the students remember Science terms, but it also helps them be responsible for their learning. Working under pressure also helped them strategize on how to comply with the challenge given to them. Feedbacking among students is also a good practice for achieving long-term learning among students. The results implies that (1) learners' vocabulary can be strengthened through game-based activity; (2) learners' vocabulary can be enhanced through a routine; and (3) learners' experience and feelings during the activity help them remember and understand concepts.

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### **Declaration of Interest Statement**

The author declare that they have no conflicts of interests.

### **References**

- Aslanabadi, H. & Rasouli, G. (2013). The Effect of games on Improvement of Iranian EFL Vocabulary Knowledge in Kindergartens. *International Review of Social Sciences and Humanities*, 6 (1). 186-195
- Broom, D. (2022). COVID's Impact on Education: Worst for the Most Vulnerable. *World Economic Forum*. <https://www.weforum.org/agenda/2022/11/covid19-education-impact-legacy/>
- Conoza, A. P. (2022) Addressing the Philippines' Learning crisis, *Business World*. Retrieved from <https://www.bworldonline.com/special-features/2022/09/05/474223/addressing-the-philippines-learning-crisis/#:~:text=The%20Philippines%20scored%20the%20lowest,489%20points%20in%20bot h%20subjects>
- Hashim, Harwati & M. Rafiq, Karmila & Yunus, Melor. (2019). Improving ESL Learners' Grammar with Gamified-Learning. *Arab World English Journal*. 5. 41-50. 10.24093/awej/call5.4.
- Murray, M. M., & Mereoiu, M. (2016). Teacher-parent partnership: An authentic teacher education model to improve student outcomes. *Journal of Further and Higher Education*, 40(2), 276-292. doi:10.1080/0309877X.2014.971108
- Munikasari, Sudarsono, & Riyanti (2021). The Effectiveness of Using Hangman Game to Strengthen Young Learners' Vocabulary, *Journal of English Education Program*. doi.org/10.26418/jeep.v2i1.43328 57 /, 2 (1) p. 57-65
- Rofieq, A. & Fauzi, A.. (2022). Students' Knowledge and Attitudes toward Science: Its Correlation on Students' Disbelief in Non-Scientific Misinformation. *Jurnal Pendidikan IPA Indonesia*. 11. 10.15294/jpii.v11i2.35768.
- UNICEF, (2021). Press Release. <https://www.unicef.org/press-releases/schoolchildren-worldwide-have-lost-18-trillion-hours-and-counting-person-learning>