The Development of Supplementary E-Learning Guide in Senior High School Reading and Writing Subject

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ABSTRACT

The present study aimed to develop a Supplementary E-Learning Guide (SELG) for Reading and Writing Subject to address the challenges and least mastered competencies of Senior High School students in a private-higher educational institution located at San Jose, Plaridel, Bulacan, Philippines. The researcher employed the Descriptive-Developmental Method and ADDIE (Analysis Phase, Design Phase, Development Phase, Implementation Phase, and Evaluation Phase) Model to conduct the study. In the Analysis Phase, there were (2) two tools were administered to the 567 Senior High School students: Reading and Writing Difficulty Questionnaire and Diagnostic Test for Reading and Writing Subject. In the Design Phase, the researcher identified the learning competencies and difficulties based on the results of the analysis phase. This part also crafted the parts and layout of the SELG about the Alternative Delivery Model (ADM) Module. During the Development Phase, the researcher utilized the Kotobee Author and Evaluation Rating Sheet for Non-Print Materials to complete and validate the SELG. Thus, the SELG has passed all the criteria for validity. In the Implementation Phase, the Software Implementation Procedure was used to access the SELG. For the Evaluation Phase, the researcher utilized the diagnostic test and final test which were subjected for inferential analysis using t-test for paired samples. The findings of the study revealed that students' reading and writing performance were poor before the implementation of the SELG. For reading, researchers identified these skills to be the main struggles of SHS students: Understanding the texts written from other countries; Guessing the correct meaning of words they do not know; and Evaluating the coherence, organization, and mechanics of a text. For writing, the main challenges are lack of writing experiences for academic writing, writing with enough topic-relevant background knowledge, familiarity of various citation styles and writing grammatically correct sentences without thinking the rules carefully, and to plan easily whenever they need to write. However, the students' reading and writing performance increased after the implementation of the SELG with a mean value of 49.21. Hence, the study demonstrated that there was a significant difference in the Reading and Writing Scores of the Senior High School students before and after the implementation of SELG with a t-value of -197.562.

Keywords: Education Technology, Supplementary Learning Material, E-learning Guide, Reading and Writing

INTRODUCTION

Miranda (2021) believed that the ability to read and write entails the capacity to stay abreast of current events, communicate effectively, and comprehend the concerns that are affecting our world. Therefore, the ability to read and write is a prerequisite for connecting with or actively participating in one's environment or society. In addition, literacy is in a permanent state of flux and evolution. The reading and writing skills of the present generation incorporate and advance instantaneously to digital forms of communication such as emails, text messages, and social media.

Interestingly, 754 million adults worldwide are unable to read and write, while 250 million children are failing to develop basic literacy skills (UNESCO, 2024). At this rate, people with low literacy levels face difficulties or challenges in communicating effectively at home, work, or school. In the Philippines, Grade School students lag behind those in other Southeast Asian countries (UNICEF, 2020). The data mentioned that only 29% of Grade 5 students in the country have higher level reading proficiency. These students demonstrated the ability to read

a variety of everyday texts, such as simple narratives and personal opinions, and begin to engage with their meanings. Meanwhile, 27% of students remain at the lowest level, able to only match single words to an image of a familiar object or concept. Moreover, only 1% of Grade 5 students in the Philippines attained a higher level of writing proficiency. These learners are those with the ability to write cohesive texts with detailed ideas and a good range of appropriate vocabulary. While almost half or 45% of Grade 5 learners in the Philippines were in the lowest level, which means they have limited ability to present ideas in writing. The percentage of Grade 5 Filipino students who met the minimum reading and writing competencies is significantly lower than in Vietnam and Malaysia. As a result, the Philippines is still performing at the expected level for early primary education and is the second worst performer in both categories.

Similarly, beyond Philippines, concerns are also being voiced about the high percentage of young people with low literacy rates. In Australia, many students move through the schooling system without attaining essential functional literacy skills. The data revealed that more than two-fifths of Australian adults lack the functional literacy skills needed to communicate effectively in contemporary life. This limits their vocational, academic, and social opportunities (Merga, 2022). Moreover, challenges about adult literacy also hold currency in the United Kingdom. The data mentioned that 15% of adults struggle to read and write at a basic level at significant economic cost (World Literacy Foundation, 2018). Therefore, to improve the literacy attainment of adolescents or students and to prevent them from falling farther behind, teachers must meet the growing literacy demands such as required knowledge, wide range of possible supporting practices, appropriate instruction, and interactive activities. Undeniably, the problems in reading and writing skills of students or even adults are evident not just in the Philippines but also in a global scale.

In line with that, the Department of Education in the Philippines included the Reading and Writing Skills as one of the core subjects of the Senior High School Curriculum. This covers the reading and writing content lessons and competencies stated in the DepEd's Reading and Writing Curriculum Guide namely: Reading and Thinking Strategies across Text Types, Text and Context Connections (Critical Reading), and Purposeful Writing in the Disciplines and Professions. This subject only ensures that students will be highly proficient in reading and writing as they pursue their career path or tertiary education. However, Totto & Ramos (2021) revealed that the reading and writing performances of 244 Senior High School students who attended public schools in Cabagan, Isabela were poor. Consequently, these gave interest to the researcher to develop an output to help students improve and master their reading and writing skills.

Furthermore, COVID-19 has created a number of new challenges for education and learning for students worldwide. Many schools and institutions in nearly every part of the world have closed in 2020 or shifted to online or remote learning as a result of the global spike in COVID-19 cases. This will have a number of effects on students' learning. As a result, both teachers and students are now spending more time online than ever before, investigating, learning, and becoming acquainted with tools, resources, frameworks, and information to adjust to online or remote learning (Mohammed, 2022).

Since computers, the internet, tablets, and smartphones are now widely used and essential to modern society, it also have the potency to support the teaching and learning components of the Philippine educational system. Therefore, one of the considerations is the maximum utilization of E-Learning Materials and Massive Online Open Courses. The flexibility of the learning schedule and the lack of geographical and financial restrictions made them an alternative to the conventional educational system. Through platforms that provide online learning content, anyone can obtain instructional content at no cost (Papadakis, 2023).

Numerous studies have expressed that, following COVID-19, there is a "new normal" in many academic fields and institutions, and that the blended learning strategy has been extremely popular in this regard (Cortez, 2020; de Brito Lima et al., 2021). Peer learning and the teacher-student relationship are maintained through blended learning. However, it can also be more flexible because students can access some of their coursework online and spend less time in class.

According to Pazillah et al. (2022), the rapid development of technology and the emerging of multimedia devices have their application to teaching. It features audio, visual, animation effects that comes into full play in class

teaching and sets a favorable platform for reform and exploration. The study proved that multimedia technology plays a positive role in promoting interactive activities and initiatives of students.

Hence, the researcher developed a Supplementary E-Learning Guide (SELG) for the Reading and Writing subject of Senior High School students with the hope of addressing their needs and challenges. Furthermore, the purpose of SELG is to become an enrichment opportunity to the students which supplies their lacking competencies and solve their perceived difficulties to ensure high proficiency and mastery in reading and writing subject.

Statement of the Problem

The focus of the study is to develop a Supplementary E-Learning Guide in SHS Reading and Writing Subject. Specifically, the study aims to answer following questions:

1. What are the reading difficulties of SHS students in terms of:

    1.1. Content Schema;

    1.2. Linguistic Schema;

    1.3. Textual Schema; and

    1.4. Literacy in L1?

2. What are the writing difficulties of SHS students in terms of:

    2.1. Writing Experience;

    2.2. Topic Knowledge;

    2.3. Linguistic Knowledge; and

    2.4. Writing Strategies?

3. What learning competencies must be included on the Supplementary E-Learning Guide in Reading and Writing Subject?

4. How is the Supplementary E-Learning Guide in Reading and Writing developed?

    4.1. Creation of the SELG

    4.2. Validation of SELG

5. How is the Supplementary E-Learning Guide in Reading and Writing implemented?

6. How is the Reading and Writing Scores of the Senior High School students before and after the implementation of SELG?

7. What are the key themes in the feedback from parents and students regarding the effectiveness of the supplementary learning guide in improving reading and writing skills?

8. What literacy instruction plan may be generated based from the findings of the study?

REVIEW OF RELATED LITERATURE

The present study integrated previous literature and researches to establish a solid foundation for its execution. The related literatures of this study are organized as follows: Perception towards Reading and Writing Subject,

Reading and Writing Performances of Students, Strategies in Teaching Reading and Writing Subject, Difficulties in Reading and Writing, Innovation in Education, E-Learning in Teaching Reading and Writing Skills, Supplementary Programs in Education, Impact of Using Technology on Teachers, and Difficulties and Problems in E-Learning.

Perception Towards Reading and Writing Subject

In the Philippines, the Enhanced Basic Education Act of 2013 or K+12 Program added two years to Secondary Education, often known as Senior High School (SHS). The Reading and Writing Subject is one of the core disciplines of the SHS Curriculum. Regarding this discipline, both students and instructors have a variety of opinions and perspectives. Jaca et al. (2019) highlighted the application of the Strength, Weaknesses, Opportunities, and Threats (SWOT) Analysis framework in determining the teachers' view of the subject. Using a qualitative technique to collect data, teachers acknowledged the need to contextualize some activities to make them relevant to students' level of comprehension and learning needs. It was also discovered that teachers were unable to provide fast and quality feedback on students' outputs due to a lack of basic knowledge on the lessons, uneven classroom implementation, and idealistic or complex topics.

Additionally, Boyette (2022) also investigated the adoption of Disciplinary Literacy Strategies in classrooms. After surveying, observing, and interviewing both students and teachers, the data were evaluated using a comparative technique and answer coding. It was shown that teachers viewed the reading and writing skills of students negatively. Whereas, students viewed negatively the instructional practices about literacy skills.

Reading and Writing Performances of Students

In today's globalized world, the ability to read and write is essential for achieving personal, academic, professional, or financial success. The standard level of literacy of pupils could only be attained by the use of the appropriate subjects, competencies, materials, and facilitators. Totto & Ramos (2021) analyzed the performance of 244 Senior High School students who attended public schools in Cabagan, Isabela. Frequency counts, percentage scores, the arithmetic mean, and Kendall's Rank Correlation Tau were used to describe and analyze the data in the study. The results indicated that the reading and writing skills of the students were poor. In contrast, they had good attitudes regarding reading and writing. Thus, the study revealed insufficient academic foundations among students (reading and writing).

Alvarez & Bautista (2022) also investigated the association between students' access to English materials and their level of reading and writing proficiency. The study conducted in a public elementary school with participants in the sixth grade. It also found that the number of English materials, particularly at home, was insufficient. On reading and writing assessments, the students did not meet the proficiency level required. Using descriptive statistics and the Pearson Link Coefficient, the results also demonstrated that there is a moderate to strong positive correlation between access to English-language materials and reading and writing skills. It was determined that the greater learners' access to materials, the greater their reading and writing skills.

Kim et al. (2022) examined the English Reading and Writing skills in connection to first language skills, vocabulary knowledge, and educational background of 108 South Korean undergraduates. The results suggested that vocabulary knowledge was the most significant predictor of Reading and Writing in English. Therefore, a favorable association between the learner's native language and English reading and writing was discovered for those with a larger vocabulary. In conclusion, educational backgrounds were deemed significant.

During the COVID-19 Pandemic, reading achievement drops (Kuhfeld et al., 2022). It also revealed that a large proportion of upper elementary pupils are at risk for reading difficulties and will require focused interventions to establish and strengthen their core reading skills. In the case of Solari (2021), she conducted three fall assessment windows to determine the increased proportion of pupils at high risk for reading difficulties at the beginning of the school year, compared to the time before the COVID-19 pandemic. The rates equated to 232,982 pupils scoring below the benchmark in the Fall of 2021 (34.9%), an increase of 25,762 students from the Fall of 2020, when the epidemic was in full swing. Likewise, Ludewig et al. (2022) studied the reading achievement of fourth graders based on a school panel research. This study has 4,290 pupils as respondents. In 2016 and 2021,

the pupils were evaluated using Progress in International Reading Literacy Study tools. The results demonstrated a significant fall in average reading achievement. The study determined that this substantial fall in academic performance was due to the COVID-19 pandemic. In addition, Domingue et al. (2021) discovered that second- and third-grade reading skills in the United States are approximately 30 percent below what would be expected for a typical year. The findings of the reading assessment indicated that the majority of pupils' oral reading fluency growth ceased in the spring of 2020, following the sudden school cancellations caused by COVID-19. In addition, it was stressed that despite the fact that a new school year had begun and teachers were developing innovative teaching strategies, the progress that produced was insufficient to make up for the gaps.

However, the study of Thomas (2021) indicated interestingly that there are no differences between first and second graders in terms of reading comprehension and reading motivation. It contradicts the premise that the pandemic-driven shift to remote learning will ultimately diminish the accomplishments and intrinsic motivation of students. His study utilized a quasi-experimental approach with 206 elementary students to examine variations in reading comprehension and self-determined reading motivation between students who attended school during or before the pandemic.

Similarly, Skar et al. (2021) reported that pupils attending first grade during the pandemic had poorer ratings for writing quality, handwriting fluency, and attitude toward writing than students assessed a year earlier, prior to the emergence of the COVID-19 epidemic. Academic writing is one of the writing abilities commonly taught in traditional physical classroom settings. However, as a result of recent technological advancements in education, online teaching and learning have entered the domain of educational institutions and are no longer regarded a foreign concept. Moreover, Nappu et al. (2022) studied the effectiveness of online learning in the English Education Study Program's Academic Writing course. The data is gathered by administering a pre-test, a post-test, and a questionnaire. The study demonstrates that online learning improves pupils' writing skills. The research revealed that the pre-test score of 50.6 increases to 75.8 on the post-test. After performing the t-test, it was also determined that Academic Writing Course through online learning via Google Meet is 55% effective. It was then determined that the online Academic Writing Course has a good impact on students' writing abilities.

These researches demonstrated the gap in terms of improving the students' reading and writing abilities. It is evident that the most participants gained low proficiency or poor performance regardless on the considerations that would aid in enhancing reading and writing skills such as vocabulary, greater exposure to skill-based activities, and access to learning resources. This research gap encouraged the researcher of this present study to explore the capabilities of the supplementary program which upholds electronic learning opportunities outside the classroom environment or set-up.

Strategies in Teaching Reading

Teachers have developed and used a range of methodologies and strategies to strengthen and improve the reading skills of every student.

Villanueva (2022) utilized Metacognitive Reading Strategies to enhance Reading Performance. The study conducted with descriptive-correlational data analysis on 446 randomly selected pupils. Findings indicated that Problem-Solving Strategies (PROB) were utilized the most often, followed by Global Reading Strategies (GLOB) and Support Reading Strategies (SUPP). It was discovered that these Metacognitive Reading Strategies have a substantial correlation with students' reading performance.

Teacher et al. (2022) investigated the impact of PowerPoint presentations on the improvement of students' reading abilities. This study employed the classroom action research approach and administered exams after reading texts from a PowerPoint presentation. According to the results of the study, the reading scores of the students improved. In addition, the choice of material was a significant contributor to their development. The material should be contemporary and relevant to the students' imagination. As a result, children grew up interested in reading the PowerPoint presentation's text.

Yunus et al. (2022) examined the efficacy of E-Mind Mapping in teaching reading. Students and teachers are surveyed to get qualitative data for this study. Documentation, interview sheets, and observation were the

instruments employed. Teachers applied e-mind mapping in the classroom utilizing three distinct phases: the introductory activity, the main activity, and the concluding activity. According to data analysis, e-mind mapping has an effect on the reading achievement of learners. Students who utilize e-mind mapping more effectively have a greater impact on reading achievement.

Safitri et al. (2022) viewed the Direct Reading Thinking Activity (DRTA) as a successful method or strategy for enhancing students' reading skills. This study's data were collected using the library research methodology. Data identification from relevant literature sources, location identification, data collecting, data evaluation, and data incorporation into the research presentation are the steps of the data analysis technique. The results of the study indicated that students' reading comprehension improved after receiving treatment with the DRTA technique (Predicting, Reading, and Proving).

Strategies in Teaching Writing

Various approaches and ways are employed concurrently in an effort to improve the writing skills of students.

Garcia & Asuncion (2022) investigated Senior High School students' writing issues and the use of Self-Regulated Strategy Development Approach (SRSD) to enhance their writing skills. After completing the diagnostic test, 39 children were categorized as writing-challenged. Four weeks of writing instruction were provided to the participants. Throughout the process, they were instructed in two writing strategies. Initial findings indicated that struggling writers perform poorly in all aspects of writing. However, after the intervention, the essay scores and characteristics of the participants improved.

According to Ardini et al. (2021), Responding, Correcting, and Guiding (RCG) Strategy with PowerPoint can improve students' writing challenges. The RCG is implemented in (2) two cycles in this study. In cycle I, the average student score was 72.5 percent. This outcome was still unsatisfactory. 8 students, or 55.33 %, were unable to achieve the mean score target of 75. Consequently, the research should proceed to the subsequent cycle. The average score of students in cycle two was 82.33 percent. With only 13.33%, or 2 students, receiving failing grades, the criteria were successfully met and the cycle should be discontinued. On the basis of the findings, it was suggested that English teachers employ RCG to improve their students' writing skills. In this technique, they were: Responding to the Students' Work, Correcting the Students' Work, Reacting to the Students' Work, Responding to the Students' Work, Peer Review, Training Students to Self-Edit and Self-Correct, and Making Homework Successful.

Lukmawardani & Badriyah (2022) examined the Genre-Based Approach method. The objective of their study is to determine the impact of Genre-Based Approach on the writing abilities of tenth-grade high school students. The study used a qualitative research approach and gathered the necessary data through library and literature research. The results of the study suggested that genre-based instruction has a good impact on the writing skills of pupils. As evidence, the results from the pre-test to the post-test have increased.

Juniarta & Mahendrayana (2022) explored the implementation of the Process-Based Approach and the difficulties encountered by tenth-grade English teachers. Utilizing observation and interview techniques, a descriptive research method is employed. Based on the findings of the study, English teachers employed a five-step process-based method to teaching writing, including pre-writing, compilation, revision, editing, and publication. Moreover, implementation of the revision and editing stages remained deficient. Additionally, a teacher's behaviors might affect students' personalities and skills.

On the other hand, the Peer Feedback Approach proposed by Ziwei (2022) had minimal effect on increasing students' writing ability. To conclude this study, the researcher ran a research experiment over the course of a semester on middle school. On the brighter side, their readers' awareness and ability to identify errors improved.

Difficulties in Reading and Writing

Regarding the reading and writing skills, there are a number of difficulties and challenges identified among learners.

Urbano et al. (2021) conducted a study on the Reading and Writing Subject utilizing a needs analysis, diagnostic test, and interview sessions with 100 Senior High School students. For reading, researchers have identified the following skills as the most difficult for SHS students: (1) recognizing different patterns of development in texts; (2) evaluating the coherence, organization, grammar, and mechanics of a text; (3) having poor vocabulary knowledge; and (4) identifying ways to select and organize information. While in writing, the main challenges are: 1) absence of topic-relevant background knowledge and topic-specific papers on texts; 2) insufficient knowledge and practice on writing with proper citation; 3) poor syntax; 4) limited vocabulary; and 5) usage of distinct patterns of development. In addition, the study suggests explicit instruction, a text-based approach, and the inclusion of real and collaborative projects while teaching Reading and Writing in the Philippines' secondary schools.

In addition, Baful & Derequito (2022) suggested that undergraduate students' English language apprehension has a substantial correlation with their reading and writing skills. It was noted that learners' anxiety, apprehension, and fear of a specific language, such as English, can influence their literacy.

In reading, Casaljay & Malabarbas (2022) examined a study utilizing a descriptive research methodology and content analysis to identify oral reading errors made by Grade 11 students in Sta. Margarita, Samar, Philippines. The results indicated that the English performance of 11th graders is deemed satisfactory. However, Electrical Installation and Maintenance students had the most oral reading errors. The EIM class has difficulty recognizing and comprehending content words, and they have the most trouble reading verbs. Verbal reading errors may have damaged their comprehension of the material since they alter the meaning of sentences. Additionally, they struggle to recognize personal pronouns in the text. The researchers recommend that English teachers provide EIM pupils rigorous oral and silent reading assignments in the classroom.

This pandemic has presented enormous obstacles and impacted the school system in every nation. As a result, the educational platform shifts from face-to-face sessions to various modalities or the new standard education. Consequently, the reading ability of students have been impaired. According to Reimers & Schleicher (2020), students acquire reading skills through formal school-based instruction, including homework, and informal reading activities during their free time. As a result of the COVID-19 limits, the transition from face-to-face classroom instruction to home-based learning resulted to reduced time for official school-based education. This finding is also confirmed by Rozman et al. (2022), who determined that the lowered effectiveness of instruction during the pandemic severely impacted reading development. Limited expertise with the technological equipment required for digital instruction and learning during the pandemic has hampered reading instruction. Similarly, Wyse et al. (2020) noted that the school closures may have had a significant impact on the reading abilities of pupils in the early grades. This indicates that students spent less time reading and learning how to read. Because reading duration is a significant indicator of students' reading comprehension.

In writing, Gorospe & Rayton (2022) discovered that students had difficulties with syntax, grammar, and vocabulary. Students stated that lack of reading and writing practice, lack of ideas, and lack of self-confidence were affecting their writing abilities. To overcome these issues, it was suggested to boost reading and writing practice, as well as teacher support. Antika et al. (2022) express the same concern regarding the writing skills of students. According to their research, the majority of students have trouble memorizing vocabulary. Students must therefore increase their vocabulary by writing in English. Students must focus more on tenses, vocabulary, and punctuation, among other elements.

In addition, Castillo (2022) investigated the knowledge of 15 Mindoro State University professors regarding the writing skills of pupils. This study adopted a descriptive correlational design, commonly known as a cross-sectional study in the context of empirical research. Additionally, Pearson Correlation Coefficient, Standard Deviation, and Mean were utilized to evaluate the collected data. The results demonstrated that English instructors were able to identify writing difficulties before, during, and after writing tasks with in all students.

Moreover, Putri et al. (2022) stated that students' writing ability is still relatively low due to a lack of willingness to study English, difficulties expressing thoughts, and issues organizing words due to a lack of vocabulary. This study employed a quantitative methodology using a survey design. The information was obtained from a writing exam and a questionnaire.

Since the emergence of COVID-19, educational sectors have decided that instructors and students will study from home. This decision has a significant impact on the transformation of the learning process, which was once conducted face-to-face in the classroom but has now shifted to online learning. Undoubtedly, pupils' writing abilities are also a concern. During the Covid-19 epidemic, Andayani et al. (2022) investigated students' challenges with writing assignments. The research was qualitative and employed a case study methodology. The study's respondents were students and professors. The research findings demonstrated that pupils' paper writing skills were weak. Students have trouble with presenting ideas, writing organization, writing discourse, grammar, word choice, and spelling when writing papers.

Innovation in Education

Both public and private schools have adapted to the new environment in which face-to-face contact and mass gatherings are prohibited. Committed to the DepEd directive, school administrators and teachers devised creative work-from-home arrangements.

According to Simbulan (2020), teachers and administrators were tasked with revising and adapting course and requirements from the comfort of their homes as they shifted to alternative or remote teaching modalities. Students and instructors were required to have access to electronic devices and dependable Internet connections, as well as learning management systems such as Canvas, Moodle, and Blackboard, and applications such as Google Hangouts, Zoom, and Skype. Where students had limited access to computers or unreliable Internet access, teachers and students exchanged messages, notes, and materials via text messaging, e-mail, Facebook, Messenger, and Twitter on their smartphones.

Chen (2022) highlights the rapid growth of blended learning as an instructional method, driven by advancements in technology and the increasing demand for flexible, personalized education. This growth is further supported by the benefits it offers in terms of accessibility, engagement, and improved learning outcomes, particularly in response to global shifts in education.

Classes that use blended learning provide a special setting for evaluating students' engagement levels (Hasanah and Malik, 2020). Students must learn how to navigate the many instructional modes and boost their level of self-motivation in order to participate in the online course components successfully. Blended learning is thought to play a big role in influencing student retention and academic success.

Certainly, Baritua and Sasan (2022) used thematic analysis to identify, interpret, and analyze the significance of the teachers' experiences during the pandemic. Consequently, it has been demonstrated that the innovative and creative use of technology by teachers significantly enhances student learning.

E-Learning in Teaching

For ages, face-to-face teaching and learning has been regarded as the most effective method for acquiring knowledge and completing academic tasks. Nonetheless, during the COVID-19 Pandemic, the entire world sought a solution to deal with the situation, and E-learning provided as a significant alternative.

Wong et al. (2018) investigated the learner satisfaction, advantages, and effectiveness of the E-learning approach in relation to instructional videos. In one of the universities in Hong Kong, the researchers administered a closed and open-ended questionnaire to 76 undergraduate construction students. The results indicated that students were pleased with the instructional videos' design and content. Students viewed E-learning as beneficial because it allows them to control their learning pace, time, and location. The participants opined that blended learning has greater advantages for teaching measurement courses.

Yuliarsih & Sy (2022), the effect of E-Learning as a medium for teaching reading in the tenth grade of Wached Hasyim Senior High School during the 2021-2022 academic year was determined. The research employed a quasi-experimental design with two groups of sixty students. The testing of the hypothesis revealed that there is a significant difference between the Reading Comprehension of students taught through E-Learning and those

taught through Offline Learning. Students who were taught using E-Learning performed better than those who were taught using Offline Learning.

According to Sariani et al. (2021), there are two major improvements in writing documents from the first draft to the final draft when using E-Learning. First, the content of the writing has been enhanced, as evidenced by the use of a wider range of words. The essay is well-organized, the ideas are developed, and the shared information is logical and comprehensive. Second, even though there are still a few grammatical, punctuation, and spelling errors, they have no effect on the message or idea of the text. Utilizing the provided visuals, the students were able to adjust to online learning and improve their writing abilities. The findings suggested that innovative learning designs are required to meet the needs of online education.

Meanwhile, the advent of Massive Online Open Courses (MOOCs) has had a significant impact on higher education globally, as students now have more options and greater access to education. This has forced higher education institutions to reassess their teaching methods and adapt to the latest trends in education. Today, most academic institutions in the US and Europe offer their students a wide range of online courses in various subjects with the option, if desired, to obtain a course certificate (Voudoukis and Pagiatakis, 2022).

In order to maintain the quality of education through E-Learning, Elshaer et al. (2022) identified the factors or predictors that influence E-learning experience in the Kingdom of Saudi Arabia during the COVID-19 outbreak. A survey was distributed online to medical students at three major public universities. On the basis of the findings, the FLOWER Model for improving the E-learning experience of medical students was proposed. This model includes six dimensions. These dimensions are interconnected and enabled for the development of a successful E-learning experience. The results indicated that four of the six dimensions have high positive and significant path coefficients: open sources and information, staying motivated through leverage, working together, and reflection and knowledge construction. Two of the six dimensions, feedback and evaluation, have a low positive but are still significant. In a similar vein, Erkan (2022) investigated the effectiveness of instructors' electronic feedback (e-feedback) on their students' writing in an English for Academic Purposes (EAP) course. Students submitted their writings through the Learning Management System (LMS), and instructors provided online feedback through the system. The results primarily indicated that students benefited from receiving a variety of feedback types through the system, and that instructors were free to provide as much feedback as needed for various purposes.

Supplementary Programs in Education

In accordance with this, numerous supplementary learning materials and programs have been developed to enhance students' performance and mastery in various disciplines, courses or subjects, and skills. According to Baldridge (2022), Supplemental Education refers to the formal and informal learning and developmental enrichment opportunities offered to students beyond the regular school day or year. Supplemental education dramatically improves students' academic prospects.

In addition, according to Qiu et al. (2022), Supplementary E-learning is realized through the integration of modern education and information technology, and it plays a crucial role in promoting educational equity. With the expansion of user groups and application domains, it has become increasingly important to ensure the quality of E-learning.

The deployment of mobile phones as tools to supplement teaching and learning off-campus and after school hours is the subject of a study conducted by Walters et al. (2018). Its main objective is to make an effort to increase learners' contact time. The study employed a descriptive case study research design with 44 students drawn from Grade 9 English class in one school in the Eastern Cape. A questionnaire containing open-ended questions was used to collect data regarding the perceptions of students regarding the use of these devices in the educational process. The majority of participant responses contained complete sentences, punctuation, correct spelling of the majority of words, acceptable grammar, and proper sentence usage, according to the findings. In addition, when students were aware that they were using these platforms for educational purposes, the traditional rules of formal writing applied. The study concluded that mobile devices can improve language acquisition and

suggested that mobile devices be considered for official inclusion as supplementary learning tools in South Africa's education system.

Similarly, Mustadi et al. (2022) created an Android-based application as an alternative learning medium for early-reading instruction. Using a validation scale developed by experts, it was determined that the developed material is highly applicable. In addition, an action research conducted by Benitez et al. (2022) aimed to improve the reading performance of eighth-grade students identified as reading under frustration level. A face-to-face pre-test was administered prior to the reading remediation. The remediation was then administered utilizing the Philippine Informal Reading Inventory (Phil-IRI). Then, a post-test was administered. Before and after exposure to the mobile reading clinic, there was a significant difference in the students' reading performance, according to the findings of the study. It was determined that the mobile reading clinic affected the reading performance of eighth graders. In general, mobile reading clinics are an effective reading intervention or supplement.

In addition, Nurhajati (2016) conducted a research demonstrating that project-based learning materials are appropriate for teaching writing skills. It is concluded that the students' writing skills improved substantially. It enhanced their ability to write descriptive texts and construct effective sentences.

Impact of Using Technology to Teachers

Cunningham (2021) investigated the experiences of educators with blended learning. Based on information from observations, interviews, and artifact analysis, this article explains how the beliefs and practices of four high school teachers interact. The study's four teachers demonstrated their ideas in the mixed environment, according to the results. Teachers' opinions focused on students' active and real-world learning. They trusted various facets of the teaching and learning process, viewing their roles as co-learners, coaches, facilitators, and guides. Using a range of materials, varying the subject from week to week, allowing students to choose, particularly in real assignments, and providing opportunities for student involvement were instructional tactics that bolstered their beliefs.

Although Irish second-level instructors are excited about using technology in the classroom, they face difficulties due to a shortage of fundamental resources in schools, such as computers and technical support. Access to computer devices and technical support/maintenance were rated as inadequate by almost 25% of the teachers polled. According to the poll, instructors are largely in favor of incorporating new digital technology into their lessons, but they are being hampered by a lack of fundamental tools. According to the report, instructors are generally concerned about how digital technology will affect their workload. Teachers discover that they already have limited time throughout the school day to administer e-platforms, design and customize digital content, and perform other digital duties (Tuffy, 2024).

On the other hand, teachers' opinions and experiences on the digital leadership responsibilities and technological capabilities of their school principal during the COVID-19 pandemic are examined by Karakose et al. (2021). "Digital technology usage, support for the digital transformation, support for technology-based professional development, support for digital learning culture, and digital leadership skills" are the five primary themes identified from the participants' perspectives and experiences. The results of the research suggested that the level of utilization of digital technologies by school principals during the COVID-19 pandemic was considered as adequate by instructors. Furthermore, it was shown that school principals are in favor of technology-based professional development and digital transformation in schools.

With that, the goal of the Cloud-based Smart Technologies for Open Education workshop is to examine the current state of the art as well as the possible advantages of implementing new and developing adaptive technologies in higher education's open systems. The goal is to investigate how AI, intelligent data processing, cloud-based personalized open education and research tools, and flexible and user-friendly learning environments may be used to educate creative and ICT-savvy individuals in light of the establishment of European Research Areas (Papadakis et al., 2023).

Difficulties and Problems in E-Learning

Zhou et al. (2022) explain that while digital technologies offer convenience and a variety of functions for daily operations, excessive use can lead to significant negative effects on personal, family, and social well-being. Their research indicates that overuse of these technologies may contribute to a range of mental health and relationship problems.

In line with this, Digital addiction (DA) refers to the excessive and compulsive use of various digital media, including the internet, smartphones, video games, and social media platforms. This term encompasses a wide range of behaviors related to dependence on digital technologies (Christakis, 2019).

A global study indicated that approximately one-quarter of the general population might be affected by some form of digital addiction. This finding underscores the widespread nature of the issue across different cultures and demographics (Meng et al., 2022).

Digital addiction is characterized by six key components of behavioral addiction: salience, tolerance, mood modification, relapse, conflict, and withdrawal. These components reflect how addictive behaviors manifest, including increased time spent using technology, mood changes, and difficulties in controlling or stopping usage (Dresp-Langley, 2022).

On the other hand, Maatuk et al. (2022) discussed the difficulties and problems that the implementation of E-Learning displayed. Concerns such as technical and financial support, training, improved working conditions, technological background, skills, copyright protections, and professional growth. Low-quality internet services, significant financial resources, online training and seminars for teaching staff, IT infrastructure, and periodic maintenance of computers and supporting hardware pose the greatest barrier to E-learning.

Pallavi et al. (2022) investigated the effectiveness of E-learning compared to traditional classroom learning for this purpose. This study also revealed negative outcomes. First, students cannot schedule time for study, homework, and assignments. Second, there is an absence of a sense of belonging. It was determined that a portion of E-learners felt that E-learning materials and program were ineffective.

In addition, Panackal et al. (2022) demonstrated in their study that the barriers to E-learning are lack of required skills, lack of access to technology, quality concerns, time constraints, and learner engagement.

METHODOLOGY

The researcher employed the Descriptive-Developmental Method of Ibrahim (2016) in this study. According to Ibrahim (2016), a descriptive-developmental research method is a systemic study of designing, developing and evaluating instructional programs, processes, and product that must meet the criteria of internal consistency and effectiveness. Specifically, this study involved 567 Grade 11 students from a private higher education institution in Plaridel, Bulacan. They were selected using universal sampling from different strand offered by the school. In order to collect the needed data for the study, the researcher obtained the Endorsement Letter from the LCUP Research Ethics Committee (LCUP REC) for the data gathering procedures. Moreover, when conducting this study, the researcher also made sure to adhere to the following ethical principles:

1. The respondents' welfare was guaranteed, and no damage of any kind was done to them.

2. The researcher made sure that the participants were told about the study they will be taking part in, and they were asked for their informed permission, which confirmed that they have read the study's objectives and scope.

3. The information gathered for this study were treated as confidential throughout. All profiling information will be erased once the research is finished for privacy reasons as well.

4. If any participant's identity become public because of the discussion of the data analysis's findings, their identity will be protected by a codename.

In this study, their difficulties and needed competencies in their Reading and Writing Subject were revealed after conducting a needs analysis and diagnostic test. Then, this data lead to a purpose of creating an output to promote development after learning the difficulties or points to improve – in this case the Supplementary E-Learning Guide (SELG) in Reading and Writing Subject.

Additionally, the ADDIE Model of Center for Educational Technology at Florida State University (1975) was used in the conduct of this study. According to Widyastuti (2019), ADDIE model is one of the most common models used in the instructional design field as a guide to produce an effective design. This model aims to describe any process-based approach to develop instructional content. The model includes Analysis Phase, Design Phase, Development Phase, Implementation Phase, and Evaluation Phase. A more detailed explanation of the method of the study is as follows:

Analysis Phase

In this stage, the researcher collected and analyzed the needed quantitative data of the study. These data were the basis and foundation of the desired SELG in Reading and Writing Subject. Specifically, there were (2) two tools administered to the participants during this phase namely: Reading and Writing Difficulty Questionnaire and Diagnostic Test for Reading and Writing Subject. These instruments were both adopted from the study of Urbano, Gumangan, Gustilo, and Capecete (2021) entitled "Reading and Writing Needs of Senior High School Students: The Case of Filipino Students in the Philippines". On the first day, students answered the Reading and Writing Difficulty Questionnaire. This questionnaire includes (3) parts namely: Demographic Profile, Reading Difficulties Questions, and Writing Difficulties Questions. The participants took (1) one hour to finish this needs analysis. On the second day, Diagnostic Test for Reading and Writing Subject was administered to gauge their level of competencies in reading and writing. The students took this test for (1) one hour as well. Therefore, this phase allowed the researcher to collect all necessary data to create and develop the output of this study.

Design Phase

In this stage, the researcher described and identified the learning competencies and difficulties of Senior High School students in Reading and Writing Subject based on the results of the needs analysis and diagnostic test. In this part, the researcher crafted the parts and layout of the output, selected the software to be used, and selected the content resources. The parts of the SELG was aligned to the Alternative Delivery Model (ADM) Module as prescribed by DepEd. For the layout, the researcher created the storyboard. The software used is the Kotobee Author. According to Yulianto (2022), Kotobee Author is an application that can be used to embed text, pictures, audios, videos, animation, and assessment into E-Book. Lastly, for the content resources, the researcher obtained various references like books and Open-Educational Resources. Basically, this phase ensured that the researcher utilized solely the results of the analysis phase in designing the SELG in Reading and Writing Subject.

Development Phase

In this stage, the creation of the actual SELG in Reading and Writing Subject of Senior High School students occurred. The researcher must ensure the usage of selected and identified difficulties and learning competencies upon developing the SELG for Reading and Writing Subject of Senior High School students. The researcher developed the SELG in (1) one month. Once the SELG is done, it underwent (2) two validation sessions. The comments and suggestions of the validators from the first session was took into consideration. After revising the output, it proceeded to its second validation session. The tool used for the validation was the Evaluation Rating Sheet for Non-Print Materials as prescribed by DepEd. This phase only ensured the quality and validity of the SELG before its implementation.

Implementation Phase

In this stage, the validated SELG in Reading and Writing Subject was administered to the Grade 11 Senior High School students by requiring them to download and install the Kotobee Reader. The Kotobee Reader is the official application needed to read and view any E-Learning Material created from Kotobee Author. With this, the SELG is accessible to different types of digital devices such as smart phones, tablets, iPads, and laptop or desktop. Few of the key features of the SELG was its capability to adopt to various digital tools and its secured

format regardless of the viewing orientation. This quality excluded the problems from using and viewing of the content of the SELG. The Reading and Writing Subject for Grade 11 Senior High School students run for (1) semester only. The students who took the diagnostic test and needs analysis used the supplementary E-Learning Guide while they were enrolled in Reading and Writing classes.

Evaluation Phase

In this stage, the SELG in Reading and Writing Subject underwent in testing of effectivity. A final examination was administered to the students. This exam was aligned and patterned to the diagnostic test from the analysis phase. The results of both tests were subjected for inferential analysis in order to check if there were significant changes brought about by the SELG in Reading and Writing Subject. For the data analysis and statistical treatment, the data collected was tabulated and processed using Statistical Packages for Social Sciences (SPSS) with the assistance of a licensed statistician. Basically, the descriptive measurements such as frequency, percentage, and mean value were included in the study. Moreover, Paired T-Test was used to check if the changes between the Diagnostic Test and Final Test are significant. This test is specifically designed to compare the means of two related groups. A paired-samples t-test is used when data is collected from the same group of people on two different occasions or under two different conditions, such as in pre-test and post-test experimental designs (Pallant, 2020). Lastly, the researchers included and analyzed the feedback from twenty-five selected students and parents using a thematic analysis for a holistic evaluation of the effectiveness of the SELG.

RESULTS AND DISCUSSION

Reading Difficulties in terms of Content Schema

As presented in Table 1, the responses showed that respondents have positive perception of their reading skills in terms of content schema. As indicated in the weighted mean scores, each indicator received favorable responses from the learners ranging from agree to strongly agree. According to the respondents, their background knowledge assists them in reading a particular text. This indicator received the highest mean score of 3.10. While, understanding the texts written from other countries received the lowest mean score which is 2.56 but still interpreted as satisfactory. Overall, content schema is not considered as a factor for reading difficulty among the respondents since it further revealed an overall mean value of 2.8113.

Table 1 Mean Score for Reading Difficulties in terms of Content Schema

Questions/Statements	Mean	Standard deviation	Interpretation
I can easily understand texts written in the context (setting) of other countries.	2.56	.698	Agree
I can formulate questions about things I read from texts.	2.81	.704	Agree
I am familiar with strategies to assess the value of claims within texts.	2.70	.688	Agree
It is easy to discuss things I have read from texts.	2.89	.745	Agree
My background knowledge assists me in reading texts.	3.10	.799	Strongly Agree
Overall Mean	2.8113	.43261	Agree

Legend: 1.00 – 1.49 = Strongly Disagree; 1.50 – 2.49 = Disagree; 2.50 – 3.49 = Agree; and 3.50 – 4.00 = Strongly Agree

Reading Difficulties in terms of Linguistic Schema

As presented in Table 2, the responses showed that respondents have positive perception of their reading skills in terms of linguistic schema. As indicated in the weighted mean scores, each indicator received favorable responses (agree) from the learners. According to the respondents, they can easily understand the grammar of the text they read. This indicator received the highest mean score of 3.04. While, guessing the correct meaning of words they do not know received the lowest mean score which is 2.50 but still interpreted as satisfactory. Overall, linguistic schema is not considered as a factor for reading difficulty among the respondents since it further revealed an overall mean value of 2.77.

Table 2 Mean Score for Reading Difficulties in terms of Linguistic Schema

Questions/Statements	Mean	Standard deviation	Interpretation
It is easy for me to comprehend even long sentence structures in a text	2.60	.730	Agree
I have no problems following the grammatical structure within texts.	2.58	.786	Agree
I can guess the meaning of words I don't know.	2.50	.849	Agree
I can understand the meaning of a sentence even if I don't understand the grammar rules.	2.66	.803	Agree
I understand the grammar of texts I read.	3.04	.779	Agree
I can read sentences and paragraphs quickly.	3.02	.812	Agree
When I read texts, I understand most of the words immediately.	2.98	.796	Agree
Overall Mean	2.7700	.43593	Agree

Legend: 1.00 – 1.49 = Strongly Disagree; 1.50 – 2.49 = Disagree; 2.50 – 3.49 = Agree; and 3.50 – 4.00 = Strongly Agree

Reading Difficulties in terms of Textual Schema

As presented in Table 5.3., the responses showed that respondents have positive perception of their reading skills in terms of textual schema. As indicated in the weighted mean scores, each indicator received favorable responses (agree) from the learners. According to the respondents, their familiarity in transition markers such as now, then, in addition, etc. assist them in comprehending or reading a text. This indicator received the highest mean score of 2.96. While, evaluating the coherence, organization, and mechanics of a text received the lowest mean score which is 2.56 but still interpreted as satisfactory. Overall, textual schema is not considered as a factor for reading difficulty among the respondents since it further revealed an overall mean value of 2.7663.

Table 3 Mean Score for Reading Difficulties in terms of Textual Schema

Questions/Statements	Mean	Standard deviation	Interpretation
I can recognize different patterns of development (narration, description, definition, comparison and contrast, etc.) in texts.	2.63	.752	Agree
I can evaluate the coherence, organization, grammar and mechanics of a text I read.	2.56	.701	Agree

I can easily distinguish techniques in selecting and organizing information (e.g. brainstorming list, graphic organizer, topic outline, sentence outline).	2.65	.816	Agree
I can identify main ideas and supporting details in texts	2.92	.716	Agree
I can effectively use paragraph headings/subtitles when reading texts.	2.78	.737	Agree
My familiarity with transitional markers (e.g. then, now, so, therefore, in addition) assist my reading.	2.96	.808	Agree
I recognize the author's attitude and purpose for writing when I read.	2.86	.795	Agree
Overall Mean	2.7663	.46444	Agree

Legend: 1.00 – 1.49 = Strongly Disagree; 1.50 – 2.49 = Disagree; 2.50 – 3.49 = Agree; and 3.50 – 4.00 = Strongly Agree

Reading Difficulties in terms of Literacy in L1

As presented in Table 4, the responses showed that respondents have positive perception of their reading skills in terms of Literacy in L1. According to the respondents, they can effectively utilize their L1 to comprehend English reading a text. This indicator received an overall mean score of 3.01. Overall, Literacy in L1 is not considered as a factor for reading difficulty among the respondents.

Table 4 Mean Score for Reading Difficulties in terms of Literacy in L1

Question/Statement	Mean	Standard deviation	Interpretation
I can effectively use my L1 (e.g. Tagalog) to comprehend English texts.	3.01	.800	Agree

Legend: 1.00 – 1.49 = Strongly Disagree; 1.50 – 2.49 = Disagree; 2.50 – 3.49 = Agree; and 3.50 – 4.00 = Strongly Agree

Summary of Mean Scores for Reading Difficulties in terms of Content Schema, Linguistic Schema, Textual Schema, and Literacy in L1

Table 5 showcased the mean scores that respondents have positive perception of their reading skills in terms of Content Schema, Linguistic Schema, Textual Schema, and Literacy in L1. As indicated in the weighted mean scores, each factor received favorable responses (agree) from the learners. Literacy in L1 received the highest mean score of 3.01. It is followed by Content Schema with 2.8113. Then, Linguistic Schema with 2.7700. Lastly, Textual Schema with 2.7663. Therefore, the respondents were confident in their reading skills and they were not experiencing major difficulties in reading and comprehending texts. Overall, they perceived their reading skills as satisfactory with an overall mean value of 2.7826.

Table 5 Summary of Mean Scores for Reading Difficulties in terms of Content Schema, Linguistic Schema, Textual Schema, and Literacy in L1

Factors	Mean	Standard deviation	Interpretation	Ranking
Content Schema	2.8113	.43261	Agree	2
Linguistic Schema	2.7700	.43593	Agree	3

Textual Schema	2.7663	.46444	Agree	4
Literacy in L1	3.01	.800	Agree	1
Overall Mean	2.7826	.37694	Agree	

Legend: 1.00 – 1.49 = Strongly Disagree; 1.50 – 2.49 = Disagree; 2.50 – 3.49 = Agree; and 3.50 – 4.00 = Strongly Agree

However, few indicators with lowest mean scores even though interpreted as satisfactory were considered as difficulties in reading such as understanding the texts written from other countries, guessing the correct meaning of words they do not know, and evaluating the coherence, organization, and mechanics of a text. This is similar to Urbano et al. (2021) on their study about Reading and Writing Subject utilizing a needs analysis, diagnostic test, and interview sessions with 100 Senior High School students. For reading, they have identified the following skills as the most difficult for SHS students: (1) recognizing different patterns of development in texts; (2) evaluating the coherence, organization, grammar, and mechanics of a text; (3) having poor vocabulary knowledge; and (4) identifying ways to select and organize information.

Writing Difficulties in terms of Writing Experience

As presented in Table 6, the responses showed that respondents have positive perception of their writing skills in terms of writing experience. As indicated in the weighted mean scores, each indicator received favorable responses (agree) from the learners. According to the respondents, they are familiar with the conventions of academic writing. This indicator received the highest mean score of 2.73. While, writing experiences for academic writing received the lowest mean score which is 2.64 but still interpreted as satisfactory. Overall, writing experience is not considered as a factor for writing difficulty among the respondents since it further revealed an overall mean value of 2.6843.

Table 6 Mean Score for Writing Difficulties in terms of Writing Experience

Question/Statement	Mean	Standard deviation	Interpretation
I have prior writing experience of academic texts.	2.64	.791	Agree
I am familiar with the conventions (formal writing) of academic texts.	2.73	.805	Agree
Overall Mean	2.6843	.63537	Agree

Legend: 1.00 – 1.49 = Strongly Disagree; 1.50 – 2.49 = Disagree; 2.50 – 3.49 = Agree; and 3.50 – 4.00 = Strongly Agree

Writing Difficulties in terms of Topic Knowledge

As presented in Table 7, the responses showed that respondents have positive perception of their writing skills in terms of topic knowledge. As indicated in the weighted mean scores, each indicator received favorable responses (agree) from the learners. According to the respondents, they can easily write topic-specific papers from what they have read already. This indicator received the highest mean score of 2.73. While, writing with enough topic-relevant background knowledge received the lowest mean score which is 2.52 but still interpreted as satisfactory. Overall, topic knowledge is not considered as a factor for writing difficulty among the respondents since it further revealed an overall mean value of 2.6261.

Table 7 Mean Score for Writing Difficulties in terms of Topic Knowledge

Question/Statement	Mean	Standard deviation	Interpretation
I have topic-relevant (e.g. business, arts, humanities, sciences) background knowledge to assist my writing.	2.52	.783	Agree
I can easily write topic-specific papers from texts I have read.	2.73	.841	Agree
Overall Mean	2.6261	.63432	Agree

Legend: 1.00 – 1.49 = Strongly Disagree; 1.50 – 2.49 = Disagree; 2.50 – 3.49 = Agree; and 3.50 – 4.00 = Strongly Agree

Writing Difficulties in terms of Linguistic Knowledge

As presented in Table 8, the responses showed that respondents have positive and negative perceptions of their writing skills in terms of linguistic knowledge. As indicated in the weighted mean scores, most indicators received favorable responses (agree) while few were categorized as unfavorable (disagree) from the learners. According to the respondents, they can effectively use transition markers such as now, then, in addition, etc. in writing a text. This indicator received the highest mean score of 2.84. While, familiarity of various citation styles and writing grammatically correct sentences without thinking the rules carefully received the lowest mean scores which are 2.23 and 2.39. Both were interpreted as unsatisfactory. Overall, linguistic knowledge is not considered as a factor for writing difficulty among the respondents since it further revealed an overall mean value of 2.6628.

