
Effectiveness of Computer Assisted Vocabulary Instruction (CAVI) in the Performance of Grade 5 Pupils in Reading Comprehension Skills

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ABSTRACT

In previous years, there were teachers utilizing the integration of computer assisted language learning as the forefront of language learning and teaching. Computer assisted vocabulary instruction has been one of the most common applications of computer assisted language learning, hence, this study has come into realization. Further, it was also observed that in teaching reading comprehension skills, pupils need to be more engaged and one way of engaging them is using technology. Thus, this study was formulated to evaluate the effectiveness of computer assisted vocabulary instruction (CAVI) in the performance of grade 5 pupils in reading comprehension skills. A quasi-experimental research design employing the researcher-made reading test which serves as the pre-test and post-test. Simple percentage and t-test of mean difference were the statistical tools used to interpret the result of the study. The study revealed a significant difference in the performances of the grade 5 pupils before and after the integration of computer assisted vocabulary instruction (CAVI). The integration of technology in teaching and the way the teacher delivers the lesson, coupled with the varied and differentiated reading materials where vocabulary words are highlighted had contributed to the attainment and effectiveness of the intervention. Hence, the result of the study implied effectiveness on the intervention provided. Effective in the sense that the pupils were motivated to learn and excited to manipulate the computer to arrive at the correct answers and in knowing the meaning of the words used in the text.

Keywords — Effectiveness, Computer Assisted Vocabulary Instruction, Performance, Grade 5 Pupils, Reading Comprehension Skills

I. INTRODUCTION

Poor reading comprehension of pupils is one of the existing problems of teachers in the school. Reading with comprehension laid the foundation for future learning and apprehension in all subject areas at any grade level. The delivery of the lesson will not be successful if most of the pupils have difficulty in understanding text. Without the foundation in reading, pupils would find it difficult to succeed academically, particularly in reading and writing as well as in subjects such as English, math, science, and social studies (Requiso-Jimenez & Bascos-Ocampo, 2022).

Decoding written symbols is the process of reading. Reading has a foundational position among all the macro skills because it must be mastered before any of the others. Reading, unfortunately, involves more than just understanding letters and symbols when it comes to teaching and learning. It is a complicated procedure that includes the processing of text and understanding of meaning in addition to word recognition (Deluao et al., 2022).

Today's world is supposedly a reading world. A person must read to completely enjoy life. Because it is thought that reading is where most of the knowledge is obtained, reading is essential for everyone's mental and cultural development. People read 80% of the tasks they complete each day. Because of this, reading is regarded as one of the most crucial activities in both school and daily life (Requiso-Jimenez and Bascos-Ocampo, 2022). Hence, it is necessary that all pupils in the key stage 1 must be readers before reaching grade 4. But this is not what is happening in the field right now. The reason why some of the teachers had to formulate intervention activities to assist them in teaching reading skills especially comprehension.

It was revealed in the result of the 1st quarter assessment that even in other learning areas aside from English, most of the mistakes of the pupils in the test is linked on the understanding of words used in the problem. Hence, it is assumed that these pupils really have low level of vocabulary skills making them unable to comprehend the text they are reading. Knowing this, the teacher believes that when unlocking difficult words is to be part of the lesson in all learning areas, vocabulary skills will increase and understanding of the concepts conveyed is attained.

Although students who are exceptional at learning languages can pick up English lessons from pupils who are less brilliant, the teaching strategy must be effective (Manlapaz et al., 2022). Anjulo (2017) has researched reading comprehension teaching strategies and placed a focus on the use of an extensive reading technique. Students usually choose an intensive reading strategy as a result, yet comprehensive reading approaches have a big impact on how well pupils understand what they read and remember the words and phrases they have read. Students will also have several chances to read independently, and their reading comprehension will increase by using metacognitive reading techniques (Kung & Aziz, 2020). And one of which is through the integration of computer assisted vocabulary instruction in teaching reading comprehension skills.

