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# DEVELOPMENT OF DIGITALIZED INSTRUCTIONAL MATERIALS TO IMPROVE THE PHYSICAL PHONETIC ARTICULATION OF GRADE ONE LEARNERS

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## ABSTRACT

This study developed and evaluated a video lesson on Physical Phonetic Articulation (PPA) Guide to address the highly evident issues in the physical articulation skills of Grade 1 learners in the Carmen District. The study employed a developmental and quasi-experimental research design to facilitate the development of the instructional material and determine its effectiveness. Thirty-two identified non-performing Grade 1 learners participated in the study and were subjected to pre-test and post-test assessments to measure changes in physical phonetic articulation and word recognition skills following the intervention.

Data analysis revealed a violation of the normality assumption based on the Shapiro-Wilk Test; thus, non-parametric statistical procedures, specifically the Wilcoxon Signed Rank Test and Spearman's rho correlation analysis, were utilized. Pre-test results showed positively skewed distributions across the dimensions of instructional labeling, sound overlap, vowel mapping, and plosive consonants, indicating generally low levels of articulation skills among the learners. Following the implementation of the digitalized PPA guide, post-test scores exhibited negatively skewed distributions, reflecting substantial improvements in learners' performance.

Results of the Wilcoxon Signed Rank Test demonstrated significant improvements in all dimensions of physical phonetic articulation after exposure to the video lessons. Likewise, learners' word recognition skills improved considerably, shifting from low-emerging levels during the pre-test to higher performance levels in the post-test. Spearman's rho correlation

analysis further revealed significant positive relationships between instructional labeling, sound overlap, plosive consonant articulation, and word recognition skills.

The findings establish the effectiveness of the video lesson on Physical Phonetic Articulation in enhancing phonetic articulation and word recognition among Grade 1 learners. The study concludes that digitalized instructional materials, when supported by structured lesson plans, can significantly contribute to literacy development by addressing essential foundational reading skills among beginning learners.

**KEYWORDS:** Physical Phonetic Articulation, Word Recognition, Assessment, Reding, Intervention Material, Carmen District.

## INTRODUCTION

Word recognition is a foundational literacy skill in early education and serves as a prerequisite for reading fluency. Reading fluency directly influences reading comprehension (Cadime et al., 2024), and studies have established a significant relationship between fluency and comprehension (Balnig et al., 2024). Consequently, the early development of word recognition skills is essential for literacy growth, academic achievement, and lifelong learning. In Grade 1, learners transition from informal learning experiences to formal schooling, making this stage critical for literacy acquisition. Quick and accurate identification of words reduces cognitive load during reading, allowing learners to focus on understanding the meaning of the text rather than merely decoding words.

Despite the recognized importance of word recognition, a significant literacy gap remains evident across the country. Results of the 2025 National Learning Assessment for Monitoring of Middle-of-School-Year Outcomes (NLA-MOSY) revealed that 25.86% of Grade 1 learners were classified under the Low Emerging proficiency level. Similarly, the Carmen District of Carmen, Agusan del Norte reported that 21.91% of its Grade 1 learners belonged to the same proficiency category (CRLA MOSY, 2025). These results are alarming because they indicate learners' difficulties in word decoding and in applying grapheme-phoneme correspondence (GPC), a fundamental skill necessary for reading competence and word recognition.

Recognizing the urgency of improving literacy outcomes, the Department of Education has intensified its reading intervention initiatives. Republic Act No. 12028, or the Academic Recovery and Accessible Learning (ARAL) Act, mandates the establishment of a free and effective national learning intervention program to assist learners who struggle in reading,

mathematics, and science. In support of this mandate, DepEd Order No. 064, s. 2025 provides the implementing guidelines for the ARAL Program in Reading, which aims to improve reading proficiency among learners from Grades 1 to 10. The program utilizes lessons adapted from the Literacy Remediation Program (DepEd Order No. 10, s. 2025), providing structured, targeted, and learner-centered instruction based on learners' actual reading abilities rather than their age or grade level.

However, despite the implementation of the ARAL Program, teachers in the Carmen District continue to identify Grade 1 learners who experience difficulties in grapheme-phoneme correspondence and word decoding. Teachers particularly observed that learners struggle to master the sounds and letter-sound associations of the letters m, y, b, d, g, vowels a, i, and u, as well as the digraph ng. Many learners continue to experience retention difficulties in distinguishing and recalling the sounds represented by these letters and combinations, even after repeated instruction.

To address these persistent challenges, an instructional approach that emphasizes physical phonetic articulation may be beneficial. Physical Phonetic Articulation Instruction explicitly teaches learners how speech sounds are produced through mouth movements, including lip closure, tongue placement, and airflow control. By understanding how sounds are physically formed, learners can develop stronger phonemic awareness and more accurately associate phonemes with their corresponding graphemes. This process can reduce confusion in decoding and support the development of automatic word recognition.

The effectiveness of articulation-based and multisensory approaches has been supported by existing research. Ehri (2023) emphasized that phonemic awareness and decoding are central components of word recognition development and noted that interventions integrating articulation cues can accelerate reading accuracy by strengthening phonological awareness and alphabet knowledge. Likewise, West (2024) found that instruction focused on physical phonetic formation during phonics lessons improved Grade 1 learners' reading accuracy, highlighting the value of articulation-based literacy instruction. Furthermore, Mejala (2024) reported that Grade 1 learners exposed to structured reading interventions demonstrated significant gains in word recognition, leading to improved literacy outcomes and stronger academic performance. Similarly, Barcoma et al. (2025) found that phonics-based instruction enhanced word recognition and reading fluency among Grade 1 learners, emphasizing the importance of systematic approaches to early literacy instruction.

These studies suggest that physical phonetic articulation is not merely a speech-development strategy but also a powerful literacy tool that strengthens the connection between phonemic

awareness and grapheme-phoneme correspondence. By helping learners understand and produce speech sounds accurately, this approach may facilitate word recognition development, improve reading fluency, and ultimately support reading comprehension.

Given the persistent challenges in grapheme-phoneme correspondence and word recognition among Grade 1 learners in Carmen District, this study seeks to investigate the impact of Physical Phonetic Articulation Instruction on the word recognition skills of first graders and determine the significant relationship between these variables. The findings of the study will serve as the basis for the development of a Digitalized Letter-Sound Articulation Guide and accompanying lesson plans for beginning reading instruction. These instructional materials will focus on controlled texts containing the target letters and sounds (m, y, b, d, g, a, i, u, and ng) to support the development of word recognition skills among Grade 1 learners.

### *1.1 Statement of the Problem*

This study aims to find answers to the following queries:

1. What is the level of physical phonetic articulation skills, based on pre-
test scores of grade 1 learners relative to

1.1 Instructional labeling;

1.2 Sound overlaps;

1.3 Vowel mapping; and

1.4 Plosive consonant?

2. Based on the pre-test scores and CRLA MOSY 2026 reports on the physical phonetic articulation and word recognition skills of grade 1 learners, what digitalized instructional materials can be developed?