Table 8 Mean Score for Writing Difficulties in terms of Linguistic Knowledge

Question/Statement	Mean	Standard deviation	Interpretation
I am familiar with the different citation styles (e.g. APA, MLA, etc.).	2.23	.784	Disagree
I can use grammatically correct sentences without thinking carefully about the rules.	2.39	.783	Disagree
I can use the correct vocabulary when I write.	2.62	.752	Agree
I can use different patterns of development (narration, description, definition, comparison and contrast, etc.) when writing.	2.64	.784	Agree
I can write texts with proper citations.	2.64	.712	Agree
I can effectively use transitional markers (e.g. then, now, so, therefore) when writing.	2.87	.716	Agree
I am familiar with strategies to search for reliable references when writing.	2.70	.744	Agree
I can organize information in a paragraph.	2.84	.712	Agree
I can efficiently paraphrase texts that I have read.	2.61	.745	Agree
I can write sentences and paragraphs quickly.	2.62	.767	Agree

I can evaluate relevant ideas/concepts when writing.	2.65	.712	Agree
I can write summaries of texts I read.	2.84	.754	Agree
I can describe my ideas clearly when writing.	2.83	.703	Agree
I can support my ideas with clear details and examples.	2.79	.697	Agree
Overall Mean	2.6628	.41338	Agree

Legend: 1.00 – 1.49 = Strongly Disagree; 1.50 – 2.49 = Disagree; 2.50 – 3.49 = Agree; and 3.50 – 4.00 = Strongly Agree

Writing Difficulties in terms of Writing Strategies

As presented in Table 9, the responses showed that respondents have positive perception of their writing skills in terms of writing strategies. As indicated in the weighted mean scores, each indicator received favorable responses (agree) from the learners. According to the respondents, they can easily revise the texts they write. This indicator received the highest mean score of 2.66. While, to plan easily whenever they need to write received the lowest mean score which is 2.65 but still interpreted as satisfactory. Overall, writing strategies is not considered as a factor for writing difficulty among the respondents since it further revealed an overall mean value of 2.6517.

Table 9 Mean Score for Writing Difficulties in terms of Writing Strategies

Question/Statement	Mean	Standard deviation	Interpretation
It is easy for me to plan whenever I have a text to write.	2.65	.823	Agree
I can easily revise the texts I write.	2.66	.737	Agree
Overall Mean	2.6517	.63602	Agree

Legend: 1.00 – 1.49 = Strongly Disagree; 1.50 – 2.49 = Disagree; 2.50 – 3.49 = Agree; and 3.50 – 4.00 = Strongly Agree

Summary of Mean Scores for Writing Difficulties in terms of Writing Experience, Topic Knowledge, Linguistic Knowledge, and Writing Strategies

Table 10 showcased the mean scores that respondents have positive perception of their writing skills in terms of Writing Experience, Topic Knowledge, Linguistic Knowledge, and Writing Strategies. As indicated in the weighted mean scores, each factor received favorable responses (agree) from the learners. Writing Experience received the highest mean score of 2.6843. It is followed by Linguistic Knowledge with 2.6628. Then, Writing Strategies with 2.6517. Lastly, Topic Knowledge with 2.6261. Therefore, the respondents were confident in their writing skills and they were not experiencing major difficulties in writing and composing texts. Overall, they perceived their writing skills as satisfactory with an overall mean value of 2.6563.

Table 10 Summary of Mean Scores for Writing Difficulties in terms of Writing Experience, Topic Knowledge, Linguistic Knowledge, and Writing Strategies

Factors	Mean	Standard deviation	Interpretation	Ranking
Writing Experience	2.6843	.63537	Agree	1

Topic Knowledge	2.6261	.63432	Agree	4
Linguistic Knowledge	2.6628	.41338	Agree	2
Writing Strategies	2.6517	.63602	Agree	3
Overall Mean	2.6563	.43118	Agree	

Legend: 1.00 – 1.49 = Strongly Disagree; 1.50 – 2.49 = Disagree; 2.50 – 3.49 = Agree; and 3.50 – 4.00 = Strongly Agree

However, few indicators with lowest mean scores even though interpreted as satisfactory were considered as difficulties in writing such as lack of writing experiences for academic writing, writing with enough topic-relevant background knowledge, familiarity of various citation styles and writing grammatically correct sentences without thinking the rules carefully, and to plan easily whenever they need to write. Likewise, Urbano et al. (2021) also depicted the main challenges in writing are: 1) absence of topic-relevant background knowledge and topic-specific papers on texts; 2) insufficient knowledge and practice on writing with proper citation; 3) poor syntax; 4) limited vocabulary; and 5) usage of distinct patterns of development.

Learning Competencies to be included in the SELG

The Reading and Writing Subject of Senior High School is composed of eight competencies namely: 1. Text as Connected Discourse, 2. Techniques in Selecting and Organizing information, 3. Patterns in Development in Writing, 4. Properties of a well-written text, 5. Explicit and Implicit Claims, 6. Context of Text Development, 7. Determining Textual Evidence, and 8. Purposeful Writing in Disciplines and Professions, based from the Curriculum Guide and Most Essential Competencies of the K-12 Program. Respectively, each competency received unfavorable mean percentage which is Low proficient.

Table 11 Mean Scores of Diagnostic Test for Reading and Writing

Test Component	**Mean**	**Mean Percentage**	**Standard deviation**	**Interpretation**
Text as Connected Discourse	2.53	42%	1.347	Low Proficient
Techniques in Selecting and Organizing information	1.91	32%	1.259	Low Proficient
Patterns in Development in Writing	5.53	40%	2.278	Low Proficient
Properties of a well-written text	2.09	30%	1.390	Low Proficient
Explicit and Implicit Claims	4.60	35%	1.977	Low Proficient
Context of Text Development	1.11	28%	.984	Low Proficient
Determining Textual Evidence	1.53	31%	1.076	Low Proficient
Purposeful Writing in Disciplines and Professions	1.69	34%	1.030	Low Proficient
Overall	21.00	35%	6.059	Low Proficient

Legend: Highly Proficient (90% – 100%), Proficient (75% - 89%), Nearly Proficient (50% – 74%), Low Proficient (25% – 49%), and Not Proficient (0% – 24%)

Therefore, all the above-mentioned competencies were considered to be included for the development of SELG. Overall, their reading and writing skills during the diagnostic test was unsatisfactory with an overall mean percentage of 35% or 21.00 which is Low Proficient. Likewise, Totto & Ramos (2021) also found out that the reading and writing performances of the Senior High School students who attended public schools in Cabagan, Isabela were poor.

Development of SELG

The development of Supplementary E-Learning Guide for SHS Reading and Writing started in January 2022 after receiving the approval and permission for full implementation of Research Ethics Committee of La Consolacion University Philippines.

Following the Analysis Phase, the SELG was designed using the data gathered during the needs analysis in reading and writing difficulty, and the diagnostic test of the respondents. As a result, the SELG was designed in response to their perception in reading and writing difficulties, and the contents were solely based on competencies in which they have a low mastery level.

On the other hand, the development phase was divided into two parts namely: creation of SELG and Validation of SELG.

Creation of SELG

The SELG was created with the aid of a software called Kotobee Author. It is a comprehensive E-book creator and EPUB editor suitable for education, training, and publishing. Meanwhile, the parts of the SELG was aligned to the Alternative Delivery Model (ADM) Module as prescribed by DepEd. Thus, the researcher obtained various references like books and Open-Educational Resources to support the content and activities of the learning guide.

Figure 1 presented the various ways to manipulate the SELG. It can be viewed on different platforms or digital tools depending on the students' available device. Moreover, the contents can be viewed also in either portrait or landscape mode.

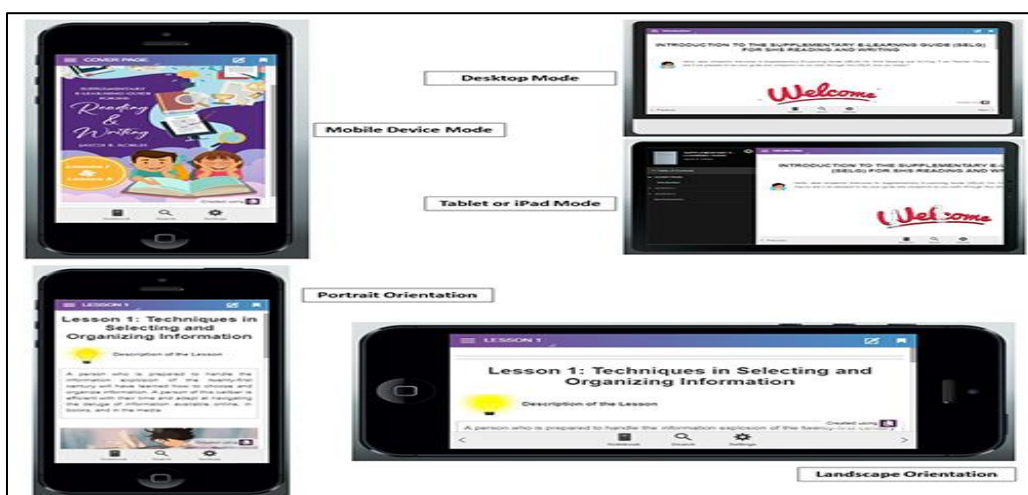Figure 1 Overview of the SELG in Different Platforms and Orientation

Figure 2 highlighted the built-in features of the SELG. This includes the Book Cover, Table of Contents, Settings, Search Tool, Learner's Guide, Lesson Content, Description of Lesson, Objectives, references, notebook, and activities.

The Book Cover displays the publisher, rights, and language. In the table of contents, it presents the order of expected lessons and activities in the SELG. The search tool allows the users to look for specific contents without opening the table of contents. Meanwhile, the settings allow the users to edit the font type, size, and color of the preview.

Moreover, the SELG has a learner's guide for easy navigation and to familiarize the users to the features of SELG. It also anchors the description of the lessons and objectives. These are presented to guide the learners for the expected goals of the lesson. The reference is responsible for the presentation of credible sources of the contents.

On the other hand, the main components of the SELG is the Lesson Content, it showcased a brief discussion to support the activities integrated in the SELG. In line with that, the activities were prepared to promote mastery of the competencies. These include practice sets, valuing tasks, application, generalization, and post-assessment.

In addition, the SELG includes a notebook where the user can save highlighted texts, bookmark sentences or words, and take down notes. Therefore, the built-in features are properties of the SELG that serve as guides to users to navigate it easily.

Figure 2 Built-in Features of the SELG

Figure 3 showcased the interactive parts of the SELG. It used pop-up illustration, pop-up message, external links, vocabulary, gallery or media, video quiz, and Rubric-based Performance Tasks. These features were embedded to the SELG to improve interactions and higher order thinking skills.

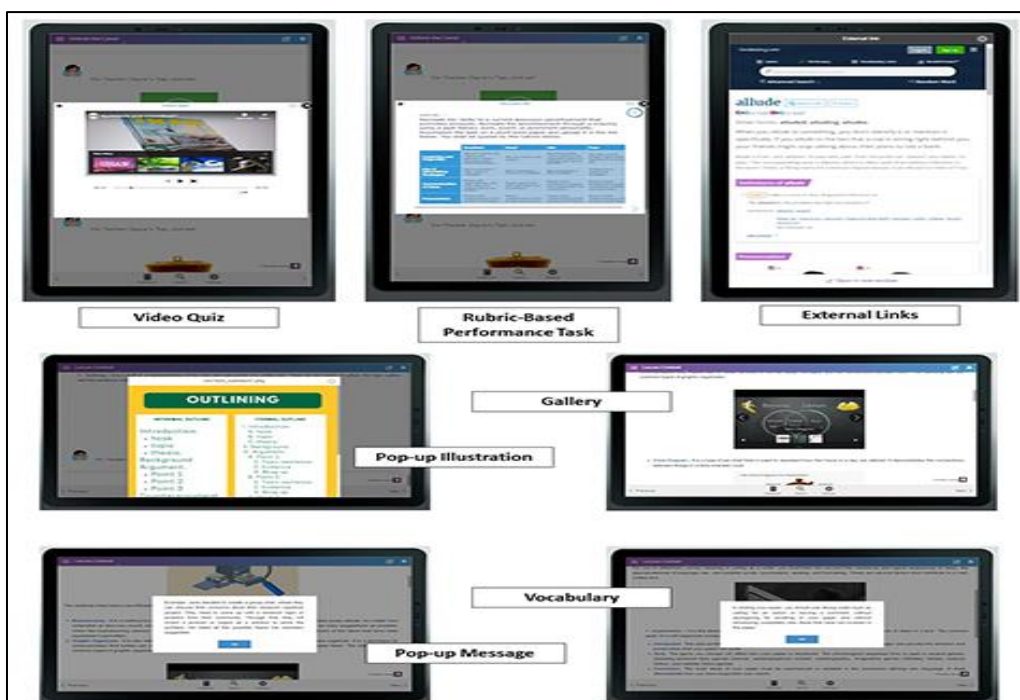Figure 3 Interactive Features of the SELG

Figure 4 emphasized the virtual assistant integrated in the SELG. The assistant provides tips, guidance, and rewards in accomplishing the tasks.

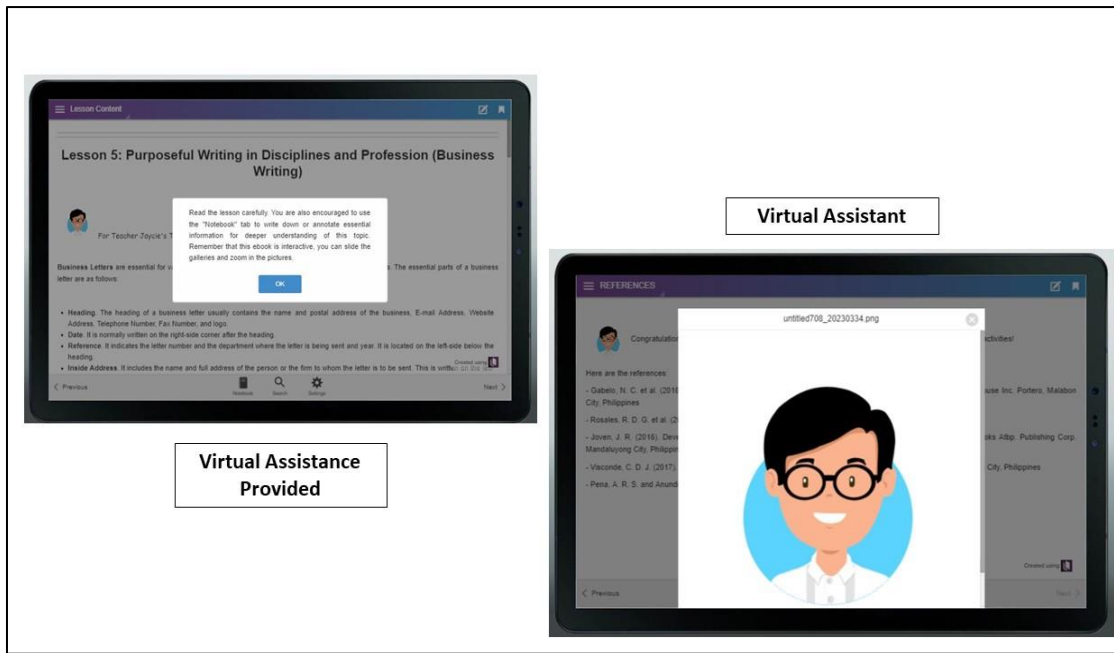Figure 4 Virtual Assistant of the SELG

Figure 5 presented the strategy used in activity management. The SELG used a quest-based approach in presenting the aforementioned activities. Meaning, the tasks are locked and cannot be opened without the password. Therefore, a password must be retrieved by accomplishing the first task and onwards.

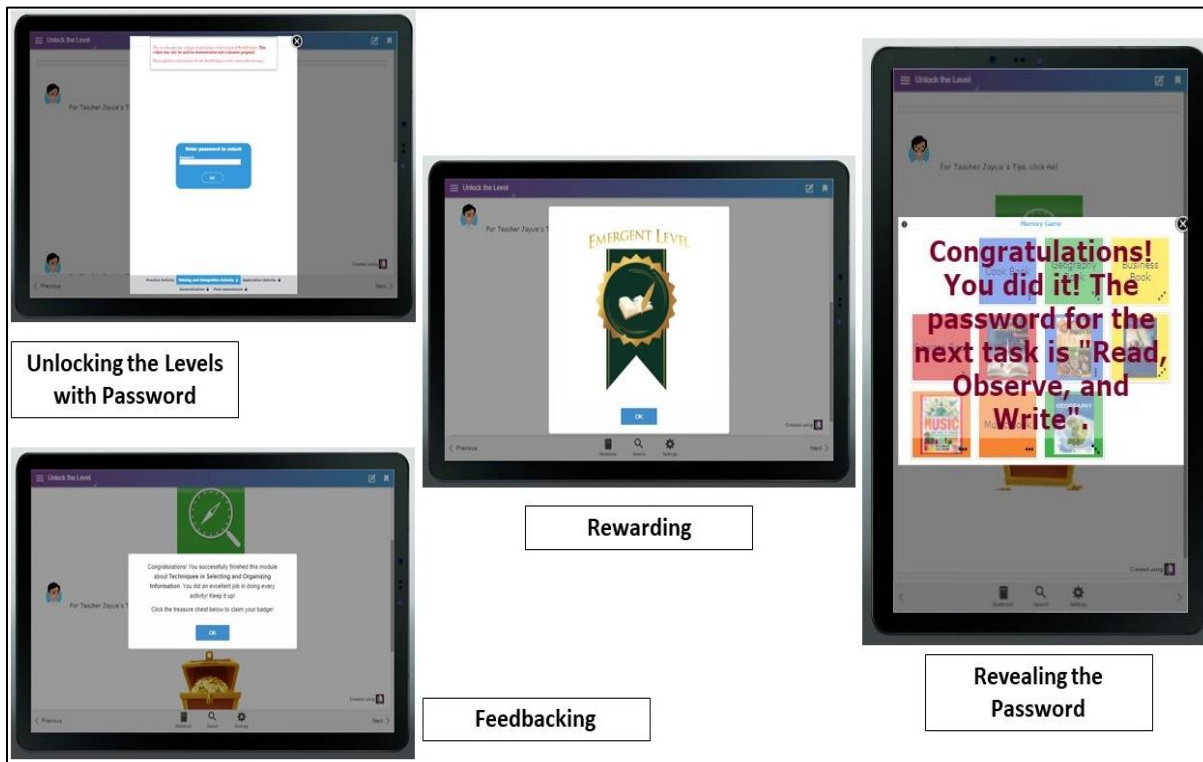Figure 5 Activity Management of the SELG

Figure 6 showcased the interactive games used in the SELG. These are games such as puzzles, crosswords, and memory games. These are commonly placed in the pre-assessment or before the lesson content. It was included to excite and gear up the learners regarding the lesson proper.
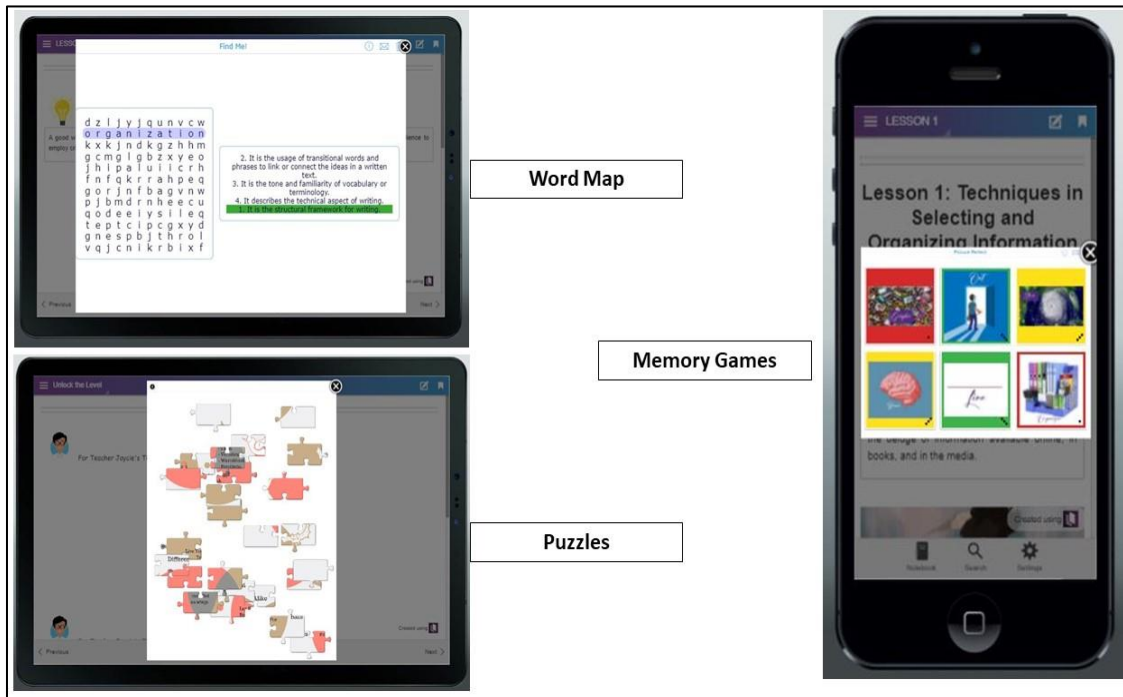
Figure 6 Interactive Games in the SELG

Figure 7 highlights the interactive activities or assessment in the SELG. These are the activities used in the practice sets, valuing tasks, application, generalization, and post-assessment. These activities are designed to meet the objectives of the lesson and to improve proficiency of the subject matter. As reflected in figure 6, the activities are locked and can be opened only if the passwords are retrieved. Examples are identification through text reading, drop boxes, locating claims, citing evidences, matching types, comprehension check, highlighting texts, and revising texts.

Figure 7 Interactive Activities or Assessment in the SELG
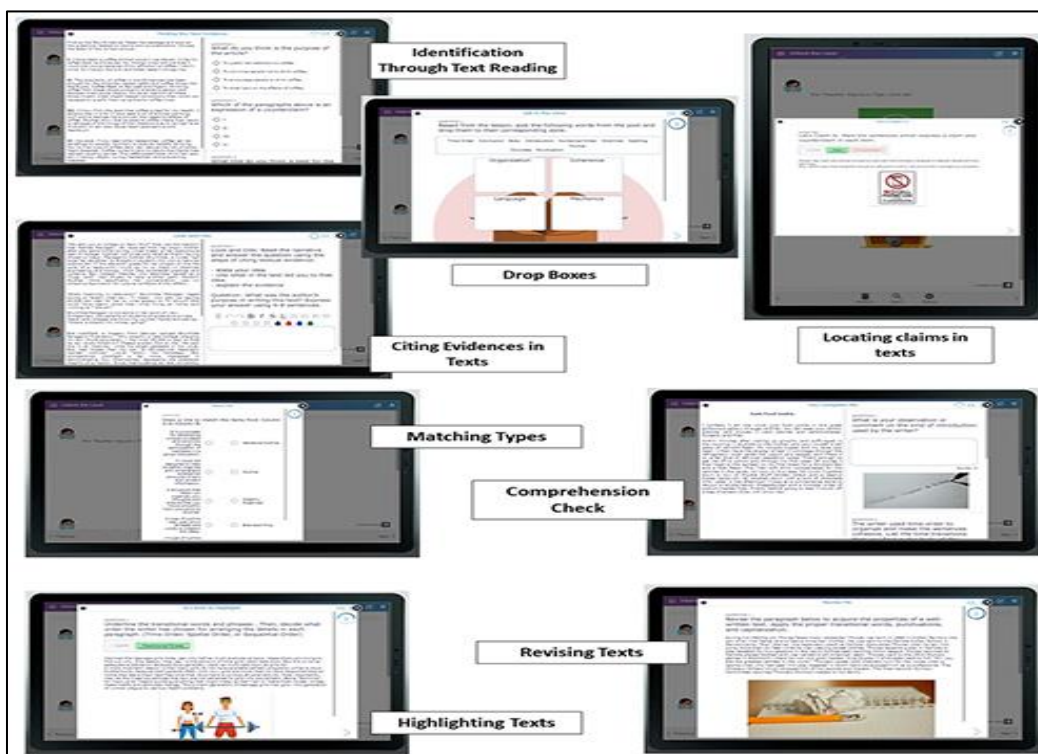
Generally, the creation and development of SELG includes the selection of software to be used, identifying the parts, sources of contents, and utilization of the obtained data from the analysis phase.

Validation of SELG

In the validation stage, selected English teachers and ICT specialists were asked to evaluate the SELG. The English teachers were responsible for the Content Quality, Instructional Quality, and Other Findings. While the ICT Specialists were responsible for the Technical Quality. The profiles of the validators are (8) eight English Teachers with Master's Degree and (3) three Information and Communication Technology (ICT) Specialists. Likewise, they evaluated the SELG using the Evaluation Rating Sheet for Non-Print Materials adopted from the Learning Resources Management Development System (LRMDS) Assessment and Evaluation from DepEd.

The SELG must acquire at least 30 points out of a maximum of 40 points to pass the content quality. During the first validation, it garnered a mean score of 39.75. While, during the second validation, it received a total mean score of 40. Therefore, both validation results indicate that that the SELG passed the criterion. Meaning, the SELG embraced all the content standards of the Reading and Writing Subject as provided by the DepEd. According to Membrebe and Anadia (2015), it is suggested that the contents of supplementary learning materials must be carefully assessed following the content criterion provided by the DepEd so it can be used as instructional material to improve teaching, learning process, and student achievement on least mastered competencies.

In addition, the SELG must acquire at least 30 points out of a maximum of 40 points to pass the instructional quality. During the first validation, it garnered a mean score of 39.125. While, during the second validation, it received a total mean score of 40. Therefore, both validation results indicate that the SELG passed the criterion. Meaning, the SELG anchored contexts that will support complex and structured problems in which learners can generate new knowledge. It is related to the study of Estacio (2016) where instructional materials should emphasize embedding skills and knowledge in holistic and realistic contexts.

Further, the SELG must acquire at least 30 points out of a maximum of 40 points to pass the technical quality. During the first validation, it garnered a mean score of 37.67. While, during the second validation, it received a total mean score of 39.67. Therefore, both validation results indicate that that the SELG passed the criterion. Meaning, the SELG is easy to use and it can be used in distance learning, provided that learners have the device used to operate the learning material. This is parallel to the study of Aquino (2018) which he stated that the visual illustrations and screen displays could attract attention, aid retention, enhance understanding, or create context.

Lastly, the SELG must acquire at least 16 points out of a maximum of 16 points to pass the "Other Findings" category. During the first and second validations, each statement received a mean score of 4. It resulted in a total score of 16. Therefore, both validation results indicate that that the SELG passed the criterion. Meaning, the SELG is free from errors and that may affect the learning process.

Table 12 Summary of Overall Mean Scores for SELG Validation

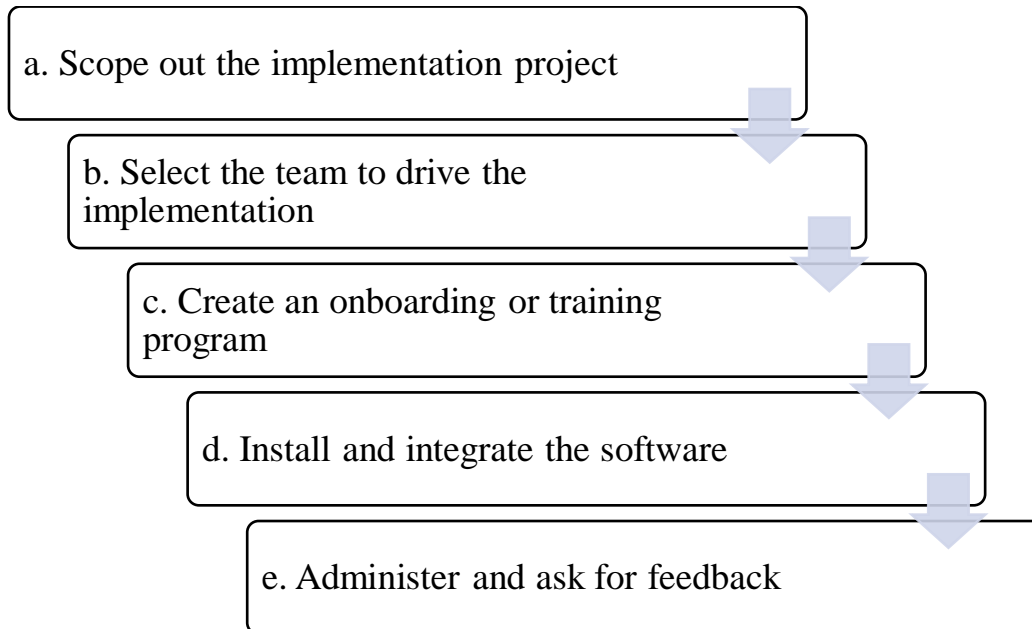| Factors	Mean Score (1st Validation)	Interpretation	Mean Score (2nd Validation)	Interpretation
Content Quality	39.75	Passed	40	Passed
Instructional Quality	39.125	Passed	40	Passed
Technical Quality	37.67	Passed	39.67	Passed
Other Findings	16	Passed	16	Passed

In reference to Table 12, it shows that the SELG is approved based on the criteria for non-print materials provided by the Department of Education. The SELG passed the four factors and it obtained valid results for every indicator in both first and second validations. With that, it is recommended for possible use provided that the recommendations from validators are made.

Implementation of SELG

During the implementation phase, the researcher used the Software Implementation Procedure by Olmstead (2022). Software implementation is the process of adopting and integrating a software application into a company's systems and workflows. In the present study, the SELG which is a non-print material, was integrated to the school class set-up of the research locale.

Figure 8 The Software Implementation Procedure

```
a. Scope out the implementation project
       ↓
  b. Select the team to drive the
     implementation
          ↓
    c. Create an onboarding or training
       program
              ↓
      d. Install and integrate the software
                  ↓
        e. Administer and ask for feedback
```

Scope out the implementation project

In this stage, the researcher prepared a roadmap or steps that outlines the timeline and the pre-implementation tasks that must be done. In addition, the researcher enlisted all the possible problems and concerns. This stage helped the researcher to minimize errors and fix the arising concerns in advance.

Select the team to drive the implementation

In this stage, the researcher selected the three English teachers from the research locale who will teach the Reading and Writing Subject as members of the team. They were purposively selected since they were about to handle the aforementioned subject in the opening of the second semester of School Year 2022-2023.

Create an onboarding or training program

Following the selection of the team members, the researcher conducted a seminar for the assigned team. In this stage, the researcher aimed to gear up the team to avoid the downtime upon using the SELG. The researcher conducted a two-day orientation that allowed the members to familiarize with the features and technical steps in installing and using the SELG. It culminated last February 16-17, 2023.

Install and integrate the software

In this stage, the researcher designed the process to be followed by the members and students in installing the Ebook reader and downloading the SELG. The week before the implementation, the researcher advised the members to send the procedure on how to install the Kotobee Reader to the sections' group chats. The Kotobee Reader is an Ebook and EPUB reader that can open the SELG. Then, they instructed the students to install the said application in their digital tools. The following day, the researcher advised the members to send the SELG files to the sections' group chat using a google drive link. They instructed the students to download the said files that will be used for the following week. It happened last February 23-24, 2023.

Administer and ask for feedback

The SELG is accessible on any student-device, such as smartphones, laptops, and tablets, as long as the Kotobee Reader is installed. Since the SELG was designed primarily for outside the mainstream of a classroom, after being downloaded by the students, it can be used offline. In line with that, the research locale only offered a blended modality for its students. Therefore, it has three days face-to-face classes only (Monday to Wednesday) and two days modular classes (Thursday and Friday). In order to integrate the SELG in the class program of the students, the researcher with the approval of the school's administrators, allowed the utilization of the SELG in modular classes every Thursday and Friday. The utilization of the SELG lasted for one semester from February 27, 2023 to June 2, 2023.

Reading and Writing Scores of the Senior High School Students Before and After the Implementation of SELG

Following the implementation phase, the researcher evaluated the effectivity of the SELG by administering a Post-Test or Final Test to the respondents. The researcher compared the test scores of the students from the diagnostic test (reflected in Table 11) to the obtained scores in Post-Test or Final Test.

Table 13 presents the mean scores of the Grade 11 students before and after the implementation of the SELG. It is evident from the table the increased mean scores of the reading and writing competencies of the learners in comparison to their diagnostic test. The context of text development received the highest mean percentage of 92% which is Highly Proficient. While the rest of the competencies received a mean percentage ranging from 76% to 88% which interpreted as Proficient. Therefore, all the competencies from the reading and writing subject improved after the utilization of the SELG. It further reveals an overall mean percentage of 82% or 49.21 which means Proficient.

Likewise, the impact of a technology-mediated gamified intervention on student engagement and course achievement was examined by Tsay et al. (2018). Weekly classroom instruction and a two-tiered structure made up of online gamified learning tasks were both features of the gamified course "Personal and Professional Development." For the two years that the online intervention has been in place, data has been gathered for two cohorts of 334 students. The findings indicate that the gamification intervention increased student engagement and enhanced course performance

Table 13 Comparison of the Mean Scores Before and After the Implementation of SELG

Test Component	Test Type	Mean	Mean Percentage	Standard deviation	Interpretation
Text as Connected Discourse	Pre	2.53	42%	1.347	Low Proficient
	Post	5.25	87%	.889	Proficient
Techniques in Selecting and Organizing information	Pre	1.91	32%	1.259	Low Proficient
	Post	4.98	83%	.992	Proficient
Patterns in Development in Writing	Pre	5.53	40%	2.278	Low Proficient
	Post	10.65	76%	2.078	Proficient
Properties of a well-written text	Pre	2.09	30%	1.390	Low Proficient
	Post	5.65	81%	.923	Proficient
Explicit and Implicit Claims	Pre	4.60	35%	1.977	Low Proficient
	Post	10.22	79%	1.993	Proficient

Context of Text Development	Pre	1.11	28%	.984	Low Proficient
	Post	3.69	92%	.487	Highly Proficient
Determining Textual Evidence	Pre	1.53	31%	1.076	Low Proficient
	Post	4.36	87%	.726	Proficient
Purposeful Writing in Disciplines and Professions	Pre	1.69	34%	1.030	Low Proficient
	Post	4.41	88%	.753	Proficient
Overall	Pre	21.00	35%	6.059	Low Proficient
	Post	49.21	82%	3.518	Proficient

Legend: Highly Proficient (90% – 100%), Proficient (75% - 89%), Nearly Proficient (50% – 74%), Low Proficient (25% – 49%), and Not Proficient (0% – 24%)

On the other hand, Table 14 shows the t-test for paired samples (correlated) results between pretest and posttest. It can be gathered from the table that there is a significant difference in the test scores before and after the implementation of SELG based on the t-value of -197.562 with the corresponding probability value of 0.000 which is less than $\alpha = 0.05$. Hence, the null hypothesis is rejected.

Table 14 Significant Difference between the Overall Mean Scores Before and After the Implementation of SELG

Test type	Mean	Standard deviation	t-value	Sig. value	Interpretation	Decision to Ho
Pre-test	21.00	6.059	-197.562	0.000	Significant	Reject
Post-test	49.21	3.518				

α = 0.05 Level of Significance

This is congruent to the study of Yuliarsih & Sy (2022) about the effects of E-Learning as a medium for teaching reading in the tenth grade of Wached Hasyim Senior High School. The research was employed using a quasi-experimental design with two groups of sixty students. They revealed that there is a significant difference between the Reading Comprehension of students taught through E-Learning and those taught through traditional Learning. It also highlights that students who were taught using E-Learning perform better than those who were taught using traditional Learning.

Similarly, Walters et al. (2018) deployed mobile phones as tools to supplement teaching and learning off-campus or after school hours to improve language acquisition. The study concluded that after the implementation mobile devices the literacy skills of the students have increased and suggested that mobile devices can be considered for official inclusion as supplementary learning tools in South Africa's education system.

Meanwhile, Kim et al. (2022) investigates the role of teacher experience with student change and their enthusiasm as antecedent factors that predict their continuance intention to integrate technology in the classroom. The variables of teachers' effort regulation, efficacy on technology integration, teaching enthusiasm, and impact on students significantly influenced continuance intention to integrate technology in the classroom. These factors should be considered when teacher training in international development programs is designed to secure the longer-term effectiveness of aid for education in developing countries.

The key themes in the feedback from parents and students regarding the SELG

The researcher presented the analysis of data gathered through a semi-structured interview. The audio recordings were transcribed into texts thoroughly and used direct quotations from twenty-five selected parents to elaborate their feedback on SELG. Three major themes were identified in this study namely: 1. Effectiveness in Enhancing Learning and Academic Performance, 2. Usability and Accessibility, 3. Engagement and Motivation.

Table 15 Key themes in the feedback from parents regarding the SELG

Themes	Frequency
Effectiveness in Enhancing Learning and Academic Performance	17
Usability and Accessibility	5
Engagement and Motivation	3
Total	25

As shown in Table 15, it indicates that Effectiveness in Enhancing Learning and Academic Performance is the most common feedback by the parents. Parents saw how well the supplementary e-learning guide helps their children understand the reading and writing subject, improve grades, and perform better in assessments. 17 out of 25 parents highlight the improvements in students' comprehension, retention, and independent learning. While, 5 out of 25 parents said that the supplementary e-learning guide is easy to use for both students and parents. They discussed that they find it user-friendly and accessible across different devices. Lastly, 3 out of 25 mentioned that the SELG is motivating and engaging. Parents expressed that their children are more motivated to study independently since it includes features like gamification that encourages active participation.

Table 16 Coding of the selected feedback from parents regarding the SELG

Themes	Response	Code
Effectiveness in Enhancing Learning and Performance	*Respondent 11* *Since my child started using the supplementary e-learning guide, her writing and reading comprehension have improved tremendously. The exercises are structured, and the post-section feedback allows her to just focus on the things she has to improve on out of the entire section.*	Effectiveness in Enhancing Learning
	Respondent 15 *Since using the supplemental e-learning guide, my child's reading and writing skills have significantly improved, especially in areas where she previously struggled, such Purposeful Writing in Disciplines and Professions and the characteristics of a well-written work. The interactive exercises and detailed explanations greatly aid in reinforcing important ideas and simplifying the learning process.*	Effectiveness in Enhancing Performance
Usability and Accessibility	*Respondent 17* *On his tablet, my child can easily navigate and use the supplemental e-learning guide thanks to its straightforward interface. It also works with older devices as well.*	Usability

	Respondent 24 *The mobile version of the supplemental e-learning guide is particularly useful because it is accessible from any location, making it convenient for my child to study at home after her class.*	Accessibility
Engagement and Motivation	*Respondent 13* *My child is engaged in learning because of the interactive games and quizzes, especially when he receives rewards and immediate feedback that motivate him to keep going. The fact that my child is now eagerly anticipates utilizing the guide has greatly improved his drive for learning.*	Motivation
	Respondent 19 *My child's studying has become much more fun because to the animated clips and interactive simulations, and he now appear more motivated to complete his homework. Before he used the guide, I seldom ever saw him become interested about studying, so it's wonderful to see him doing so now.*	Engagement

These results suggested that the parents of the students who utilized the supplementary e-learning guide perceived the developed material as effective and helpful in enhancing learning, performance, engagement, motivation, and accessibility in learning. A study of Wilson et al. (2022) supports these results from the feedback from the parents. Based on their study, six common themes emerged for the feedback parents regarding the utilization of the digital learning. The themes contributing to parents' perceptions include accountability, proficiency, knowledge, experience, skills, and interactions.

On the other hand, the researcher also presented the analysis of data gathered through a semi-structured interview from twenty-five selected students to elaborate their feedback on SELG. The audio recordings were transcribed into texts thoroughly and used direct quotations. Four major themes were identified in this study namely: 1. Engagement and Motivation, 2. User Experience and Interface, 3. Learning Enhancement and Comprehension, and 4. Support and Guidance.

Table 17 Key themes in the feedback from students regarding the SELG

Themes	Frequency
Engagement and Motivation	8
User Experience and Interface	8
Learning Enhancement and Comprehension	5
Support and Guidance	4
Total	25

As shown in Table 17, it indicates that Engagement and Motivation as the most common feedback by the students. They saw the interactive elements like quizzes, games, or videos that make learning more enjoyable. With this, 8 out of 25 students highlight their motivation to complete their work independently or enhances their overall interest in the subject. In addition, 8 out of 25 students also mentioned their opinions about the design, navigation, and overall usability of the SELG. They also cover how easy it is to find lessons, access resources, or complete activities. Then, 5 out of 25 addressed how the e-learning guide has helped improve their

understanding of difficult topics. They also commented about how the guide clarifies concepts, boosts their academic performance, and aids in mastering content at their own pace. Lastly, 4 out of 25 reflects on how they feel supported while using the e-learning guide. They also cover how the guide provides step-by-step instructions, immediate feedback, or additional resources for difficult topics.

Table 18 Coding of the selected feedback from students regarding the SELG

Themes	Response	Code
Engagement and Motivation	Respondent 1 The quizzes are enjoyable and tough, and they make me want to keep studying and learn more. I'm also kept interested and encouraged to finish all of my tasks by the interactive elements, such as the reward system and real-time feedback.	Engagement
	Respondent 12 I adore the progress tracker since it motivates me to keep going and complete more lessons by showcasing my progress. Studying no longer feels like a chore because to the gamified components, such as receiving points for finishing portions.	Motivation
User Experience and Interface	Respondent 4 The SELG is easy to use, and I appreciate how each lesson or topic is divided into manageable sections.	User Experience
	Respondent 22 I can locate my assignments and lectures with ease because of the user-friendly interface.	Interface
Learning Enhancement and Comprehension	Respondent 6 I can learn the lessons more easily on my own thanks to the extra exercises and activities provided in the SELG.	Learning Enhancement
	Respondent 15 I can go over my lessons and revisit concepts whenever I need to, which improves my understanding.	Comprehension
Guidance and Support	Respondent 16 I truly value the clues that appear when I'm stuck since they provide me with just enough guidance without revealing the solution.	Guidance
	Respondent 20 When I'm having trouble, I find the 'Help' tool to be quite beneficial because it provides me with prompt answers and concise explanations.	Support

These results suggested that the students perceive the supplementary e-learning guide as useful and impactful in enhancing engagement, motivation, comprehension, and guidance and support in learning. Similarly, the study of Kalyanasundaram and Madhavi (2020) aims to understand the perspective of the learners regarding the E-

learning. Results show that user friendliness and learner engagement were the focal points to promote online learning among the learners. Learner satisfaction with regard to E-learning that was given as supplemental learning tool was measured and learners were found to be satisfied with this.

Proposed Literacy Instruction Plan based from the Findings

Based from the findings of the study, the SELG is found significant in improving the level of proficiency of the learners in terms of the competencies from the reading and writing subject. With that, the researcher has crafted a literacy instruction plan focusing on the integration of the SELG for Reading and Writing in Classroom Program.

Figure 9 Proposed Instruction Plan in Integrating SELG for Reading and Writing in Classroom Program

Proposed Integration of SELG for Reading and Writing Subject in Class Program
Rationale: Two of the most important challenges for 21st century learners are developing a lifelong passion and a high level of literacy in reading and writing. Both teachers and students are struggling to achieve these goals in the midst of a technological revolution and a global pandemic. As a result, integrating a Supplementary E-Learning Guide created in accordance with the vision and mission of the K-12 Program's Reading and Writing Subject for Senior High School is essential. It covers supplementary lessons and learning opportunities related in reading, critical thinking, and writing across disciplines.
Description of the Program: The integration of Supplementary E-Learning Guide for Reading and Writing in class program is a useful intervention to bridge the gap and address the challenges that 21st century learners face when learning the SHS Reading and Writing subject while inside the classroom and outside the mainstream. The integration of the SELG is based on the modality offered by the institution which will cater all types of learners.
Goal/Expected Outcome: The teachers and School Heads are expected to: 1. design and craft the suitable integration of SELG in their institution; 2. understand the features and utilize effectively the SELG in the teaching and learning process; and 3. show appreciation and elicit positive feedback from the culmination of the integration of the SELG. The students are expected to: 1. demonstrate complete understanding of the competencies in SHS Reading and Writing using the SELG; 2. apply the learned competencies from SELG in real life scenarios or situation; and 3. create appreciation for learning the SHS Reading and Writing Subject.

Steps	Responsible	Action and Resources	Results	Potential Barriers	Deadline

Identify the competencies with low proficiency	Head Teachers or School Administrators	-Request data from the Division Office of DepEd -Utilize the data conducted by the school.	Select the competencies that will utilize SELG	No data obtained	1 week (Must be done before the opening of classes)
Communicate the data obtained	Head Teachers or School Administrators and English Teachers	Pour down the data to the English teachers	Preparing the SELG	Failure to communicate	1 week to prepare the needed SELG only
Design the Class Program	English Teachers	-If the class program is full face-to-face, the SELG is applicable as an agreement or assignment daily. -If the class program is blended, the teacher can discuss the lesson during face-to-face. Then, use the SELG during home-based classes. -If the class program is modular, the SELG is applicable as independent and interactive module.	Selecting where the integration will take place	Failure to integrate	1 week
Design the Lesson Management	English Teachers	It is advised to discuss lesson in a weekly basis in order to integrate the SELG. With the use of SELG mastery and proficiency	Manage to create the Weekly Lesson Log	Failure to create a weekly Lesson Log	Weekly

		will be ensured due to its differentiated and interactive activities			
Execute the Method in Teaching and Integrate the SELG	English Teachers and Students	Teach the lesson physically and assigned the activities from SELG	Complete the tasks in classroom and from the SELG	Failure to comply with the tasks	Weekly
Foster Feedbacking	English Teachers and Students	Check and make feedbacks based from the submitted outputs and answers from the SELG. The answers are checked automatically.	Consistent Feedbacking	Failure to give feedbacks from the activities	Weekly

Integration of the SELG outside the classroom mainstream is recommended due to its interactive and differentiated activities while using a digital device. These tasks will promote more interaction, higher-order thinking skills activities or opportunities, mastery, motivation, and interest. It is supported by Baldridge (2022), where digitalized instructional modules as supplementary learning guides provide learners more developmental opportunities to master competencies beyond the regular school day. Likewise, Li et al. (2018) emphasized that relationship between motivation for better assessment and learning satisfaction, as well as internal motivation and learning satisfaction were significantly influenced by the use of interactive modules.

CONCLUSION AND RECOMMENDATION

Conclusion

In light of the findings of the study, the following conclusions were drawn:

1. The main difficulties of the learners in reading are the understanding of crucial ideas when reading due to new or unfamiliar words. Particularly those written in the setting of foreign countries since they find it difficult to comprehend and draw any conclusions from it. With that, they lack the ability to select and organize information in a written text. These are obstacles to their ability to understand what they were reading and to comprehend the ideas and concepts more deeply.

2. The main difficulties of the learners in writing are the lack writing experience on academic texts due to the limited background knowledge. With that, they also reflect insufficient knowledge and practice on writing with proper citation, correct grammar, and deep vocabulary. These skills are vital in composing effective written texts which are important in various fields.

3. The respondents' reading and writing skills during the diagnostic test was unsatisfactory with an overall mean percentage of 35% or 21.00 which is Low Proficient.

4. Kotobee Author is an effective tool to create the SELG. Also, anchoring the parts from the Alternative Delivery Model (ADM) Module as prescribed by DepEd is also commendable. For validation, the SELG passed the four factors (Content Quality, Instructional Quality, Technical Quality, and Other Findings) from the Validation of Non-Print Materials. Provided that the recommendations from validators were utilized, the SELG is recommended for implementation.

5. Software Implementation Procedure by Olmstead (2022) is an effective implementation technique to integrate the SELG in the class program of the research locale.

6. The mean scores of the Grade 11 students after the implementation of the SELG increased. In addition, the t-test for paired samples (correlated) results between pretest and posttest revealed that there is a significant difference in the test scores before and after the implementation.

7. The feedback from both students and parents are positive and excellent.

8. The literacy instruction plan focusing on the integration of the SELG for Reading and Writing in Classroom Program is deemed as an effective plan to improve the mode of delivering instructions and supplementary or enrichment activities to learners.

Recommendation

Based on the findings and conclusion of the study, the following recommendations are hereby offered:

1. Teachers are encouraged to utilize the text-based approach in teaching to improve the reading skills of the learners. It allows the learners to recognize relevant information within texts, patterns of development, and evaluate the conventions and mechanisms of a text. As they read more text samples, it broadens their topic knowledge across various texts especially in other setting, identifies vocabulary words, and develops reading comprehension.

2. Teachers are also encouraged to use text-based approach and outcome-based approach in teaching to improve the writing skills of the learners. As they examine academic texts, it increases their confidence in the process of actual writing. More so, if students are expose to various academic texts, they will eventually learn proper citations and functional knowledge. Therefore, they must be expected to compose texts, write reviews and research reports, present arguments, give judgments, formulate critical essays, and write office correspondences.

3. School Administrators must encourage their English teachers to attend workshops and trainings related to developing electronic instructional materials. Adopting and maximizing to the fast-growing digital tools is a good approach in making the teaching and learning process of students unique and more interactive. Particularly, in developing strategies and approach to improve reading and writing competencies.

4. The future researchers are encouraged to utilize other software to develop an upgraded SELG aside from Kotobee Author. Particularly, utilize a software with more advance features that can cater even the students with disabilities and limited digital access. Moreover, the future researchers are also encouraged to enhance the validation procedure by acquiring more relevant validators and experts.

5. This paper also calls for further studies that will explore the significant impact of SELG or other E-learning material to teachers' enthusiasm, attitude, skills, and performance.

6. Since the SELG is proven influential in improving the reading and writing skills or competencies. The result of this research study must be presented to its research locale to furtherly improve its literacy program in English.

7. It is also suggested to broaden the geographic and demographic focus of the future researches. The integration of SELG in a wider scope or coverage will expand the comparative analysis from this study.

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