The Simple View of Reading (SVR) posits that the fundamental knowledge for reading comprehension is vocabulary knowledge (Yi Tang, 2020). Vocabulary knowledge, regarded as the minimum semantic unit in reading comprehension and regarded as a component of linguistic comprehension, refers to a semantic schema on passage mental image cognition and single word or character semantic meaning identification (Nation, 2015; Braze et al., 2016). Large vocabulary size usually represented well-structured semantic schema and better performance in word/character meaning identification. Vocabulary knowledge in reading comprehension refers to a kind of knowledge that facilitates text comprehension by single, double, or more words/characters' semantic meaning identification, providing the possibility of necessary cognitive capacity for higher-level reading processes (Silva and Cain, 2015; LervAag et al., 2018).

Vocabulary knowledge contributes to reading comprehension through semantic meaning identification and played a collaborator role with inference on sentence meaning comprehension (Silva and Cain, 2015; LervAag et al., 2018; Lawrence et al., 2019). High quality of word semantic meaning identification is beneficial for accurate individual word meaning retrieval (Perfetti and Hart, 2002), which establishes word-and-word unit for sentence proposition coherence (Cain et al., 2004; Braze et al., 2016). Hence it is important to develop the vocabulary skills of the pupils at an early age for successful reading comprehension in the future. And one of the strategies of teaching vocabulary skills is through the computer assisted vocabulary instruction because it is observed that when pupils are engaging in manipulating the computer or when lessons are delivered through a computer-based activities, attention of the pupils is caught and listening attentively to the discussion is achieved.

Thus, it is in this premise that the researcher decided to conduct this study to evaluate the effectiveness of computer assisted vocabulary instruction (CAVI) in the performance of grade 5 pupils in reading comprehension skills. A proposed improvement plan was formulated based on the findings of the study.

Hence, it is in the rationale that the researcher who is currently a grade 5 teacher in the above mentioned local, would like to delve worthy research undertaking that will benefit herself, the school she is currently teaching and that of her Graduate Program she is enrolled at.

This study evaluates the effectiveness of computer assisted vocabulary instruction (CAVI) in the performance of grade 5 pupils in reading comprehension skills of Sambulawan Elementary School, Leyte 1 District, Leyte Division for School Year 2023-2024. The findings of the study were the basis for the proposed improvement plan.

Specifically, this study sought to answer the following questions:

1. What is the performance of the grade 5 pupils before the integration of computer assisted vocabulary instruction (CAVI) in teaching reading comprehension skills?
- 2.
3. What is the performance of the grade 5 pupils after the integration of computer assisted vocabulary instruction (CAVI) in teaching reading comprehension skills?
4. Is there a significant difference in the performance of the grade 5 pupils before and after the integration of computer assisted vocabulary instruction (CAVI) in teaching reading comprehension skills?
5. What improvement plan can be proposed based on the findings of this study?

II. METHODOLOGY

Design. This study employed the quasi-experimental research design utilizing the pre-test and post-test to evaluate the effectiveness of computer assisted vocabulary instruction (CAVI) in the performance of grade 5 pupils in reading comprehension skills. Sambulawan Elementary School, Leyte 1 District, Leyte Division is the main locale of the study. The 38 Grade 5 pupils enrolled in the said locale for School Year 2023-2024 are the main respondents of the study. This study utilized the researcher-made reading test which focused on reading comprehension skills particularly vocabulary development. The competencies in the 2nd quarter Most Essential Learning Competencies (MELCs) were the basis in the formulation of the test. The reading comprehension questions include vocabulary development based on the given stories or passages. The test was administered before and after the integration of computer assisted vocabulary instruction in teaching reading comprehension skills. Moreover, the researcher prepared lesson plans in reading comprehension skills integrating the integration of computer assisted vocabulary instruction. The unlocking of difficult words was done through a computer-generated application where pupils were given the chance to manipulate it. Moreover, the researcher also prepared computer-based interactive activities in the development of vocabulary skills used in the stories or passages presented in the lesson. Utilizing computer generated application highlighted the intervention for this study. The researcher collected reading stories and passages from books and other sources and prepared vocabulary development activities which are computer-based. The materials crafted were submitted to the District Coordinator and Quality Assurance Team for evaluation, validation, and adjustments before it was utilized by the pupils in the classroom. A matrix of activities was crafted to guide the teacher-researcher the flow of her study. This research focused on evaluating the effectiveness of computer assisted vocabulary instruction (CAVI) in the performance of grade 5 pupils in reading comprehension skills through the pre-test and post-test and its significant difference. A Proposed Improvement Plan based on the findings of the study is the output.