3. What is the level of physical phonetic articulation skills, based on post-test scores, of grade 1 learners relative to

3.1 Instructional labeling;

3.2 Sound overlaps;

3.3 Vowel mapping; and

3.4 Plosive consonant?

4. Is there a significant difference in the physical phonetic articulation skills of the grade 1 learners before and after the use of the digitalized letter sound articulation guide?

5. What is the level of pre- and post-assessment of Word Recognition in terms of reading accuracy?

6. Is there a significant relationship between Physical Phonetic Articulation and Word Recognition?
7. How can the digitalized Physical Phonetic Articulation Letter-Sound guide be integrated into beginning reading instructions in schools?

**Hypotheses**

**$Ho_1$**: There is no significant difference in the physical phonetic articulation skills of the grade 1 learners before and after the use of the digitalized letter sound articulation guide.

**$Ho_2$**: There is no significant relationship between Physical Phonetic Articulation and Word Recognition.

## 2. METHODOLOGY

### *2.1 Research Design*

A developmental and Quasi-experimental research design was used in this study. This is to describe the impact of Physical Phonetic Articulation on word recognition among the grade 1 learners. This teaching approach to beginning reading is the core of the study, as it is considered the most important aspect for beginning readers. This is also to establish a significant relationship between the Physical Phonetic Articulation and word recognition as the most important skill to be learned and mastered by the young learners of the Department of Education.

### *2.2 Research Respondents*

The study employed purposive sampling from among the Grade 1 Low Emerging level readers whom noted by their respective teachers as having difficulty with letters m, y, b, d, g, and digraph ng. These participants were all grade 1 learners of the Carmen district, selectively picked by their respective advisers according to CRLA MOSY assessment results. All grade 1 advisers were also respondents of the study. Their role was to administer a pre-assessment and subsequently provide alphabet knowledge and phonics instruction on consonants m, y, b d, g digraph ng and vowels a i and u using the digitalized alphabet-sound articulation guide. Following the targeted reading instruction, they administered post-assessment utilizing similar assessment tool providing pre and post data on learner's level in terms of Physical Phonetic Articulation and word recognition.

Table 1 shows the public elementary schools in the Carmen district of the Department of Education. It further presents the population in each school and the proposed number of learner respondents.

**Table 1** ***Distribution of Respondents.***

| Carmen District | Population | Expected Respondents |
|---|---|---|
| Antonio P. Quiamjot ES | 8 | 4 |
| Cahayagan ES | 33 | 12 |
| Carmen Central ES | 143 | 31 |
| Cervantina ES | 65 | 12 |
| Dona Josefa Antillon ES | 9 | 3 |
| Elpedio Salas Sr. ES | 8 | 3 |
| Gosoon ES | 31 | 13 |
| Manoligao ES | 27 | 3 |
| Rojales ES | 43 | 3 |
| San Isidro ES | 12 | 2 |
| Tagcatong ES | 29 | 6 |
| **Total** | **429** | **92** |

The above-mentioned respond0ents of the study encompass all diverse learners, such as those having hearing deficiencies, speech difficulties, cognitive delays, and those who demonstrated low motivation and limited interest in schooling from the Low Emerging level group, to adhere to inclusive education. This literacy level group are those who can't decode simple words and struggle with grapheme-phoneme correspondence. Learners identified as none Low emerging Level are excluded since they can already recognize words independently. The digitalized alphabet-sound articulation guide learning resources are not beneficial to them anymore, and so it is irrelevant.

**Table 2:** ***Actual Distribution of Respondents***

| Carmen District | Population | Respondents |
|---|---|---|
| Antonio P. Quiamjot ES | 8 | 1 |
| Cahayagan ES | 33 | 3 |
| Carmen Central ES | 143 | 7 |
| Cervantina ES | 65 | 5 |
| Dona Josefa Antillon ES | 9 | 1 |
| Elpedio Salas Sr. ES | 8 | 2 |
| Gosoon ES | 31 | 3 |
| Manoligao ES | 27 | 2 |
| Rojales ES | 43 | 4 |
| San Isidro ES | 12 | 2 |
| Tagcatong ES | 29 | 2 |
| **TOTAL** | **429** | **32** |

Table 2 displays the public elementary schools and their grade one population, respectively, in the Carmen district of the Department of Education. It further lays out the actual respondents of the study.

The above-mentioned respondents of the study were the actual sampled pupils encompassing all diverse learners, such as those having hearing deficiencies, speech difficulties, cognitive delays, and those who demonstrated low motivation and limited interest in schooling from the Low Emerging level group, to adhere to inclusive education.

The proposed number of respondents from 92 (Table 1) before the implementation of the Digitalized Alphabet Sound Articulation Guide was decreased to 32 (Table 2) as the actual conduct of the study occurred in March 2026, the last month of the school year. Some pupils developed phonetic skills already and did not meet anymore to the study requirements Since the intervention digitalized material specifically targets learners with poor or no Grapheme-Phoneme Correspondence awareness and non-decoders.

Others also submitted insufficient data, such as pre-assessment and post-assessment results. One missed assessment due to inevitable circumstances is excluded from the data statistical analysis. And reports of a few respondents missing several intervention sessions deemed ineligible for the study.

### *2.3 Research Locale*

Carmen is a 4th-class municipality in the province of Agusan del Norte, Philippines (2020 Census). Farming and fishing are the predominant livelihoods. Others earn in the practice of their profession, and a few are engaged in business activities. This municipality is often called the "Mango Country" of the province, and it is known for its rolling hills, expansive mango orchards, and scenic coastal views overlooking Butuan Bay. It is located at the westernmost part of Agusan del Norte, bordering Misamis Oriental. It is about 32 kilometers from Butuan City.

Aside from its famous mangoes (with over 500 hectares dedicated to plantations), the town relies on coconut, corn, rice, and fishing. The town was originally called "Kabayawa" by its native Manobo inhabitants. Its current name, Carmen, is steeped in local religious legend. According to local lore, the name was changed in honor of a miraculous image of the Virgin of Mount Carmel. It is said that a soldier’s rifle misfired while pursuing a bandit leader until

he placed a small image of the Virgin in the barrel of his gun; the gun then worked, and the bandit was defeated.

The Jesuit priest Father SaturninoUrios later suggested renaming the village to Carmen. Carmen is a popular weekend destination for locals and travelers in the Caraga region. Mount Carmel View Park (formerly Marcos Park): Situated on one of the tallest peaks in the area, it offers a breathtaking 360-degree view of Butuan Bay and the mountains of Misamis Oriental and Bukidnon. The town features the Roman Catholic Our Lady of Mt. Carmel Parish Church, which was established in 1952. This church has been well-maintained over the years, preserving its remarkable architecture and timeless beauty.

### *2.4 Research Instruments*

The research utilized a self-structured digitalized alphabet-sound articulation guide learning resource for beginning reading instruction particularly developing letters a, i, u, m, y, b d, g and digraph ng. Lesson plans for all the basic vowels and consonants were also utilized for guided teaching instructions and enrichment activities. These materials incorporated the physical phonetic articulation to improve word recognition development among grade 1 learners.

