*Original Research Article*

The Color Vowel Approach in Teaching Pronunciation Among Selected ESL Learners

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ABSTRACT

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| **Aims:** This study aimed to investigate the effectiveness of the Color Vowel Approach in improving pronunciation among ESL learners. Specifically, it sought to determine whether significant differences existed between the pretest and posttest results of the control and experimental groups, and to evaluate the progression of pronunciation skills through formative assessments.  **Study Design:** This was a quasi-experimental study employing a pretest-posttest non-equivalent control group design.  **Place and Duration of Study:** The study was conducted at the University of Eastern Philippines, during the first semester of the academic year 2018–2019.  **Methodology:** A total of 59 students enrolled in Speech 111 were selected using matched-group sampling and assigned to either the control group (n=29) or the experimental group (n=30). The experimental group received pronunciation instruction using the Color Vowel Approach, while the control group followed conventional teaching methods. Data collection involved researcher-made pretests and posttests (oral and written), weekly formative assessments, classroom observations, learning logs, and student journals. Seven sessions of formative testing were conducted before and during the intervention.  **Results:** Pretest results showed both groups performed below average, indicating limited initial pronunciation skills. Posttest scores showed statistically significant improvement in both groups (*P* = .04 for control; *P* = .001 for experimental), with the experimental group achieving significantly higher gains than the control group (*P* = .001). Formative assessments showed consistent improvement: the experimental group advanced from a superior to a very good rating, while the control group improved from good to highly satisfactory. Overall, the experimental group attained a combined rating of very good, compared to a good rating for the control group.  **Conclusion:** The Color Vowel Approach was found to be an effective strategy for enhancing ESL learners’ pronunciation skills, particularly in vowel articulation and word stress at the word, phrase, and sentence levels. These findings support the development of communicative instructional programs that integrate the Color Vowel Approach to better address the needs of language learners. |

*Keywords: Color Vowel Approach, pronunciation instruction, ESL learners, phonemic awareness, vowel articulation, communicative language teaching*

1. INTRODUCTION

**Background of the Study**

Traditionally, teaching pronunciation has always incorporated drills, recital, and repetition of words, phrases or sentences. In most schools, the Vietor triangle of Wilhelm Vietor and the International Phonetic Alphabet (IPA) serve as common tools in teaching pronunciation among students. From their use, it was observed that students show inhibition and low or uneven participation because of its technicalities. There are a number of frustrations that both teachers and students meet in teaching the sounds of English. These include rules that are taught for producing the sounds of words. However, there are so many exceptions that they do not almost seem like rules. For instance, “mow” cannot be pronounced like in the word “cow” and sometimes “read” as “red.” These exceptions to the rules can be very overwhelming and confusing among ESL learners. This is the problem that the researcher would like to tackle- providing an instructional package or tool to easily understand and learn the sounds of English.

Each language has its own unique set of meaningful sounds or phonemes. While most languages have five to eight vowel sounds, American English has approximately 14 to 15 vowel sounds depending on one’s national, regional, and cultural background (Nilsen and Nilsen, 1971). Meanwhile, the English alphabet has five vowels. These vowels represent about fifteen vowel sounds. Each letter or combination of letters interplay to represent multiple vowel sounds. In short, the nature of English spelling makes it difficult for a learner to determine how written words are to be spoken. By definition, consonant sounds involve some form of obstruction in the vocal tract; that is, the air stream is interrupted or impeded by the lips or tongue (Friedl, 1979). Because they are more easily felt, consonants are more easily learned. Conversely, the fact that vowel sounds are harder to pinpoint makes them more difficult to learn.

Recently, a holistic approach to learning has found a number of proponents including pronunciation educators, who affirm that L2 pronunciation training should involve the whole learner, not just the speech apparatus or learners' cognitive faculties (Larsen-Freeman, 1986). In addition, an important factor in learning vocabulary is focusing on intelligible pronunciation. Gilbert states that English language learners tend to ignore stress when they learn vocabulary and failure to learn the stress of new words often leads to an inability to recognize those words in spoken form (Gilbert, 2008).