Sampling. There are 38 Grade 5 pupils involved in this study. The research instruments were administered face-to-face with consent from the Local IATF and strictly following the prescribed Health Protocol during the face-to-face classes.

Research Procedure. The researcher prepared the research design and tools utilized in the study. Approval and recommendation from the Panel of Examiner of the Graduate Studies was sought. A letter request to conduct this study was forwarded to the Office of the Schools Division Superintendent. Upon approval, permission from the District Supervisor and School Head was secured before the actual gathering of data. Orientation of the participants and administration of the pre-test was done face-to-face after the approval of the permit from the parents of the respondents. Data privacy was emphasized also in the meeting. After accomplishing the pre-test, intervention was given within four weeks. The integration of computer assisted vocabulary instruction in unlocking difficult words through computer-generated application in teaching English reading to the Grade 5 pupils was emphasized in the study. After the four-week intervention, the post-test was administered. Results of the tests were collected. Data were tallied and submitted for statistical treatment. Analysis and Interpretation of Data. Making of Proposed Improvement Plan followed.

Ethical Issues. The researcher properly secured the permission to conduct the study from the authorities through written communication. In the formulation of the intervention materials that was used in the study, the use of offensive, discriminatory, or other unacceptable language was avoided. The respondents' names and other personal data were not included in this study to protect their privacy. Participation of the respondents was also voluntary. Orientation was conducted for the respondents with their parents. In the orientation, issues and concerns were addressed and consent to be included in the study were signed. The researcher-maintained objectivity in analyzing and discussing the results. All authors whose works were mentioned in this study were properly quoted and were acknowledged in the reference.

Treatment of Data. Simple Percentage was employed to evaluate the performances of the grade 5 pupils before and after the integration of computer assisted vocabulary instruction in teaching reading comprehension skills. **t-Test of Mean Difference** was used to determine the significant difference in the performances of the grade 5 pupils before and after the integration of computer assisted vocabulary instruction in teaching reading comprehension skills.

III. RESULTS AND DISCUSSION

TABLE 1

PRE-TEST PERFORMANCE OF GRADE 5 PUPILS IN READING COMPREHENSION SKILLS

Score Range	Description	PRETEST	
		Frequency	%
25-30	Excellent	0	0
19-24	Very Good	0	0
13-18	Good	7	18
7-12	Fair	14	37
0-6	Poor	17	45
Total		38	100
Weighted Mean		7.18	Fair

Table 1 presents the pre-test performance of Grade 5 pupils in reading comprehension. It was revealed on the table that among the 38 Grade 5 pupils tested, 17 or 45% got a score of 0-6 which is poor. This means that the Grade 5 pupils have poor reading comprehension skills before the integration of computer assisted vocabulary instruction (CAVI) in teaching reading comprehension skills. It was shown that Grade 5 pupils have difficulty in understanding the passages

read because they lack knowledge in vocabulary. They have difficulty in understanding English words as it used in the sentence. This implies support for the pupils to address their difficulties.

Moreover, it was also shown on the table that among the 38 Grade 5 pupils tested, 14 or 37% got a score of 7-12 which is fair. This means that these pupils know familiar words but most of the words used in the reading text were unfamiliar to them. The traditional way of teaching reading comprehension skills, especially vocabulary, does not satisfy the needs of the pupils. Hence, it is implied that teachers must innovate strategies and approaches on how to address the needs of the pupils to achieve the desired learning outcomes.

Further, the table shows that 7 or 18% of the Grade 5 pupils tested got a score of 13-18 which is good in reading comprehension skills. This means that these pupils have background knowledge in learning and knowing the meaning of difficult words present in the text. They already have the knowledge on how to arrive or get the correct meaning of the words in the paragraph. Unfortunately, on this stage, it is not sufficient to achieve only good performance in reading comprehension skills. Hence, it is implied in this study that teachers must prepare or integrate technology in teaching vocabulary to make the lesson enjoyable and not redundant to the pupils. The integration of computer assisted vocabulary instruction (CAVI) in teaching reading comprehension skills has been the proposed intervention of the researcher to achieve the desired learning outcomes in reading.

Finally, it was revealed on the table that the performance of the Grade 5 pupils before the integration of computer assisted vocabulary instruction (CAVI) in teaching reading comprehension skills garnered an average weighted mean of 7.18 which is interpreted as fair. This means that the Grade 5 pupils' reading comprehension skills do not meet the desired standard. As was shown in the analysis of the result of the test, it was found out that all the pupils have difficulty in understanding the passages read due to poor vocabulary. With that, integration of computer assisted vocabulary instruction (CAVI) in teaching reading comprehension skills is to be implemented to address the learning gaps in literacy among the pupils. It is in many researches and based on the performance of the pupils, vocabulary knowledge contributes to reading comprehension through semantic meaning identification and played a collaborator role with inference on sentence meaning comprehension (Silva and Cain, 2015; LervAag et al., 2018; Lawrence et al., 2019). High quality of word semantic meaning identification is beneficial for accurate individual word meaning retrieval (Perfetti and Hart, 2002), which establishes word-and-word unit for sentence proposition coherence (Cain et al., 2004; Braze et al., 2016). Hence it is important to develop the vocabulary skills of the pupils at an early age for successful reading comprehension in the future. And one of the strategies of teaching vocabulary skills is through the computer assisted vocabulary instruction because it is observed that when pupils are engaging in manipulating the computer or when lessons are delivered through a computer-based activities, attention of the pupils is caught and listening attentively to the discussion is achieved.

TABLE 2
POST-TEST PERFORMANCE OF GRADE 5 PUPILS IN READING COMPREHENSION SKILLS

Score Range	Description	POST TEST	
		Frequency	%
25-30	Excellent	20	53
19-24	Very Good	13	34
13-18	Good	5	13
7-12	Fair	0	0
1-6	Poor	0	0
Total		38	100
Weighted Mean		23.97	Very Good

Table 2 presents the post-test performance of the Grade 5 pupils in reading comprehension skills. It was revealed on the table that among the 38 Grade 5 pupils tested and given an intervention on the integration of computer assisted vocabulary instruction (CAVI), 5 or 13% got a score of 13-18 which is good, while 13 or 34% got a score of 19-24 which is very good and 20 or 53% got a score of 25-30 which is excellent. This means that the performance of the pupils had increased after the integration of computer assisted vocabulary instruction (CAVI) in teaching reading comprehension skills. From the data presented, the performance of the Grade 5 pupils after the integration of computer assisted vocabulary instruction (CAVI) achieved a weighted mean of 23.97 which is very good. The very good performance of the Grade 5 pupils after the integration of the intervention shows that exposing the children to technology assisted strategy has made them learn the vocabulary words used in the passages and enhanced the interest of the pupils to learn the lesson and achieved the desired learning outcomes. This implies that computer assisted instruction (CAVI) when used as strategy in teaching reading comprehension skills specifically in knowing the meaning of difficult words had motivated learners to learn to read and attain the very good level of understanding of the text read. Based on Daramola and Asuquo (2014) Computer-assisted vocabulary instruction (CAVI) is an instructional approach where a computer is used to communicate the instructional materials and evaluate the learning outcomes. Further, according to Gagen (2012) obviously proficient reading is more complex correct phonologic processing. After foundational skills are established, it is equally important to help the student develop advanced or higher-level skills including handling multi syllable word, building fluency, expanding vocabulary, and developing comprehension skills and strategies. In conclusion, advanced learning is designed to strengthen the cognitive structure of students. Based on Daramola and Asuquo (2014) Computer-assisted instruction (CAI) is an instructional approach where a computer is used to communicate the instructional materials and evaluate the learning outcomes. CAI refers to virtually any sort of computer application in instructional settings comprising of drill and practice, simulations, instructional exercises, supplementary exercises, instructional management, database development, programming, composing using word processors, and other different applications.

TABLE 3
TEST OF DIFFERENCE IN THE PERFORMANCES OF GRADE 5 PUPILS IN READING
COMPREHENSION SKILLS

Aspects	Test Scores		Computed T	Critical T	Decision	Interpretation
Grade 5 Pupils in Reading Comprehension Skills	Pre	7.18	3.642	0.886	Reject H ₀	Significant
	Post	23.97				

Table 3 presents the test of difference in the performances of the Grade 5 pupils in reading comprehension skills before and after the integration of computer assisted vocabulary instruction (CAVI). It was revealed on the table that the Grade 5 pupils had achieved a weighted mean of 7.18 before the integration of computer assisted vocabulary instruction (CAVI) and attained 23.97 after the integration of the intervention. With the result of the pre-test and post-test, the Grade 5 pupils performance attained a computed value of t of 3.642 which is greater than the critical value of 0.886 at 0.05 level of significance, so null hypothesis is rejected. This means that there is a significant difference in the performances of the grade 5 pupils before and after the integration of computer assisted vocabulary instruction (CAVI). The integration of technology in teaching and the way the teacher delivers the lesson, coupled with the varied and differentiated reading materials where vocabulary words are highlighted had contributed to the attainment and effectiveness of the intervention. Hence, the result of the study implied effectiveness on the intervention provided. Effective in the sense that the pupils were motivated to learn and excited to manipulate the computer to arrive at the correct answers and in knowing the meaning of the words used in the text. Fraser *et al.*, (2010) has identified that Computer Assisted Instruction (CAI), proving an efficient and effective media in education. Further, in the study of Sedega and Jonathan (2017) entitled “The Effect of Computer Assisted Instruction (CAI) on Senior High School Students’ Achievement” from Ghana University, it can be concluded that CAI was equally effective for students in the experimental group. The second research is conducted by Suleman and Naseer (2017) entitled “ Effects of Computer Assisted Instruction (CAI) on Students’ Academic Achievement” from Kohat University, Pakistan shows significant positive effect on students’ academic achievement. Gautam and Kaur (2015) entitled “The Effect of Computer Assisted Instructions on Attitude Towards Environmental Pollution of Secondary School Students’ from Kohat University, concluded that the technique was more effective in creating a positive attitude towards prevention of environmental pollution among students.

IV. CONCLUSIONS

The study revealed a significant difference in the performances of the grade 5 pupils before and after the integration of computer assisted vocabulary instruction (CAVI). The integration of technology in teaching and the way the teacher delivers the lesson, coupled with the varied and differentiated reading materials where vocabulary words are highlighted had contributed to the attainment and effectiveness of the intervention. Hence, the result of the study implied effectiveness on the intervention provided. Effective in the sense that the pupils were motivated to learn and excited to manipulate the computer to arrive at the correct answers and in knowing the meaning of the words used in the text.

V. RECOMMENDATIONS

1. Utilize the proposed improvement plan formulated.
2. Teachers must implement the strategy presented in this study to improve the performance of the pupils in reading comprehension skills.
3. Educational stakeholders should ensure that ICT facilities are sufficiently available in school.
4. Reading teachers should be adequately trained to utilize computers in their teaching method for the maximum improvement of students in reading.
5. Teachers must use the commercially available CAVI software to enhance learners' vocabulary knowledge in a computer-based environment.
6. As CAVI software is practical and timesaving, teachers need not waste time in preparing materials for vocabulary instruction.
7. Teachers bear in their mind that there is not a "best" way to learn or teach a foreign language. Instruction types should be altered in various ways by focusing on those engaging students in meaning.
8. School heads must conduct monitoring activities on the proper implementation of the intervention, and
9. Future researchers should replicate this study to include different locales and include different variables aside from the mentioned in this study.

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