An assessment tool was used to gauge physical phonetic articulation manifestation and word recognition of the target respondents, which was adapted and inspired by studies and DepEd tools, particularly CRLA and EGRA ARATA. This assessment tool was modified, incorporating only the target letters mentioned above. The contents were validated by the three reading specialists from the Division office of Agusan del Norte. To ensure the instrument's effectiveness, a pilot test was conducted involving 15 grade 1 teachers at Nasipit, Agusan del Norte. The data results were analyzed using Cronbach’s Alpha, verifying the tool's reliability and internal consistency.

### *2.5 Statistical Treatment*

To ensure a rigorous analysis of the gathered data, the following statistical measures were employed:

**Frequency and Percentage Distribution.** This was used to assess the status of Physical Phonetic Articulation across various domains, including instructional labeling, sound overlap, vowel mapping, and plosive consonants. It was also used to describe the word recognition skills of the grade 1 learners before and after the use of the PPA guide.

**Normality Test.** Before inferential analysis, a normality test (such as Shapiro-Wilk or Kolmogorov-Smirnov) was conducted to determine if the data follow a normal distribution, ensuring the appropriate selection of parametric or non-parametric tools.

**Wilcoxon Signed Rank Test.** This was used to test differences in the median scores of the learners on phonetic articulation and word recognition before and after the use of the PPA guide.

**Spearman's Rho Correlation.** This non-parametric test was utilized to determine the relationship between Physical Phonetic Articulation components and the Word recognition category.

## 3. RESULTS AND DISCUSSION

**Problem 1. What are the levels of physical phonetic articulation skills, based on pre-test scores, of grade 1 learners, relative to Instructional labeling; Sound overlaps; Vowel mapping; and Plosive consonant?**

Table 3 presents data on the results of the survey conducted by the grade 1 teachers before the implementation of the Physical Phonetic Articulation digitalized instructional material.

Data reveals a positive skew, which means more scores are below the mean. The results of the survey indicate that a small number of learners in the Carmen district still have problems in recognizing the letters in the alphabet and can hardly read the combined vowels and consonants. This further implies that there is an educational crisis among Grade 1 learners in Carmen District, considering that basic reading is the foundational skill to be learned and mastered, leading to comprehension and learning across other academic disciplines.

**Table 3:** ***Level of Physical Phonetic Articulation Skills, Based on Pre-test Scores, of Grade 1 Learners.***

| Physical Phonetic Articulation | Score Range | Description | Frequency | Percentage |
|---|---|---|---|---|
| **Instructional Labeling** | 0-2 | Low Emerging | 6 | 19% |
| | 3-4 | High Emerging | 25 | 78% |
| | 5-6 | Developing | 1 | 3% |
| | 7-8 | Transitioning | 0 | 0% |
| | 9-10 | Grade Ready | 0 | 0% |
| | **Total** | | **32** | **100%** |
| **Sound Overlap** | 0-2 | Low Emerging | 20 | 63% |
| | 3-4 | High Emerging | 12 | 38% |
| | 5-6 | Developing | 0 | 0% |

| | | | | |
|---|---|---|---|---|
| | 7-8 | Transitioning | 0 | 0% |
| | 9-10 | Grade Ready | 0 | 0% |
| | **Total** | | **32** | **100%** |
| **Vowel Mapping** | 0-2 | Low Emerging | 18 | 56% |
| | 3-4 | High Emerging | 9 | 28% |
| | 5-6 | Developing | 0 | 0% |
| | 7-8 | Transitioning | 2 | 6% |
| | 9-10 | Grade Ready | 3 | 9% |
| | **Total** | | **32** | **100%** |
| **Plosive Consonant** | 0-2 | Low Emerging | 24 | 75% |
| | 3-4 | High Emerging | 8 | 25% |
| | 5-6 | Developing | 0 | 0% |
| | 7-8 | Transitioning | 0 | 0% |
| | 9-10 | Grade Ready | 0 | 0% |
| | **Total** | | **32** | **100%** |

The result of pre-assessment on physical phonetic articulation was negated by the study of Algadhy et al. (2024), underpinning that lip accuracy motion in the mouth of the learners in recognizing letters or uttering words is highly important for the learners to recognize the letters or words properly and accurately. It recognizes the vital role of the correct mouth positioning in voicing letter sounds and word recognition.

Further opposing study of Hori &Inakoshi (2022) on the pre-assessment result of physical phonetic articulation, reiterated that technology developed on controlling the mouth movement in letter and word recognition plays a significant role in enhancing the basic reading skills of learners. This further supports that proper and accurate mouth movement is essentially important to help learners become grade ready precisely in improving basic reading skills among grade 1 learners.

In Table 3, data reveal that among the physical phonetic articulation, Plosive Consonant emerged as the most difficult task for the grade 1 learners in Carmen district, as “Low Emerging descriptive rating yielded 24 out of 32 respondents. This means that these learners have only 0-2 correct responses out of 10. Pupil respondents struggled with decoding single syllables containing plosive consonants. This may be explained by the experiments of Teramoto and Ernst (2023), indicating that speech awareness is influenced by visual articulatory information.

The audiovisual integration happens early in processing when auditory and visual cues are strongly connected. Congruent lip movements can help phonetic perception, while

incongruent or the absence of external visual inputs offers a small perceptual benefit. This explains that plosives (t, d, k, g) are challenging since the physical articulation happens internally in the mouth and is not visually accessible.

In addition, these consonant sounds are notable by very short acoustic features such as Voice Onset Time (VOT), sound intensity, and duration. Studies have found that these small timing and energy differences are enough to tell plosives sound apart (Li, 2023), demonstrating that plosive consonants are very brief sounds and cannot be stretched like vowels or fricatives. This acoustic feature of plosive consonants can be a deterring factor for the learners' difficulty.

Furthermore, since the task was to decode the syllables, this finding may align with Ehri 2022), who explains that stop or plosive consonants are difficult to pronounce in isolation without adding a shwa vowel, such as letter b as "buh" or letter g as "guh". This interferes and disrupts during the blending process since the shwa "uh" has to be removed to be able to decode a syllable that already holds a vowel.

The low performance observed in the sound overlap may indicate that learners have not yet developed sufficient fluency in overlapping speech production. In this task, respondents were required to read single-syllable words by smoothly transitioning from the initial sound to the next sound, where the second sound begins while the first sound is still being articulated.

A significant number of Low Emerging learners manifested in the result of Sound Overlap, which reveals that 20 out of 32 respondents find the task difficult. This may indicate difficulty in mouth positioning and smooth sound transition during blending. This finding may be attributed similarly to a study report (Park and Seong 2024), which found that struggling readers demonstrated weaker coarticulation patterns and higher pause rates between sounds.

Also, the learners may have been relying too much on auditory input during the beginning of teaching reading instruction. Study reveals that auditory input alone may be insufficient for some learners. Articulatory coordination and segmental accuracy can develop separately (Vuolo, 2023), suggesting that certain learners may benefit from explicit articulatory instruction, which incorporates mouth positioning and physical phonetic articulation, to support smooth sound blending and coarticulation.

More so, coarticulation involves coordinated and continuous articulatory movement in which consonants and vowels overlap during syllable production (Liu et al. 2022). However, the results suggest that learners tend to produce speech in a more segmented manner, where phonemes are articulated separately rather than in an overlapping sequence. This may reflect limited experience with fluent speech production processes that require precise timing and coordination of articulatory gestures, which can be explained by the recent findings in phonological awareness research, which suggest that explicit instruction involving repeated speech production and structured phoneme practice supports the development of both speech accuracy and phonemic awareness (Alvis, Brumbaugh, &Tambyraja, 2024).

Thus, the difficulty observed in sound overlap may be attributed to the learners' early stage of phonological development, learners with reading difficulties, and the lack of exposure to instruction that emphasizes connected and fluent articulatory speech patterns.

There are 18 out of 32 learners finds vowel production difficult as observed by their teachers in the tongue positioning, oral cavity, and sound production. This finding can be attributed to a study (Barte&Grengia, 2025) explaining that Cebuano-speaking learners experienced difficulty in English vowel perception and production due to mother tongue language interference and articulatory challenges. Learners tend to substitute an unfamiliar English vowel with a more familiar native language vowel sound.

This is supported by other findings stating that Cebuano-Visayan learners experience difficulty in English vowel such as /e/ and /o/ production due to first-language interference stressing that SinugbuanongBinisaya has only three vowel nuclei—/a/, /i/, and /u/ compared to the more complex vowel system of English, leading learners to substitute unfamiliar English vowel sounds with familiar ones (Deiparine, 2026).

Both studies suggest that teachers must comprehend phonological interferences of languages so that they can design a teaching approach that helps learners overcome learning challenges instigated by first-language habits.

In the Instructional Labelling, pupil respondents were tasked to identify Grapheme-Phoneme Correspondence (GPC) by closely observing the teacher's mouth while uttering the word with emphasis on the initial sound and exhibiting correct articulatory mouth positioning. It generated only 6 out of 32 at the Low Emerging level but 25 "High Emerging" learner

respondents, implying that such a task is difficult. This obstacle might be attributed to weak Grapheme-Phoneme Correspondence (GPC) awareness.

The struggles of GPC may be associated with weak phonological awareness and alphabet knowledge skills, particularly in sound isolation and segmentation.
This is congruent with the recent intervention research stating that children with low emergent literacy skills who initially demonstrated weak phonological awareness and alphabet knowledge made significant improvements in letter naming, letter–sound awareness, and beginning sound identification after a structured instruction targeting phonological awareness and alphabet knowledge (Rachmani 2020). This suggests that in the absence or insufficient development of phonological awareness, learners struggle to isolate initial sounds and establish accurate sound–letter relationships, which somewhat aligns with the pre-test results of the present study. The learners' difficulty in GPC tasks could possibly be due to underdeveloped phonological awareness before intervention.

**Problem 2. Based on the pre-test scores and CRLA MOSY 2026 reports on the physical phonetic articulation and word recognition skills of grade 1 learners, what digitalized instructional materials can be developed?**

The record of Grade 1 Low Emerging readers in Carmen District is alarming, indicating that 91 out of 429 assessed learners were non-readers during the middle of the school year assessment (NLA 2025). After the implementation of ARAL intervention, several learners were persistently unable to read, as reported by the teacher's early year-end informal reading inventory. This data is supported by the present study, indicating insufficient mastery of foundational skills in reading as manifested in the pre-test scores.

This finding necessitates a novel approach for beginning reading teaching instruction to address the persistent literacy gap.

The Physical Phonetic Articulation of the sound of each letter of the alphabet can be a breakthrough.

Table 4 presents the structure and content of the Digitalized Physical Phonetic Articulation Letter-Sound Guide.

**Table 4:** ***Summary Description of Digitalized Instructional Material.***

| Components | Description |
|---|---|
| Title | DIGITALIZED PHYSICAL PHONETIC ARTICULATION LETTER-SOUND GUIDE |
| Target Learners | Grade 1 Learners |
| Objective | To improve emergent literacy skills that support word recognition. |
| Content | - Physical Phonetic Articulation of the 5 vowels<br>- Physical Phonetic Articulation of Nasal Consonants /m/ /ng/, approximant /y/ and plosives /b/, /d/, and /g/<br>- Coarticulation process in CV pattern<br>- Phonemic Awareness activity |
| Material Mode | Downloadable video lesson |
| Instructional Approach | Explicit Instruction |
| Utilization Process | 1. The instructional material was submitted to the Learning Resource Management and Development System (LRMDS) for evaluation and validation.<br>2. Teacher-users were oriented through various modalities regarding the proper utilization of the material.<br>3. Elicit feedback and recommendations from the users for the basis of modification or enhancement of the instructional material. |

https://bit.ly/4xkEoSK

A study highlights the importance of strengthening teacher training in phonemic awareness to improve early literacy outcomes. It's finding discovered that teachers' readiness in phonemic awareness instruction is significantly related to Grade II pupils' reading performance (Abay, 2025). This supports the need for adequate competence in physical phonetic articulation among beginning reading teachers, which is incorporated in the digitalized material.

The contemporary learners have a strong preference for digital media, as reflected by a study finding revealing that learners exposed to the technology-aided phonics intervention significantly improved from a satisfactory to an outstanding level of performance and demonstrated a more positive attitude towards learning (Labastida &Ferenal, 2025), concluding that integrating technology in phonics instruction effectively strengthens early literacy skills.

Teachers' readiness for physical phonetic instruction and learners' high preference for digital formats is taken into consideration in structuring the Digitalized Letter-Sound Articulation Guide to ensure accessible and efficient utilization.

Furthermore, the developed digitalized material utilized SinugbuanongBinisaya language in alignment with the MATATAG Reading and Literacy Curriculum of Grade 1. Since the curriculum recognizes the learner's first language as a valuable resource in developing foundational literacy skills, the material utilized SinugbuanongBinisaya phonemic sound system, as it considers that all the learner respondents are native speakers of the language.

**Problem 3. What is the level of physical phonetic articulation skills, based on post-test scores, of grade 1 learners, relative to Instructional labeling; Sound overlaps; Vowel mapping; and Plosive consonant?**

Table 5 presents data on the results of the survey conducted by the grade 1 teachers after the implementation of the Physical Phonetic Articulation digitalized instructional material.

**Table 5:** ***Level of Physical Phonetic Articulation Skills, Based on Post-test Scores, of Grade 1 Learners.***

| Physical Phonetic Articulation | Score Range | Description | Frequency | Percentage |
|---|---|---|---|---|
| Instructional Labeling | 0-2 | Low Emerging | 0 | 0% |
| | 3-4 | High Emerging | 0 | 0% |
| | 5-6 | Developing | 0 | 0% |
| | 7-8 | Transitioning | 15 | 47% |
| | 9-10 | Grade Ready | 17 | 53% |
| | **Total** | | **32** | **100%** |
| Sound Overlap | 0-2 | Low Emerging | 0 | 0% |
| | 3-4 | High Emerging | 0 | 0% |
| | 5-6 | Developing | 3 | 9% |
| | 7-8 | Transitioning | 21 | 66% |
| | 9-10 | Grade Ready | 8 | 25% |
| | **Total** | | **32** | **100%** |
| Vowel Mapping | 0-2 | Low Emerging | 0 | 0% |
| | 3-4 | High Emerging | 0 | 0% |
| | 5-6 | Developing | 2 | 6% |
| | 7-8 | Transitioning | 0 | 0% |
| | 9-10 | Grade Ready | 30 | 94% |
| | **Total** | | **32** | **100%** |
| Plosive Consonant | 0-2 | Low Emerging | 1 | 3% |
| | 3-4 | High Emerging | 1 | 3% |
| | 5-6 | Developing | 13 | 41% |
| | 7-8 | Transitioning | 17 | 53% |
| | 9-10 | Grade Ready | 0 | 0% |
| | **Total** | | **32** | **100%** |

From the positively skewed pre-test, post-test scores show a negatively skewed distribution. Meaning, more students scored higher than the average after the reading intervention utilizing the Digitalized Letter-Sound Articulation Guide."

The aforementioned table, data reveal that the digitalized lesson on physical phonetic articulation taught and shown by grade 1 teachers has improved tremendously. This video lesson on physical phonetic articulation was only introduced and taught by grade 1 teachers for three weeks. Results highlight that the video lesson on instructional labeling, sound overlap, vowel mapping, and plosive consonants as fundamental skills that must be mastered tremendously improved. This demonstrates that the Low Emerging learners in reading have improved to the Developing, Transitioning, and Grade Ready level, implying that learners can now recognize phonemes and words. This demonstrates that the proper placement of the mouth in uttering letter sounds is very important for decoding and recognizing letters and words.

Results on the post-assessment in the implementation of the video lesson on physical phonetic articulation were consistent with the study of Rasras et al. (2024). It underpinned that technology-based mouth positioning model in letter-sound orientation and word recognition is helpful among learners with challenges in reading. This suggests that mouth positioning is an effective technique in grapheme–phoneme correspondence (GPC) awareness and word recognition skill, which should be explicitly taught to first graders, especially when reinforced by technology. Integrating technology in the proper placement in the mouth for letter or syllable recognition connotes the significant impact of physical phonetic articulation in enhancing basic reading.

Based on the above data, Vowel Mapping enormously improved from 18 High Emerging to 30 Grade Ready level learners. This finding might be influenced by the articulatory foundation of vowel production, emphasizing its sounds to be closely associated with specific vocal tract configurations Sakajo et al., 2025). Thus, their articulation is strongly tied to physical formations of the tongue and oral cavity, which can be visually represented and modeled. It also suggests that vowel categories are not purely acoustic phenomena but are also closely linked to visible articulatory gestures. And so, learners might have relied on both visual and articulatory information as they identified the vowel sounds respectively. This perspective supports the idea that vowel awareness is improved by the close relationship between articulation and acoustic input.

Similarly, recent research on visual phonetic feedback found that learners benefit significantly from visual representations of vowel articulation, particularly when vowel sounds are charted onto an interactive vowel diagram that reflects tongue and oral cavity positioning (Kiesel et al 2025. The results suggest that vowel learning is boosted when auditory input is combined with visual articulatory material, indicating that vowel perception is greatly influenced by visible speech gestures and not just by purely auditory input. This supports the present findings that learners may rely on lip and mouth position as cues in vowel identification tasks.

Instructional labelling has significantly improved to 17 Grade Ready and 15 Transitioning level learners, affirming the recent phonological awareness research suggesting that learners benefit most from explicit instruction that systematically connects speech sounds with their articulatory production and letter representations, as repeated speech production and guided articulation strengthen phoneme–grapheme orientation and sound discrimination skills (Alvis et al., 2024). Exposure to such Physical Phonetic Articulation instruction, where mouth positioning and articulatory cues are explicitly used to support auditory input, revealed beneficial results.

More so, the improvement in alphabet knowledge among the respondents may be attributed to learners' visual access to articulatory gestures during the reading instruction. This aligns with research findings (Novelli et al., 2024), which emphasize that visual access to articulatory gestures during phonics instruction improves the acquisition and retention of grapheme-phoneme correspondences. Learners may have developed strong associations between letters and their corresponding sounds by observing the teacher's mouth positioning while listening to the sounds.

Further research emphasizes that explicitly teaching the articulatory features of phonemes strengthens the connection between spoken sounds and their corresponding graphemes. Sound production and mouth formation serve as important cues in helping learners map phonemes to letter representations, while also supporting error detection and correction. As noted in phonics instruction research, explicit articulation-based teaching enables learners to analyze speech sounds more deeply and develop stronger phoneme–grapheme awareness (Harrison 2022). Hence, the improved performance observed in this study may be attributed to the learners' exposure to articulatory phonetic teaching strategies rather than just through auditory perception alone.

Additionally, the study of Chen et al. (2024) underscored that instructional labeling to learners precisely in reading with the help of a video lesson on physical phonetic articulation is helpful. Learners, when guided and facilitated properly and correctly by the teachers through evidence-based strategies, can read efficiently.

Learner respondents' sound overlap performance improves to a few Grade Ready and several Transitioning level learners. This means that the majority of learners are able to coarticulate 7-8 of 10 items.

This may be attributed to the coarticulatory cues emphasized in the digitalized intervention, in which, during speech blending production, there is an emphasis on the articulators that begin preparing for the succeeding vowel even before the consonant is fully articulated, which creates overlapping sound movements that make speech smoother and easier to perceive. This is consistent with a study referring to coarticulation, which is an overlapping articulatory movement during speech production, where the articulation of one sound is influenced by surrounding sounds. This results in an acoustic and articulatory signal that concurrently contains information about multiple phonemes (Iskarous&Mooshammer, 2021).

The technique visualized in the digitalized material is likely aligned to the learners' natural way of processing speech in connected and holistic sound units, as recent studies on child speech development suggest that young children exhibit greater coarticulation due to immature motor control and developing phonological representations, making smooth consonant-vowel transitions more reinforcing for speech processing and blending (Cychosz et al., 2021).

This is further supported by an investigative study comparing children's and adults' tongue movements during speech production. Abakarova et al. (2022) found that children naturally produce smoother and more connected speech gestures exhibiting higher degrees of coarticulation because their articulatory movements are less differentiated and more overlapping compared to adults.

More so, the improvement in the learners' sound overlap performance may be credited to the use of connected phonation, as the skill is demonstrated in the video material. Gonzalez-Frey and Ehri (2020) found that connected phonation helps beginning readers blend sounds more smoothly and decode unfamiliar words more accurately compared to segmented phonation.

The continuous production of sounds may have supported the learners in achieving sound blending and coarticulation.

The task of plosive consonants has also improved, with 17 transitioning level from 32 learners. These findings suggest that voiced stop consonants require explicit instruction because Voice Onset Time (VOT) patterns for voiced and voiceless phonemes are processed independently, as indicated in the recent study in which researchers found that training on voiceless plosive consonants significantly improved learners' VOT production for voiceless sounds, but did not significantly affect voiced stop consonants highlighting limited feature generalization between the two categories (Olson, 2021).

More so, the study of Viktor Kharlamov (2022) reported that the place of articulation significantly affects the perception of voicing in languages that utilize negative Voice Onset Time (VOT) in distinguishing voiced plosives, which may contribute to the increased perception of closure voicing in voiced plosives. The video instructional material emphasized the articulatory positioning and pre-voicing of /b/ /d/ and /g/ allowing respondents to perceive voicing before the release of air supporting the effectiveness of the digitalized physical phonetic articulation intervention which explicitly stressing the articulatory and voicing features of voiced plosives /b/, /d/, and /g/, which possess negative or near-zero VOT wherein voicing occurs before or during the air release (Olson, 2021).

Another plausible explanation that can be correlated to the study findings indicates that the combined audio-visual cues result in greater perceptual accuracy rather than either visual or auditory input alone. Further discovery reveals that performance was at its highest when the bimodal is in a congruent state, making both modalities reinforce each other. In contrast, lower performance is observed in the incongruent bimodal condition, suggesting that conflicting audio and visual inputs may hinder accurate perception. Similarly, both unimodal audio and visual conditions indicate that relying on a single source of information is less effective. These findings highlight the importance of congruency between auditory and visual cues in facilitating speech perception (Kkese&Dimitriou, 2023).

In relation to the present study, the digitalized teaching material may have been designed with congruency in audio and visual inputs, which reduced learners' difficulty with plosive consonants as manifested in the post-test data.

**Problem 4: Is there a significant difference in the physical phonetic articulation skills of the grade 1 learners before and after the use of the digitalized letter sound articulation guide?**

Table 6 presents the normality test results of the Pre-Test and Post-Test on Physical Phonetic Articulation.

**Table 6:** ***Test for Normality of Data Using Shapiro Wilk test.***

| Variables | W-stat | p-value | Remarks |
|---|---|---|---|
| IL-Pre | 0.855 | <.001 | Non-normal |
| SO-Pre | 0.869 | 0.001 | Non-normal |
| VM-Pre | 0.602 | <.001 | Non-normal |
| PC-Pre | 0.765 | <.001 | Non-normal |
| WR-Pre | 0.803 | <.001 | Non-normal |
| IL-Post | 0.874 | 0.001 | Non-normal |
| SO-Post | 0.886 | 0.003 | Non-normal |
| VM-Post | 0.265 | <.001 | Non-normal |
| PC-Post | 0.784 | <.001 | Non-normal |
| WR-Post | 0.946 | 0.108 | Normal |

Since the p-values are less than 0.05, except for WR-post-test, the variables are non-normal. This implies the use of a non-parametric test for testing differences or relationships.

Table 7 presents the difference between Pre -Test and post-test results on Physical Phonetic Articulation.

**Table 7:** ***Wilcoxon Signed Rank Test Results for the Difference in the Physical Phonetic Articulation Skills of the Grade 1 Learners Before and After the Use of the Digitalized Letter Sound Articulation Guide***

| Physical Phonetic Articulation | Pre-test (Median) | Post-test (Median) | Wilcoxon W | p-value | Remarks |
|---|---|---|---|---|---|
| Instructional Labeling | 3.00 | 9.00 | 528 | <.001 | Significant |
| Sound Overlap | 2.00 | 8.00 | 528 | <.001 | Significant |
| Vowel Mapping | 2.00 | 10.00 | 435 | <.001 | Significant |
| Plosive Consonant | 0.00 | 7.00 | 528 | <.001 | Significant |

Instructional Labeling, Sound Overlap, Vowel Mapping, and Plosive Consonant have significant differences in results. This means that video lessons on Physical Phonetic Articulation (PPA) with the guidance and facilitation of the grade 1 teachers have improved the phonemic awareness, alphabet knowledge, and blending ability of the learners. This further explains that the correct and proper positioning of the mouth in uttering letter sounds is pivotal in letter and word recognition. This suggests that the PPA is an effective and

efficient approach in enhancing the basic reading skills of the learners, primarily among first graders in school.

The result of the study was supported by Kröger et al. (2022), reiterating that motor phonetic processes are helpful in speech production among young learners in school. It signifies that these motor processes in speech production among first graders can develop the cognitive-linguistic ability of learners, implying that mouth positioning increases knowledge in language. Another study of Ishmatova (2025) highlights that the rhythmic phonetic activities through proper placement of the parts in the mouth can significantly produce correct sounds or words. These phonetic rhythmic activities are the most effective methods in recognizing letters in the alphabet and in reading accurately.

Results can be further explained by the study of Thurmann-Moe et al. (2021), explaining that dyslexia is often associated with difficulties in articulatory processing, which may affect learners' ability to decode and spell words accurately. However, Thurmann-Moe et al. (2021) experimental findings indicate that targeted articulatory consciousness training can significantly improve reading and spelling performance among students with severe dyslexia. This suggests that articulatory deficits may contribute to literacy challenges, but they can be reduced through structured and systematic intervention.

**Problem 5. What is the level of pre- and post-assessment of Word Recognition in terms of reading accuracy?**

Table 8 shows the results of pre- and post-assessment on Word Recognition in terms of reading accuracy.

**Table 8:** ***Level of pre- and post-assessment of Word Recognition in terms of reading accuracy***

| Word Recognition | Score Range | Description | Frequency | Percentage |
|---|---|---|---|---|
| **Pre-test** | 0-2 | Low Emerging | 32 | 100% |
| | 3-4 | High Emerging | 0 | 0% |
| | 5-6 | Developing | 0 | 0% |
| | 7-8 | Transitioning | 0 | 0% |
| | 9-10 | Grade Ready | 0 | 0% |
| | **Total** | | **32** | **100%** |
| **Post-test** | 0-2 | Low Emerging | 0 | 0% |
| | 3-4 | High Emerging | 1 | 3% |
| | 5-6 | Developing | 8 | 25% |
| | 7-8 | Transitioning | 16 | 50% |
| | 9-10 | Grade Ready | 7 | 22% |
| | **Total** | | **32** | **100%** |

Based on the aforementioned table, data show that even in the last quarter of the school year 2025-2026, there are still some learners in the Carmen district who are unable to recognize grapheme phoneme correspondence and cannot decode accurately on the combined letters, a syllable, or a word formed from the vowels and consonants. This means that a strategic, relevant, and novel approach in basic reading must be applied in order to eradicate cases of low-emerging readers, who are categorically described as non-readers in the grade 1 level in Elementary Education of the Department. This signifies the need for an effective technique in beginning reading teaching instruction employing physical phonetic articulation to learners as a guide in facilitating the accuracy in alphabet sound production, supporting accurate word recognition, and finally attaining successful reading.

On the pre- test, negation stance on the importance of word recognition was emphasized by the study of McMurray et al. (2022). The findings of the study highlighted that spoken word recognition is essential in communication. This implies that communication skills start from proper and correct recognition of letters and words. This also supports the idea that in reading, communication is an important skill to be learned, mastered, and is imperative to be possessed by every learner in the department.

Other findings of Leachman et al. (2025) opposed the results of the pre-assessment in basic reading among grade 1 learners in the Carmen district. From the results of the study, text reading fluency with the help and aid of video lessons in physical phonetic development has significantly improved the comprehension of the learners. This underscores that constant correct reading can increase the comprehension level of the learners as the most important skill to be possessed by every learner.

The data in Table 8, post-test, shows that the video lesson on word recognition applying the proper placement in the mouth has a strong positive result, as the aforementioned data manifested that the 32 Low Emerging learners prior to the reading intervention utilizing the digitalized instructional material reduced to 0, and everyone can now read. This demonstrates that for the three-week implementation of the video lesson on physical phonetic articulation, the majority of the Grade 1 learners were able to decode at least half to all of the 10 given words. This further explains that this new reading strategy, when applied constantly or for the whole school year, will ensure that no one is left behind, and everybody will be proficient decoders.

Results on the post-assessment in the implementation of the video lesson on physical phonetic articulation were affirmed by the study of Rasras et al. (2024). It underpinned that technology-based mouth positioning model in letter-sound orientation and word recognition is helpful among learners with challenges in reading. This suggests that mouth positioning is a vital technique in grapheme–phoneme correspondence (GPC) and word recognition, which should be explicitly taught to first graders, especially when reinforced by technology.

Integrating technology in the proper placement in the mouth for letter or word recognition connotes the significant impact of physical phonetic development in enhancing basic reading. Another affirmation was established in the study of Chen et al. (2024). It underscored that instructional labeling to learners precisely in reading, with the help of video lessons in physical phonetic articulation, is helpful. Learners, when guided and facilitated properly and correctly by the teachers through evidence-based strategies, can read efficiently.

The studies on Visual Phonics also support the significant improvement in word recognition, which suggests that visual articulatory cues and multisensory instruction effectively support code-related skills, including blending and word recognition (Kart, 2021). This is attributed to the multisensory and articulatory features emphasized in the digitalized reading instruction, which presents mouth positioning, physical phonetic articulation, and overlapping sounds during consonant-vowel blending. The video material likely strengthened learners' grapheme-phoneme correspondence and decoding skills.

Askari & Mahdi-Kamo (2024) supported the importance of word recognition as the study signifies positive results. This skill is essential to be mastered among first graders because communication skills and comprehension start from mastery of letter-sound and word recognition. Learning will not take place, regardless of the pedagogical approaches, strategies, and methods employed, when learners do not know how to read.

Much more on the aspect of comprehension, literacy skills are defeated when a learner cannot read. The study of Wilang et al. (2025) also suggested that reading fluency, reading accuracy, and comprehension will be achieved among the learners when they are properly and correctly instructed on physical phonetic articulation. Guidance and facilitation of teachers through video lessons on the proper and correct positioning of the mouth in uttering letter sounds of the alphabet and words are important in developing reading skills among first graders in the Department of Education.

**Problem 6. Is there a significant relationship between Physical Phonetic Articulation and Word Recognition?**

Table 9 presents the correlational analysis results between Physical Phonetic Articulation and Word Recognition.

Data on the above-mentioned Table 9 show that Physical Phonetic Articulation (PPA) components, except for vowel mapping, manifest a correlational result to word recognition. This result indicates that physical phonetic articulation has a significant relationship to word recognition, specifically associating in terms of Instructional Labeling, Sound Overlap, and Plosive Consonant, which significantly improve the reading ability. Emergent reading skills development of the grade 1 learners is vital in the teaching-learning process since it lays a strong foundation for literacy achievement.

**Table 9:** ***Spearman's rho Correlation Analysis Results on the Relationship Between Physical Phonetic Articulation and Word Recognition.***

| Dependent Variable | Independent Variables | Spearman rho | p-value | Remarks |
|---|---|---|---|---|
| Word Recognition | Instructional Labeling | 0.539 | 0.001 | Significant |
| | Sound Overlap | 0.559 | <.001 | Significant |
| | Vowel Mapping | 0.129 | 0.482 | Not Significant |
| | Plosive Consonant | 0.578 | <.001 | Significant |

The aforementioned result of the study was supported by Algadhy et al. (2024), underpinning that lip movement or physical mouth movement is considered an important factor for the learner to be able to read. Learners, precisely the first graders, would imitate the teachers as the letter or words were being uttered. Proper positioning of the mouth in uttering the letters in the alphabet is significant because sounds are produced correctly.

The previously cited study of Novelli et al. (2024) also supported the result, revealing that learners who had visual access to their teachers' articulatory motions, such as speech organs movements during sound production, demonstrated better acquisition and retention of alphabet knowledge, further indicating that articulatory cues strengthen the connection between letter sounds, consequently improving early decoding skills and supporting reading development.

The non-significant relationship between vowel mapping and word recognition may corroborate earlier studies on consonant–vowel asymmetry, suggesting that consonants carry stronger word identity information than vowels, making them superior in recognizing and

distinguishing words during language processing. A study on auditory word perception in Hebrew (Lador-Weizman& Deutsch, 2022) found a significantly stronger consonant bias (C-bias), indicating that listeners rely more heavily on consonants than vowels during spoken word recognition.

The C-bias effect of consonants is supported by an experimental study by Schmandt et al. (2022), which found that French adults recognized words faster when preceded by consonant-related primes than vowel-related primes, indicating a consonant bias in lexical access, further suggesting that consonants play a greater role than vowels in word recognition and decoding processes. This may explain why vowel production in the present study did not show a significant relationship with word recognition.

**Problem 7. How can the digitalized Physical Phonetic Articulation Letter-Sound guide be integrated into beginning reading instructions in schools?**

To address this problem, the integration of the digitalized Physical Phonetic Articulation Letter-Sound guide into emergent literacy instruction will be operationalized through the development of lesson plans incorporating this material at certain parts of the seamless lessons. These lesson plans will focus on targeted phonics instruction, specifically the letters M, Y, B, P, D, G, NG as well as the SinugbuanongBinisaya vowels A, I and U, which were identified by the respondent teachers as challenging to teach. The lesson plans are designed into structured literacy activities aligned with the principles and standards of Early Language Literacy and Numeracy (DepEd Order No. 12, s. 2015) and the Science of Reading ELLN-SOR (CARAGA RM No. 0411, s. 2023) to support systematic instruction in the Big Six of Reading (Oral Language, Vocabulary Development, Phonological and Phonemic Awareness, Phonics, Fluency, and Reading Comprehension. Through this approach, the digitalized material will be effectively embedded in classroom reading instruction to improve learners' foundational literacy skills.

Table 10 presents the structure of the lesson plans.

**Table 10:** ***Seamless structure of Lesson Plans.***

| **Stages** | **Activities** | **Literacy Skill** |
|---|---|---|
| *Literary stage*<br>• Narrative Texts<br>• Expository Texts | • Unlocking of difficult words in the story<br>• Motivation and motive questions settings<br>• Listening to | • Vocabulary Development<br>• Oral Language |

| | | |
|---|---|---|
| | the literary text<br>• Answering<br>• Listening comprehension questions | • Listening Skill<br>• Listening Comprehension |
| *Phonics Stage*<br>• Recognizing and naming words from the literary text that contain the target letter sound in the initial positions<br>• Sound manipulation (Counting Syllables from words, rimes, onsets)<br>• Sound isolation and segmentation (phonemes from syllables and words)<br>• Introduction of the target letter in GPC | • Present pictures of words from the literary texts and discuss their usage in spoken language<br>• Count the syllables of words and identifying onsets and rimes<br>• Emphasize the initial sound by prolonging the utterance of each word.<br>• Refer to the Digitalized Physical Phonetic Articulation Letter-Sound Guide in the GPC awareness and development | • Vocabulary Development<br>• Phonological Awareness<br>• Phonemic Awareness<br>• Alphabet Knowledge and phonics |
| *Word Recognition stage*<br>Blending sounds<br>• CV,<br>• VC<br>• CVC<br>• CVCV<br>• and other patterns | • Refer to the Digitalized Physical Phonetic Articulation Letter-Sound Guide in the blending process | • Phonics skill |
| *Fluency Stage*<br>Reading of words that are in controlled text words, phrases and sentences | • Learners will decode texts that are controlled with the target letter combinations<br>• Refer to the Digitalized Physical Phonetic Articulation Letter-Sound Guide to self-correct miscues. | • Phonics and Fluency skills |

The aforementioned lesson plans can be utilized in beginning reading instructions for the implementation of the ARAL Reading Program, particularly in addressing the needs of the Basic group.

## 4. SUMMARY, FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS

### *4.1 Summary*

This study developed a video lesson on Physical Phonetic Articulation (PPA) guide to address the highly evident issues of the physical articulation skills of the grade 1 learners at the Carmen district. It utilized a Developmental and Quasi-Experimental research design as an aid for appropriate data collection and analysis.

A total of 32 identified non-performing grade 1 learners were subject to pre-test and post-test activities to determine the effectiveness of the PPA. Data were tested for normality using the Shapiro-Wilk Test and found a violation to the normality assumption. This resulted in the use of non-parametric test procedures such as the Wilcoxon Sign Rank Test and Spearman Rho correlations. Significant findings are presented in the next discussion.

### *4.2 FINDINGS*

Based on the statistical analysis performed on the data, the following are the major findings.

1. The distribution of the pre-test scores in physical phonetic articulation in terms of instructional labelling, sound overlap, vowel mapping, and plosive consonants is positively skewed. This is equivalent to saying that the majority of the grade 1 learners scored lower than the mean and median.
2. Because of the strong coherence of school data and pre-test scores concerning the physical phonetic articulation skills of the learners, the video lesson on Physical Phonetic Articulation (PPA) guide was deemed essential and was finally developed.
3. After the implementation of the digitalized PPA guide, post-test scores showed a different shape of the distribution of scores relative to the pre-test. This is because the distribution of scores manifested high skewness to the left. Meaning, the majority of the grade 1 learners scored higher than the mean and median after the use of the PPA guide.
4. The Wilcoxon signed rank tests showed that there is a significant improvement in the median scores of the grade 1 learners in all dimensions of physical phonetic articulation (instructional labeling, sound overlap, vowel mapping, and plosive consonant). This is a manifestation of the effectiveness of the PPA guide.
5. When it comes to word recognition skills, data showed that before the use of the PPA guide, all learners were low-emerging. Surprisingly, post-test scores depicted a significantly different finding. The majority of the learners have improved in word recognition, along with an improvement in phonetic articulation.
6. Moreover, Spearman's rho correlation analysis showed that instructional labelling, sound overlap, and plosive consonant articulation skills are positively and significantly correlated to word recognition.
7. Finally, the findings of the study revealed a significant relationship between physical phonetic articulation awareness and word recognition, as well as the effectiveness of the digitalized instructional materials in developing these skills. A structured lesson plan is necessary to ensure the efficient utilization of the material since literacy development

involves multiple skills, and the developed digitalized instructional material addresses only certain components of the literacy process.

## 4.3 CONCLUSIONS

Considering the significant findings above, the following conclusions were drawn.

1. The physical phonetic articulation of the grade 1 learners is an essential aspect of reading competency that needs serious intervention. The findings implied that when the evident issues on instructional labeling, sound overlap, vowel mapping, and plosive consonant, reading difficulties in the future will certainly be a problem.
2. Consequent to the relatively low physical phonetic articulation skills of the grade 1 learners, it established the need for an instructional material which is primarily addressed in the study through the video PPA.
3. The video lessons on Physical Phonetic Articulation are effective in improving the phonetic articulation skills of the grade learners.
4. Statistical and empirical support are highly evident for the effectiveness of the video lessons on Physical Phonetic Articulation. This provides another approach to better teaching and learning process with a focus on literacy among elementary learners.
5. Word recognition ability of the learner is also an issue, along with the poor physical phonetic articulation skill of the grade 1 learners. Surprisingly, word recognition improves after the utilization of PPA. This is indicative of the effectiveness of the PPA not only for phonetic articulation but also for word recognition, and eventually for reading in general.
6. The study yielded supplemental empirical evidence concerning the existing literature about the positive effect of physical phonetic articulation skill on the word recognition ability of the learners.
7. Lastly, the developed digitalized instructional material addresses only certain components of the literacy development process. However, it plays a significant role in the acquisition of word recognition skills, demonstrating beneficial utilization. The accompanying lesson plans were designed to facilitate the effective utilization of the material in educational settings, particularly by Grade 1 teachers and ARAL tutors serving the identified basic group learners.

### *4.4 Recommendations*

In light of the findings and conclusions, the following recommendations are suggested.

**DepEd Agusan del Norte Division.** The findings and the output of the study may serve as benchmark information for future curriculum review and feedback planning. The output highlights the essence of the instructional efforts to persistently discover approaches that facilitate better learning outcomes, considering the changing learning styles of the pupils. In particular, the material developed in the study is recommended for adoption in the classroom setting.

**School Leaders.** The results and output of the study may be implemented or institutionalized by school leaders as a strategy to address literacy problems at the school.

**Teachers.** The study speaks of an example for teachers to go the extra mile for the betterment of the learners. Specific findings and output of this study are rich references for future studies and considerations by the teachers towards improved learning outcomes for all learners.

**Future Researchers.** The scope and limitation of the study are stepping stones for future research. Future researchers may focus on the qualitative aspects to strengthen the investigation of the areas that need to be improved. Another potential direction is to consider a larger group or population of learners for a greater scope of generalizability.

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