The Color Vowel Approach is a powerful response to the challenges posed by these problems. The Color Vowel Chart, the main instructional aid in this approach developed by Taylor and Thompson, connects the vowel sounds of English to key words and phrases through basic colors and provides a shorthand for teachers and learners to talk about pronunciation with ease. For instance, using the International Phonetic Alphabet (IPA), /i/ is represented by the color green, silver for /I/, gray for /e/, red for /ɛ/, black for /æ/, blue for /u/, wooden color for /ʊ/, rose for /o/, auburn for /ɔ/, olive for /a/, purple for stressed /ɝ/ and unstressed /ɚ/, and mustard for stressed /ʌ/. It has also equivalent colors for diphthongs like white for /aɪ/, turquoise for /ɔɪ/, and brown for /aʊ/. It is a multi-modal way of teaching sounds of English that connects its spoken and written forms with unprecedented clarity and has profound implications for vocabulary development, reading readiness, and spelling instruction (Taylor and Thompson, 2016). In terms of spelling, one of the other benefits of using the Color Vowel Approach is that when students use the graphic organizer and write down words according to their “color,” they often start to see the spelling patterns for making different sounds. This is why it is recommended that teachers have students underline the letters that make the sound or sounds in that category. For example, under RED DRESS students might have the words guess, best, friend, read (past tense), and others. From there, the students are introduced and familiarized with the different ways of making “red” words. This approach further promotes kinesthetic learning as it utilizes rubber bands and open hand gestures to stretch or show the stressed syllable of a word.

This tool can be introduced to students even at the lowest levels and used to focus learners’ attention on the stressed vowel sounds in new words, thus helping them hear the stress that establishes the rhythmical patterns of spoken English. Students are introduced not only to the sounds but also to the positions of the sounds because the chart’s shape represents the mouths to show the sounds in relation to whether the sound is pronounced in the front, central part, or back of the mouth and whether the jaw is high or low.

Using the IPA to teach pronunciation makes students, who are already second language learners, memorize yet another alphabet. Instead of helping students, the IPA sometimes makes them more confused about how to pronounce words, and takes the focus off pronunciation and more on transcription. The Color Vowel Chart minimizes this confusion by removing this extra alphabet and instead providing the ESL learners with something visual and easy to associate sounds with. These points form the basis of the study.

Despite the undeniable traditional practices in teaching sounds of English of most teachers, the researcher, being an English instructor, sees it with paramount importance as an opportunity to introduce a difference in the modalities for learning the sounds of English. Hence, this study is conducted.

**Research Questions**

This study generally sought to investigate the effectiveness of the Color Vowel Approach in teaching pronunciation in two selected Speech 111 classes at the College of Science, University of Eastern Philippines. Specifically, it sought to answer the following questions:

1. What are the pretest results of the control and experimental groups?
2. What are the posttest results of the control and experimental groups?
3. Is there a significant difference between the pretest results of the control and experimental groups?
4. Is there a significant difference between the posttest results of the control and experimental groups?
5. Is there a significant difference between the pretest and posttest results in the control group?
6. Is there a significant difference between the pretest and posttest results in the experimental group?
7. How do the assessment results compare on a per session basis between the control and experimental groups?

**Scope and Limitation of the Study**

The study recognized a number of limitations relative to the selection of subjects and conduct of the experiment. First was the unavailability of two intact classes in Speech and Oral Communication enrolled in the University. Consequently, this study was limited to two Speech classes enrolled in the College of Science of the University. The experimental group was composed of 30 BS Biology students, while the control group was composed of 29 BS Environmental Science and BS Marine Biology students.

The two Speech classes were scheduled on the same day particularly 1:00-2:30 pm for the experimental group and 4:00 to 5:30 pm for the control group. The time schedules were considered a limitation for the students had prior classes. Specifically, request to arrange the classes in a consecutive time schedule from the Center for Computer Studies (CCS) in the University was not granted due to conflict of classes of students. The study was conducted in the second semester of school year 2018 to 2019 for nine (9) weeks; four (4) weeks before the intervention, another four (4) weeks during the experiment, and one (1) for the midterm examination week.

Moreover, the study recognized a number of factors related to the teaching of pronunciation that surfaced during its conduct. These included the individual differences of the students, mother tongue dominance, physical speech defects, and color blindness. Such factors were not included in measuring the effectiveness of the said intervention. The study also considered the variants of vowel sounds as limitation, for there are a number of vowel sounds that are not pronounced the way they appear in their spelling. These variants were not addressed in the Color Vowel Chart, the main instructional tool in the experimental group, but were given emphasis in the introduction of the sounds of English. Also, the CVC utilized some colors like auburn, rose, mustard, turquoise, and olive that are foreign or unfamiliar to the culture of the students. This was considered as limitation because the students had a hard time understanding and connecting them to equivalent colors in Philippine context. This was evident when the CVC was introduced during the experimental sessions. Further, this study only incorporated stress as a scaffold to teach pronunciation. It did not include a complete thorough lesson on stress at the phrase and sentence levels, for there are complex rules on understanding this concept. Activities in teaching stress such as the use of rubber bands and hand gestures were incorporated in teaching the vowel sounds of English. Although yoga exercises are reflected in the application of the Color Vowel Approach particularly in teaching stress, this was not included as part of the activities in the said intervention.

A diagram of a group

AI-generated content may be incorrect.During the conduct of the study, a number of challenges also surfaced. First was the incomplete attendance of the students during the sessions, thus resulting in non-participation in the formative test on a per session basis. Second was the unavoidable coincidence of local and national non-working holidays. As a result, there was cancellation of classes. In instances in which only one class was affected by the cancellation, the researcher opted to cancel the other class so that lessons would still be parallel. Make-up classes were also held on consecutive schedules. Lastly, the study also considered as a limitation the scarcity of literature and studies in the local and national contexts concerning the specific utilization of the Color Vowel Approach or the Vietor Triangle in teaching and enhancing the pronunciation skills of the students. This was manifested in the researcher’s active involvement in rehashing literature and studies in the Internet, Open Access Libraries such as Science Direct, which is popular for up-to-date literature reviews, e-libraries, and even the National Library of the country.

Figure 1. Schematic diagram showing the conceptualization of the study

**Literature Review**

*Pronunciation*

There is a fountain of skills that a teacher is expected to enliven among their learners in an English language teaching class. This includes grammar, vocabulary, speaking, listening, reading, and writing. Pronunciation often gets at the bottom of the priority bar taking into account that many teachers believe that there is not enough time to teach it and it is not tested in most exams. However, this contradicts the underlying principle of language teaching that phonemic awareness, a skill developed in teaching and learning pronunciation, is a crucial determinant of success in the reading attainment of alphabet language (Bloomfield, 1938).

English pronunciation is one of the most difficult skills to acquire and learners should spend ample time to improve their pronunciation. If there is a need to speak English understandably, pronunciation should be given equal importance among other skills. Depending on where teachers teach, many or all of the students will need to speak and understand English in real life to communicate with both native speakers of English and speakers of other languages. Even if students’ grammar and vocabulary are strong, if their pronunciation is not easy to understand, their communication will fail. Also, it is generally observed that learners with good English pronunciation are likely to be understood even if they make errors in other areas, whereas learners with bad pronunciation will not be understood, even if their grammar is perfect (Rogerson and Gilbert, 1990). Such learners may avoid speaking in English, and experience social isolation, employment difficulties and limited opportunities for further study.

True enough, the goal of pronunciation instruction is not to ask learners to pronounce or sound like native speakers. Instead intelligible pronunciation should be the real purpose of oral communication. If learners want to change the way of pronouncing English words, they have to change the way they think about the sounds of those words. It is a necessary component of communicative competence. Additionally, the concept that makes English pronunciation most intelligible is to have the stress on the correct syllable. Which is worse? To say a-bo-ca-does or a-VO-ca-does? Thus, correct stress is paramount, and it can only be addressed if given emphasis in teaching pronunciation.

Ur (2009) further explained that incorrect pronunciation will make people misunderstand the speaker, whereas correct pronunciation will encourage them to listen to the speaker. Accurate pronunciation helps students to achieve good communication. In a language classroom, proper use of stress and pitch patterns will help the students improve the production of vowels and consonants.

Despite the fact that pronunciation is mentioned less in proficiency ratings when compared to other speaking features such as organization and content, it has a strong contribution to determining speaking proficiency level. Furthermore, according to Robin Walker, the lack of scope and limited time allotted to pronunciation hinder the students in practicing proper pronunciation (Walker, 2001).

Mamhot and Masangya (2000) in their Comparative Study on the Language Anxiety of ESL and EFL Learners showed that ESL students have a slight anxiety on the fear of negative evaluation and general feeling of anxiety. This means that ESL students worry about how others perceive them and how English affects their daily activities. Because of these worries, ESL students suffer having a low self-perception, which result in a negative effect on the output process of language learning. This will consequently affect their performance in an ELT class particularly in learning the macro and micro skills of English.

A study on the demotivating factors in learning the English language revealed a general perspective on how to deal with learners who experience and encounter affective apprehensions in learning the language. This local study points out that the foundation of the learners in terms of learning English must be clearly identified in order to know their actual standing and status (Aquino, et.al., 2015). Moreover, the study claims that lack of confidence is the most significant factor why there is demotivation in learning the English language inside the classroom. Fear of committing mistakes, demotivated teachers, and lack of resources are also the reasons why there is demotivation in learning the English language. Thus, the teachers should at least lessen the pressure and anxiety that students feel through customized teaching strategies.

To respond to these challenges, teachers should be provided with courses and materials that help them improve their pronunciation instruction (Fraser, 2000). Fraser continued that second language education research should not be concerned with the significance of English pronunciation instruction but with the methodology of pronunciation instruction. Although many problems arise in improper pronunciation, there are many solutions and strategies that can be applied to solve these problems. Teachers have the responsibility to help the students develop their pronunciation skills.

In addition, a study points out that learners cannot learn proper pronunciation without the teacher’s instruction. Both learners and teachers should be patient in acquiring the desirable results of improving pronunciation and should not expect the rapid improvement of the instruction (Abercrombie, 1991). The improvement of English pronunciation is a continuous process, and it takes time. The teacher must spend more time to help her learners to understand more about the differences between their own pronunciation skills, and make more use of the understandable models.

The styles of language teaching have changed drastically. The same is true with teaching pronunciation. In the past, traditional methods have been used to incorporate the teaching of the sounds of English. Until recently, the focus in pronunciation teaching was almost entirely on producing individual sounds and words correctly; not much attention was given to features such as intonation and rhythm. In the last 20 years or so, however, teachers and researchers have begun to realize the importance of these “musical” aspects of pronunciation and to emphasize them more strongly in teaching (Celce-Murcia, et.al., 2010). Some scholars have gone so far as to claim that teaching individual sounds is not so important, and intonation, stress, prominence, and rhythm should be emphasized above all (Ladefoged and Halle, 1988).

It seems more practical though to realize that no single aspect of pronunciation can stand on its own. Teachers cannot single out the teaching of individual sounds. Rather, areas such as the musical aspects of pronunciation should go together with the other aspects in order to harmonize the two. The pendulum of teaching trends might keep swinging, but it does not need to stop language teachers from utilizing communicative strategies and isolate themselves with just one activity. Language teachers need to choose methods and activities that integrate both aspects of pronunciation so that the combination works best for the students.

Pronouncing sounds involves both minds and bodies. In learning new sounds, one needs to learn to move the muscles of the mouth in new ways and change the pronunciation habits one has built up all through his or her life. This is not easy, and like learning any other muscular activity, it takes a long time. In an analogy, most people cannot learn to dance or to play a musical instrument immediately; they have to start out slowly, practice a lot, and gradually build up speed and skill. The mouth also needs to build up muscle memory—the ability to do something more easily after practicing it many times (Derwing and Rossiter, 2002).

Based on the guidelines provided in the study of Celce-Murcia et al. (2010) on Introduction to Teaching Pronunciation, there are types of knowledge necessary for effective pronunciation teaching:

Chiefly, a learner needs to know the facts about pronunciation particularly on how speakers’ mouths move when they produce the sounds of language, and how word stress, rhythm, connected speech, and intonation work. In response to this, teachers need to understand and be able to predict the kinds of problems their students might have with pronunciation and why they happen. Further, they need to know many ways to teach pronunciation to the students, adapting methods to fit them and their needs, and helping them practice effectively to overcome any problems they might have.

On the other hand, there are also basic principles of teaching pronunciation that must be given utmost importance. First, include more than just “repeat after me.” Having students listen to a recording or to the teacher’s voice and then repeat is a useful part of a pronunciation lesson, but by itself it is not enough. Second, encourage students to use more than one of their senses. There are many different ways of learning. It can be through sight, sound, and movement so as to help students understand and remember better. Third, keep the lessons practical. For most students, even adults, theory and technical explanations are hard to understand and are easily forgotten. Simple, concrete demonstrations followed by lots of practice produce better results. Lessons need to fit the students’ level of understanding.

Moreover, communicative practice should be included whenever possible. Students need to work toward using their new pronunciation in real speech. Finally, students should be trained to become independent and autonomous learners. The students will not be students forever. Someday they will be facing pronunciation puzzles on their own. If teachers can help them build up their own skills in listening, imitating, and monitoring their own pronunciation, it will be a big help to them in their future learning.

*Color Vowel Approach*

To concretize this set of guidelines on the teaching of pronunciation, a number of studies have come about to assess and evaluate methodologies relative to pronunciation. One of these is the Color Vowel Approach. The Color Vowel Chart was originally created in 1999 by Karen Taylor at the University of Maryland College Park and subsequently co-developed by Shirley Thompson at George Washington University. It was just a homemade teaching tool inspired by a presentation Karen attended at a local ESL conference. The CVC made it possible for the two researchers’ international students to visualize, practice, and produce word stress without the distraction of phonetic symbols. The Color Vowel Chart is now used by teachers, speech therapists, pronunciation/accent trainers, reading specialists and other language-based professionals across the United States and around the world.

In 2003, through the researchers’ collaboration with Dr. Robin Barr, Linguist in Residence at American University, who has the expertise in phonology and linguistics, they were able to develop the chart. They altogether made the chart a visual representation of sounds that is both pedagogically accessible or simple and phonologically robust or deep. The CVC is also known as being a “simple-deep” tool: a visual representation of sound that is both pedagogically accessible or simple and phonologically robust or deep. It is a tool that is easy to use and requires no fancy technology. A language teacher can continue to use the CVC even without electricity or technology.

Over a decade, the chart has become an approach basing its nomenclature as a multi-modal way of teaching sounds of English that connects its spoken and written forms with unprecedented clarity and has profound implications for vocabulary development, reading readiness, and spelling instruction (Taylor and Thompson, 2016). This chart provides an effective approach to teaching spoken English. This chart helps incorporate pronunciation in all classes so that students can improve their comprehension and use of spoken English. As a powerful visual tool, the Color Vowel Chart allows learners to focus on stress and rhythm and identify the vowel sounds of spoken English. Each vowel sound is represented by both a color and an object, such as “green tea,” making the colors easier to remember. The chart gives teachers a common frame of reference for talking about vowel sounds without having to use phonemic symbols. