ENHANCING ORAL COMMUNICATION OF SENIOR HIGH SCHOOL LEARNERS WITH SCIENTIFIC PROCESS SKILL-BASED SUPPLEMENTAL LEARNING MATERIAL

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Enhancing Oral Communication of Senior High School Learners With Scientific Process Skill-Based Supplemental Learning Material

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Abstract

The COVID-19 pandemic has prompted modifications to the way learning is delivered. In the COVID epoch, a teacher can work independently to come up with a solution and design a new adaptive environment that supports learners' overall welfare and lifelong learning. The purpose of this quasi-experimental research was to evaluate the oral communication performance level of learners utilizing Science Process Skill (SPS)-based supplemental learning material designed to improve their oral communication skills. It was participated by 60 Grade 12 Senior High School (SHS) learners. The data were analyzed using mean and t-test to determine the significant difference. Results revealed that the participants' oral communication performance level before the intervention was classified to be "developing*",* which means that "*learners can use some complex language accurately and fluently in their speaking and writing"*. The mean scores of the learners increased after the intervention, wherein the experimental group gained a higher score compared to the control group, yet their performance level is still "developing". The pretest and posttest scores of the experimental group had a significant difference. There was also a significant difference in the posttest scores between the experimental group using the intervention and the control group without intervention. The results provide evidence that the developed supplemental learning material encouraged the integration of two disciplines in learning. The use of Science Process Skill (SPS)-based supplemental learning material generates independent learning, active participation, self-confidence, and a positive attitude that helped learners how to multitask and manage their time.

Keywords: senior high school, printed, developing stage

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Context and Rationale

The COVID-19 pandemic has wreaked havoc on education systems around the world (United Nations, 2020), necessitating a radical shift and modification of educational systems, including changes in how learning is delivered. In this COVID era, a teacher can work alone to discover a solution and establish a new learning environment that supports learners' well-being and continuity of learning. The multitude of tasks and responsibilities begin with planning how to teach their own subject matter.

Oral Communication in Context, a Senior High School core subject, can be taught based on Psycholinguistics theory, which claims that generating several instructional approaches for teaching language and communication (Purba, 2016) makes it easier for learners to enhance their speaking skills. Science process skills are one method that has been demonstrated to be effective in teaching oral communication in various research. Oral communication and science process skills complement one another, allowing for better learning development for learners in their communication skills.

In several studies around the world, science process skills have been applied as a teaching strategy for English as well. A scientific method benefits learners who are actively engaged in classroom activities to develop their speaking and listening abilities and have a sound foundation to communicate vocally in English (Zaim, 2016; Ratnaningsih, 2017; Sofyan, 2016). Two separate studies in Ohio and Canada discovered that when children participated in Science Curriculum Improvement Study and Science- Process Approach activities, their oral communication abilities increased substantially. Children who were introduced to Science- Process Approach outscored learners who were not in terms of language output, vocabulary, sentence structure, and the ability to classify, transmit, and receive oral communication. Further, learners who engaged in hands-on inquiry activities performed significantly better on the test of oral communication skills than those who did not (Bethel, 1974; Huff and Languis, 1973; Roderiquez and Bethel, 1983).

In light of all of the findings, communication skills take a long time to master, and learning them through a scientific process is an efficient way to save time. These studies

also show how scientific process skills might help with the communication growth of a learner. More importantly, the process that incorporates observation, measurement, experimentation, communication, and critical thinking can be used to build communication skills because of the wide range of activities and concepts from science process skills that learners are engaged in while improving their communication abilities.

The six basic science process skills can be used as a whole, all at once, or in any sequence, but not necessarily as separate skills (Vitti & Torres, 2006 & Teaching Science Process Skills, 2001). The first is observation, which is related to the second skill, communication, and requires the use of one's senses. A good observation is consistently shared with another individual to gain new information. The third skill, classification, requires learners to classify objects or phenomena based on their observations. Sorting by similarities and differences, as well as ranking, are examples of classification skills. Measurement is the fourth skill. Learners must take precise measurements, collect data, and record their findings. Learners should practice their measuring skills, such as using rulers and weighing scales correctly, on a regular basis to generate accurate observations. The ability to make inferences based on observations and facts is the fifth skill. Inferences should be supported by evidence if they are truly grounded on facts. Finally, the sixth skill is making predictions, which involves making educated guesses regarding the outcomes of future events. If careful observation and inference have been made, a prediction can be correct. Predictions allow assumptions or hypotheses to be put to test (Teaching Science Process Skills).

In a study conducted in Central Bicol, Mirana (2019) found that learners exhibited a good attitude toward science but lacked well-developed science process skills. Derilo (2019) confirmed a similar result with the report that learners in private secondary schools in Northern Luzon had a low level of integrated science process skills and an average level of basic science process skills. In addition, Maranan (2017) has a follow-up study that found the same outcome, claiming that learners have no mastery to low mastery levels when it comes to their basic science process skills. The findings imply that teachers should deliver interesting lessons to assist learners acquire science process skills, which are the foundation

for critical thinking and higher order thinking skills, as well as attitudes about how science process skills should be taught. Learners' attitudes toward learning science process skills should be improved to facilitate learning, information retention, and skill application.

Communication, observation, and experimentation are the least exercised abilities among learners at selected schools in Baguio and Benguet, indicating that learners still have a long way to go in improving their science process skills. Learners' concerns include poor study habits, lack of time to study, lack of enthusiasm in science subjects, and feeling sleepy in class. This is in line with a 2008 study by Chaguna and Yango, which shows that identifying difficulties emerging from pupils can help with intervention planning. This means that teachers should devise more engaging activities and make more adaptations and attempts to focus or in such a way that poor study habits, boredom, and lack of interest among pupils are minimized or eliminated. This is a problem that teachers can handle at the four corners of their classroom.

Learners at Tabuk City National High School (TCNHS) are reluctant to express themselves in class, preferring instead to recite in Tagalog or Ilocano. Some learners struggle to complete sentences, have limited vocabulary, and are grammatically challenged. As a result, as part of action research, Esteban (2016) created an audiovisual tool to assist learners in improving their speaking and listening skills. However, according to a study done by Balinag (2019), grade 11 learners still have low or limited listening skills. Similarly, grade 11 learners were found to be low beginners in speaking the language in Choycawen's (2019) research. This means that TCNHS must address learners' oral communication difficulties which can be handled by employing a strategic strategy to assist learners in coping with the need to improve their speaking skills, particularly now that they are learning in a modular style.

Because English is one of the Philippines' official languages and is taught in nearly every subject at all levels of basic education, learners in Senior High School should be able to communicate in the language effectively. Communication fear is the main concern among learners, according to Chentez, et al. (2019), because of the lack of English use in everyday

life, which causes nervousness when speaking in the second language. Therefore, learners are still apprehensive about using English in the classroom, particularly when giving oral presentations, reciting and reporting in class, or even engaging in casual conversations. Valderama (2019) cited this as a concern that the country's education sector must solve as quickly as possible, which is why classroom remedies have already been tried out, such as Zhang's (2009) test of learners' fluency by combining speaking and reading skills, which was successful in demonstrating that their reading skills allow them to get a better comprehension of the reading material by revealing any weak points based on their own understanding. Raba (2017) also discovered that the think-pair-share method improves learners' oral communicative abilities, promotes cooperative learning, and boosts learners' willingness to learn more. Furthermore, Alam (2013) discovered that providing opportunities for oral language practice, creating a friendly learning environment, and employing modern teaching strategies increased oral communication abilities. This study also claims that code switching, peer and self-error correction, short pauses, and speech fillers are all necessary for developing speaking skills when learning a second language. Finally, Rahman's study (2010) discovered that a task-based approach to teaching oral communication that included discussion, oral presentation, and role play was satisfying, intrinsically interesting, and educationally beneficial because the task mirrored a real-life scenario and they became engaged in it, especially when their final performances were open to suggestions.

These various methods for teaching oral communication hold a lot of promise, but there can be another solution that is appropriate for the most significant obstacle to learning oral communication, which is the lack of classrooms, since DepEd Secretary Leonor Briones ordered Self-Learning Modules (SLMs) as the main alternative learning depository for the school year 2020-2021 at this time of pandemic, following the President's directive to cancel face-to-face lessons.

Learning oral communication can also be hampered by cultural barriers in several ways. The Philippines' numerous indigenous communities are dispersed in the Cordillera, including Kalinga (Verzola, 2007), which has a population of 212,680 people as of 2015.

(Philippine Statistics Authority, 2020). While changes in Philippine education are underway, teachers and Filipino indigenous learners continue to struggle when English is used as a language medium. It is a problem when an indigenous learner has trouble remembering, articulating (Leao et al., 2019).

The purpose of this research was to evaluate the learners' oral communication performance in Grade 12 Senior High School after they had used additional learning resources, mainly the SPS-based supplemental learning materials designed to enhance learners' oral communication skills.

This is supported by the guidelines established by the Results-based Performance Management System (RPMS) for achieving teacher proficiency, which states that any learning opportunity can be made meaningful by a teacher's ability to show correct, in-depth knowledge of the concepts and apply material knowledge across the curriculum teaching areas. Another reason for proposing a new approach is the importance of improving science process skills that allow for easy learning and persistence, as well as empowering learners to be responsible and active participants in their own learning. It is critical for learners to improve their speaking skills so that they can cope with all their subjects that demand they speak and understand English. This will help learners improve their language proficiency and prepare them for future careers.

The results of this study can give teachers tools to help learners achieve in verbal learning and overcome speaking difficulties so they will not run into problems when speaking English. In addition, the outputs are important for supporting an interdisciplinary approach to education that will lead to the development of programs for minimizing or overcoming challenges to oral communication development. The results can be used to better understand how other learners in Senior High School who come from comparable educational backgrounds perform oral communication.

Action Research Questions

This study aimed to evaluate the oral communication performance level of learners utilizing Science Process Skill (SPS)-based supplemental learning material designed to improve the oral communication skills of Grade 12 Senior High School learners at Tabuk City National High School. Specifically, it sought answers to the following questions:

1. What is the performance level in oral communication of learners before and after the intervention?
2. Is there a significant difference between the pretest and posttest scores of learners in the experimental group?

   Ho: There is no significant difference between the pretest and posttest scores of learners in the experimental group.
3. Is there a significant difference in the posttest scores of learners between the control and experimental groups?

   Ho: There is no significant difference in the post-test scores of learners between the control and experimental groups.

Innovation, Intervention, and Strategy

The primary intervention of this study involved the use of science process skills as supplemental learning material to enhance the oral communication skills of Senior High School learners. This was developed to address the issue of "Explaining the functions, nature, and process of communication," which is the least learned competency in the subject of oral communication in context. The DepEd offers a module on the subject; however, it emphasizes written exercises, which limits learners' opportunities to practice and enhance their oral communication skills due to the modular classes during the pandemic. In essence, the developed supplemental learning material as an intervention provides interesting and practical communication tasks based on scientific process skills that can be applied in real-life situations.

The interdisciplinary approach to classroom education, which is in accordance with the Philippine Professional Standards for Teachers (PPST), formalized by DepEd Order No. 42, S. 2017., serves as the framework for this intervention. The learners received two volumes of SPS-based supplemental learning resources during their module distribution schedule, in addition to the subject-specific modules, and they carried these materials home with them.

The instructional materials are appropriate for a 9-week intervention, while the oral communication module was only studied for 2 weeks. They are based on the Learning Resources Management and Development System (LRMDS) structure for each volume, which comprises a guide sheet, a lecture, activities 1-3, and an evaluation. Learners submitted their completed modules to their teacher after completing all the asynchronized activities and sending videos during the intervention.

This supplemental material promotes independent study or self-learning but does not imply social isolation because it promotes communication. It encourages each learner to take on the responsibility of learning independently of the teacher while employing the basic scientific process skills of observing, communicating, classifying, measuring, inferring, and predicting.

Volume 1: Linear Model Communication

The first page, a guide sheet, serves as a primer to catch the learners' attention while giving them an outline of the learning material that is based on science process skills and what they should expect from it. It outlines the learning objectives that are intended to help the learners identify communication model components and engage in communication so they can develop their own linear communication scenario.

The lecture portion of the second page begins with a greeting and a thought-provoking question for the learners, utilizing scientific terminology to create an atmosphere of interest. The lecture provides brief descriptions and illustrations of the models for the learners to better comprehend the topic. Another image is displayed to prompt learners' observations about how the image relates to the topic under discussion.

The third page continues the lecture by displaying a ladder to demonstrate how the communication process is a series of steps, just like the scientific process. There is still a lecture with a ladder to illustrate how the communication process is a series of steps, just like a scientific method. There are key takeaways from the material included along with examples. At the end of the lesson, learners must solve a puzzle to gauge their level of knowledge.

The first exercise on the two following pages, “The Tell and Draw Game,” which makes it a two-round game, makes the learning material more entertaining. This is a pair game where the learner can play with anyone who is present. The materials, instructions, and drawings are specified on the page. The teachers should receive videos of the learners’ participation in the exercise for the purpose of recording how they complete the task while giving an oral performance exercise. The game concludes with process questions that refocus the learners on the topic and compliment them on their progress and efforts.

The second activity of a vocabulary video challenge is on the sixth page, and it is intended to help learners become more familiar with the terms used in linear communication. It also allows them to create their own definitions while participating in the challenge in video format, which helps them to be more careful with their pronunciation.

The third activity, "Describe a Scene," asks learners to observe how two characters interact with one another in the diagram before filling in the spaces with the aid of the given text-guided outline. As they progress, the learners create their own diagrams that they can model after examples, followed by original scenario descriptions.

The enrichment activity labeled "DIY Longest Paper Decoration" on page 8 gives learners the opportunity to practice their artistic creativity, measurement, and communication skills by sharing them on social media. Lastly, there are 10 multiple-choice questions in the evaluation section.

Volume 2: Interactive and Transactional Model Communication

The second volume of the supplemental learning activity is described on the first page of the guide sheet, along with its objectives. What the linear model lacks and how that relates to the current topic are briefly reviewed in the lecture section. What the linear model falls short of, leading to the current topic, is described briefly in the lecture portion. The author observes the evolution of the communication model using a narrative format. An interactive model whose communication pattern is contextualized by employing experience in accordance with the learners' age, after which an inquiry leads to the next model to test learners' comparison skills.

The fourth page “compares and contrasts” the two models in an easy-to-understand manner using a chart. Activity 1 encourages the learners ' skills to collaborate, measure, and communicate through a family cook-off competition that involves family members. Activity 2 aims to process and evaluate the findings of the culinary experiment conducted by the learners. They were given observation forms and discussion forms to complete their small experiments and apply their inferential skills.

In activity 3, learners sequence the photographs while they examine a story sequence that features images. They now have to back up their analysis with chronological details of the story. The enrichment is a guessing game that learners can play with any of their classmates by calling them and sharing the story they came up with during the previous activity. Depending on how the narrative is told, the classmate then speculates that it is either a transactional or an interactive model. The topic is then addressed after a series of questions that must be answered to process the game. The ten multiple-choice questions make up the evaluation, which completes the supplemental learning material.

The researcher had set up two group chats, one for the experimental group and the other for the control group, to track how the learners were responding to the learning materials throughout the intervention.

Action Research Methods

Research Design

This research employed a quasi-experimental design using a quantitative approach with two group Pretest- Posttest design. Two groups were given pretests to gauge how well the learners were already performing in oral communication. The SPS-based learning material intervention was used to perform the experimental treatment. Finally, a posttest was given to evaluate the effectiveness of the SPS-based learning material in their oral communication performance.

Participants and Other Sources of Data and Information

The participants of the study were Senior High School learners from two blocks in the Humanities and Social Science strand at Tabuk City National High School. A total of sixty (60) learner- participants were selected using total enumeration, with equal numbers of participants in each class.

Data Gathering Methods

Tests with thirty (30) multiple-choice questions on oral communication skills were developed by the researcher and served as the pretest and posttest. Four master teachers from the English department remarked on the questionnaire's content validity as a means of validation. These experts concurred that the questionnaire's items can be used to effectively capture the topic under research. The reliability test scored with a Cronbach's alpha of 0.71 which means the tests are good. Prior to treatment, oral communication tests were administered to the control and experimental classes. Both groups underwent another set of oral communication tests after the intervention period.

Data Analysis

The oral communication performance level of learners was investigated utilizing weighted means to compute data from both the experimental and control groups. The quantitative descriptions of the overall mean level of oral communication performance were evaluated utilizing the scale depicted in Table 1. Comparing the experimental group's performance level before and after using the SPS-based supplemental learning material to

learn oral communication entailed the use of a dependent t-test. After the experimental group used the SPS-based supplemental learning material to study oral communication while the control group received no intervention, the two groups' oral performance levels were compared using an independent t-test.

Table 1

Oral Communication Performance Level of Learners as categorized according to their Test Result

Score	Performance Level	Definition
0-7	Beginning	The accuracy and fluency of the basic language that learners can speak and write in are confined.
8-15	Developing	Learners can use some complex language accurately and fluently in their speaking and writing.
16-23	Proficient	Learners are consistently able to express themselves accurately and fluently in writing and speaking using some sophisticated vocabulary.
24-30	Highly Proficient	Learners can communicate in a wide variety of complex languages with an accuracy and fluency that is comparable to that of native English speakers.

Ethical Issues

The researcher was given permission by the department head and the school principal to conduct the study at Tabuk City National High School in accordance with the terms of an approval sheet. The assent form was signed following parental understanding and consent for their children's participation in research. The study's voluntary participation and anytime withdrawal were fully communicated to the participants. In compliance with the Data Privacy Act of 2012, all information gathered was treated with confidentiality. The learners were given sufficient time to complete the intervention and were made aware of the entire schedule during data collection. Following the intervention given to the experimental group during the study period, the control group also used the SPS-based supplemental learning material for oral communication.

Discussion of Results and Reflection

Level of Oral Communication Performance of the SHS Learners

Table 2 reveals that the experimental group outperformed the control group in oral communication following the intervention. In comparison to the pure module utilized by the control group, the experimental group's adoption of SPS-based learning materials entailed significantly more collaborative activities. Asking for participation from friends or family members may have been necessary because they would be the ones to remind them of what needed to be done for the exercises, and this was one method of benefiting from the SPS-based learning material. In addition, they were discovered to be more competitive owing to involvement and competition among peers, and most significantly, collaborative learning helped the learners concentrate on finishing the module since they push one another to perform the exercises despite its modular structure.

The learners demonstrated effort in engaging with the SPS-based supplemental learning material by participating in group activities, expressing themselves verbally and in writing, and performing the experimental parts of the learning materials. While some of the learners' responses are inaccurate or poorly constructed, their eagerness in responding nonetheless highlights the effectiveness of the learning material as a support for training oral communication to learners. This corresponds to the plea of Bangun (2018) suggesting teachers to exercise their creativity in order to identify the best strategies for advancing learner communication. The research suggests that speaking ineffectively is caused by a lack of participation. Learners merely remained silent and showed hesitation in response to the teacher's questions. They spoke slowly and would often pause for a very long time between short, quick responses to questions. This was probably due to their lack of confidence and anxiety about using the wrong words, pronouncing them incorrectly, or making other speaking errors. The learners' attention and involvement were reduced because of the speaking challenge, particularly during speaking activities. They found the lecture to be boring. The potential of science is applied in this situation. Because SPS, which are frequently referred to as inquiry skills, are essential for navigating daily life and

building an awareness of the natural world, they engage learners and pique their attention. It is essential that these skills are taught in situations where learners may relate them to their own experiences. As a result of its features that encourage learners to engage in inquiry-based and hands-on learning, the science process skills can spark learners' enthusiasm for learning.

The experimental group test score increased following the intervention, which is another interesting and noteworthy finding. It can be inferred from this that the SPS-based supplemental learning material emphasized clear instructions and lectures that the learners could comprehend with little guidance from their teachers. The learners' motivation to learn would be increased by the obvious and comprehensible instructions because generally, learners abandon their modules because they are unable to grasp the material and are unsure of where to turn for help.

While the new norm in education involves limited interaction from the teachers who would normally lecture to the learners, it is implied that the SPS-based learning material was a factor in improving the oral communication skill of the Senior High School learners in modular learning as a result of the self-directed learning that encouraged self-driven improvement in oral communication performance. The engaging activities and exercises in the SPS-based learning material inspired the students to continue learning until they had mastered the learning competencies.

In Choirunnisa's study (2021), it was highlighted how science process skills actively develop concepts that are learned by the learners themselves. Science process skills make it easier to conduct research, organize thoughts before brainstorming, convey ideas, and gain knowledge and fresh insights, usually through experience. A learner's active pursuit of understanding their own ideas is encouraged by the premise that the science process skills approach makes them explore, experience, and learn by doing. Learners must therefore demonstrate science process skills to properly complete their assignments and find solutions in their lessons.

Lastly, the oral communication performance level of both control and experimental group learners were at a developing stage. The control group of learners' performance level improved after the intervention but was still in the developing stage. Similarly, the experimental group of learners achieved meaningful improvements in their test results, while their level of performance still must advance by just one point to be deemed proficient. Even after the intervention, the learners' remaining developmental stage may show that nine weeks is insufficient to intervene in their oral communication because this is something that improves progressively but slowly.

Table 2

Performance Level of Senior High School Learners in Oral Communication

Learners' Group	Mean	Analytical Performance Level
Control		
Before	9.67	Developing
After	10.11	Developing
Experimental		
Before	10.27	Developing
After	15.03	Developing

Comparison between the Pretest and Posttest Scores of the Experimental Group

Table 3 shows that the difference between the learners' overall pretest and post-test scores is significant with a computed t-value lesser than the p-value. This result demonstrates that, following the implementation of the SPS-based supplemental learning material intervention, the oral communication performance levels of the learners differed meaningfully. In other words, SPS-based supplemental learning materials that intervene in oral communication show that a learner's performance improves or increases after the intervention. This is consistent with the study of Kramer et al. (2018), explaining the success of their study that designed tutorials in teaching science process skills. More surprisingly,

their online interactive tutorials in science process skills were effective for nonnative English-speaking learners.

The interconnectedness of the concepts of communication and science process skills makes it possible for learners to use the intervention in their oral communication class to communicate more effectively. This result was corroborated by Rabacal (2016), who claims that when compared to other skills, learners have the highest academic achievement in basic science process skills in communicating. This indicates that they are proficient in communicating with others through spoken and written language, graphs, drawings, and diagrams, as well as through the sharing of knowledge and ideas, as information is useless if it is not shared with others. Additionally, communication as a skill connects language, art, and science. It combines measurement, classification, and observational skills to relay to others what has been learned through experimentation.

Further, it was believed that by boosting learners' self-confidence through the submitted activities of the learners being observed, the learning tool was effective in improving oral skills among the learners. Due to the restricted exposure that learners receive in class as a result of off-face learning and their limited socialization as a result of homeschool, they were unable to interact with peers or express themselves in public, which made it difficult for them to build their self-confidence.

On the other hand, it was clear from watching the learners' videos that they were confident, as demonstrated by their actions, speaking, and oral activities, as well as by the way they engaged with one another. The learners were able to develop their communication skills and self-confidence by participating in the activities in the supplemental learning materials and conversing with others, both of which required a lot of speaking. Prior to performance, learners were required to rehearse a lot, pay attention to their posture, and speak clearly as a confidence-boosting strategy. They were given several exercises to practice in their actual videos, which helped them get better at it.

This is congruent with the developed Group Science Learning (GSL) model by the study of Alfin et al. (2019), proving that the model boosted self-confidence to improve the

skills of collaborative problem solving and science process. Learners took less time to develop self-compassion and self-confidence because science process skills encouraged their curiosity, openness, acceptance, and love of what they were doing because engaging activities in the supplemental learning material were properly implemented as guided by science process skills.

Table 3

Difference between the Pretest and Posttest Scores of the Experimental Group

	N	Mean	SD	t-stat	t-critical	Decision
Before	30	10.27	2.449	-4.244	.000205	Reject the null
After	30	15.03	5.654			

Comparison of Posttest Scores between the Experimental and Control Groups

Table 4 displays the results of the t-test for communication skills for the experimental group and the control group. The mean performance level in oral communication differs significantly between Senior High School learners who used the learning material and those who did not. The t-value lower than the level of significance shows evidence of significant results showing that the treated group successfully learned from the additional learning material. The SPS-based learning material effectively gained a positive learning and attitude by the treated group because they were able to complete the additional learning material on time, given that it was just an additional assignment for them. It enabled the learners to perform better than learners in another class who had been assigned a less difficult assignment.

The SPS-based learning material targets the new normal of learning, where even if it is modular, it still inspires learners to participate in lifelong learning while also igniting natural curiosity, as well as activity-based lessons and hands-on learning. The SPS-based learning materials also emphasize how effective it is compared to using a single module in oral communication. This is supported by the results of Cuartero (2016), which demonstrated a strong association between the development of process skills learned from such scientific

experiences and the development of other skills. Hands-on activities revealed that learners in the hands-on courses outperformed their traditional counterparts in terms of achievement, perceptions, and other factors. The improvements in attitude and process skills make sense given the emphasis on making science appealing through hands-on activities. Science process skills can be learned if they are explicitly taught in the classroom using proven and tested teaching methods. According to the study, if teaching is grounded on science process skills and practiced over a significant amount of time, these skills can be retained for use in the future.

Table 4

Difference in the Posttest Scores between the Experimental and Control Groups

	N	Mean	SD	t-stat	t-critical	Decision
Before	30	10.27	2.449	4.153	.000111	Reject the null
After	30	15.03	5.654			

Reflection

The findings provide data to support that the intervention to enhance the level of oral communication performance of Senior High School learners is effective but still at a developmental stage that is at the same level. This indicates that the progress can be rather gradual but probable. Moreover, oral communication performance in Senior High School can continue to improve with the deployment of interventions that carefully monitor and focus on independent learning and active participation in performing the activities to promote learners' motivation to study.

The oral communication performance is still being developed in senior high school learners. This has been better handled by the autonomous learning that has evolved because that is what science process skill fosters, as well as by higher levels of student engagement, as seen by the collaborative activities that science process skill also teaches students to take part in. This finding suggests some students have difficulty communicating verbally, but there

may be ways for them to get over these challenges and excel in verbal learning, which will help them avoid having similar difficulties when speaking English.

Secondly, it revealed that learners who got intervention performed significantly better in oral communication as opposed to those who did not get the learning materials. Also, this intervention may help learners perform better in oral communication by boosting learners' self-confidence and lowering difficulties to delivering speaking. The significant difference between the oral communication performance levels of the control and experimental students denote that these two subjects are interrelated and can be learned more effectively as a result. It also showed improvement in student confidence in the after-treatment experimental group. The results of this research are important for supporting an interdisciplinary approach to education that will lead to the development of programs for minimizing or overcoming challenges to oral communication development.

Finally, it was discovered that after studying oral communication with the learning material as the intervention, the learners significantly improved in oral communication. The study demonstrated that it is likely that having a positive attitude, although having increased classwork helps learners maintain their resilience in the face of difficulties associated with learning oral communication in modules. Learners who approach oral communication with optimism and the sense that the intervention will help them develop are more adept at multitasking and time management.

Conclusions and Recommendations

Conclusion

In light of the results, the following conclusions were drawn:

1. The Senior High School learners' oral communication performance level before the intervention is in the stage of developing. Learners can use some complex language accurately and fluently in their speaking and writing. After the intervention, the mean scores of the learners increased which is higher in the experimental group, yet the performance level for both the control and experimental group remained at the developing level.

2. There is a significant difference between the pretest and posttest scores of learners in the experimental group.

3. There is a significant difference in the posttest scores of learners between the control and experimental groups.

Recommendations

Based on the results and conclusions, the researchers recommend the following:

1. That more activities that are science process skill based should be included to ensure rapid growth of performance level, and the intervention should be longer than 9 weeks to target advancement the performance level of learners in oral communication. Also, that SPS-based supplemental learning materials should be used in a decentralized manner when teaching English and other subjects in the K-12 curriculum, especially for enrichment activities among struggling learners. It is best suggested that this SPS-based supplemental learning material, which is adaptable to any modality, be used in the modular, face-to-face class or even in blended learning.

2. That the learning material was able to boost learners' performance levels in oral communication, but progress was relatively slow. Therefore, other approaches, such as integrated science process skills, should be strongly investigated to speed up improvement development.

3. That future researchers are urged to investigate more interdisciplinary, research-based pedagogical practices for difficult-to-teach areas to avoid compromising learners' continuous learning and self-improvement toward a quality education.

4. That the SPS-based supplemental learning material should be accessible digitally as one method for a teacher to succeed in post-pandemic teaching without compromising the standard or content of the learning material and in response to the rapid advancement of educational technology.

5. Finally, follow-up research can be done to find further ways to bridge the gap between learners' limited attention spans or busy schedules and their ability to learn the subject as an additional skill without jeopardizing their ability to master oral communication.

Action Plan

The department of Humanities and Social Sciences (HUMSS) should be the first place where the SPS-based supplemental learning materials are made available. For the purpose of achieving the goal of enhancing students' communication abilities holistically, all oral communication teachers should adopt the usage of learning materials. Additionally, if their subject involves speaking of students, other English teachers may use this material. Since communication is fundamental in every subject covered in the K–12 curriculum, other teachers, even those outside the department or curriculum, may adopt the learning materials for the goal of helping students who are having trouble communicating.

Since this is a self-directed and self-learning module, the printed SPS-based supplemental learning materials should be distributed to the school library and the Learning Resources Management and Development System (LRMDS), with instructions to the librarians and LRMDS in-charge to persuade student use of the materials.

The use of SPS-based learning materials should be promoted through school-wide activities for teachers, the Learning Action Cell (SLAC), and In-Service Training with the implementation within the school being strengthened (In-Set). They can be instructed on how

to modify the intervention for their field, and they will acquire new concepts, pattern their course materials, and conduct research for the learning materials.

The instructional materials should then be given to the DepEd Division Office for distribution to the various Tabuk City schools. After that, they should be forwarded to the regional office so that they can be used more broadly across the Cordillera and uploaded on the region's LRDMS.

The proponent should take use of social media to engage the general public or a bigger audience to continually propagate the use of this learning material through published journals of the research for the learning material to be noticed by readers.

Research dissemination, which aims to let many people learn and experience, advance research to get closer to perfection, and advance the proponent in the teaching profession, innovative education, and research writing, is the most satisfying accomplishment and one of the most successful methods of the research process.

Objectives	Activity/ Task	Strategy	Timeline	Resources
A. Dissemination - To present the research findings to teachers, school heads, parents, and other stakeholders	1. School Activities Learning Action Cells (LAC) In-Service Training (INSET) School Governance Councils (SGCs) Homeroom Meetings PTA General Assembly Publication of Book of Abstracts 2. District/Division Activities Research Conference	• Oral presentations • Video presentations • Poster presentations • Oral presentations • Video presentations	Year-round July	Researcher Tarpaulin Book Researcher

	3. Region / National / International		TBD	Researcher
	4. Guru Press	● Article	December	Fund
B. Utilization				
-To be distributed to the school library and the Learning Resources Management and Development System (LRMDS)	1. School	● Printed SPS-based supplemental learning materials	Year-round	LRMDS coordinator Librarian Researcher
-To be uploaded in the LMS portal		● Digital SPS-based supplemental learning materials	Year-round	LMS coordinator Researcher

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Financial Report

A. Supplies and Materials							
Activity	Item	Unit	Quantity	Estimated Cost	Total	Actual Cost	TOTAL ACTUAL COST
Implementation of the study and Preparation of Research Papers, Instructional Materials/Worksheets, and other documents	A4 Bond Paper	ream	10	250.00	2,500.00	250	2500
	A4 Folder Tagboard with fastener	pc	20	20.00	400.00	20	500
	Printer Ink Black	bottle	10	300.00	3,000.00	300	3000
	Printer Ink Cyan	bottle	2	300.00	600.00	300	600
	Printer Ink Magenta	bottle	2	300.00	600.00	300	600
	Printer Ink Yellow	bottle	2	300.00	600.00	300	600
	USB Flash Drive	pc	1	1,000.00	1,000.00	1000	1000
	Staple wires	Box	20	30.00	600.00	30	600
	Plastic envelope	pc	100	15.00	1,500.00	15	1500
B. Domestic Travel Expenses							
Submission of First Tranche Deliverables with wet signatures (CE, MOA, WFP)	Courier/Private Vehicle (School to Bolinao and J&T)		1	500.00	500.00	500	500
C. Food and other incurred expenses during the conduct of research							
D. Reproduction, Printing, and Binding Cost							
E. Communication Expenses for the Implementation / Conduct of the Study							
Validation of Instruments	Load of Validators/ Experts	card	5	300.00	1,500.00	300	1500
Implementation of the study - Data Gathering /Collection, Preparation and submission of research papers and other documents	Regular Load of proponent	card	6	500.00	3,000.00	500	3000
	Internet Load of proponent	card	6	500.00	3,000.00	500	3000
	Internet Load of students/parents	card	50	100.00	5,000.00	100	5000
F. Other Expenses							
					23,800.00		23,800.00

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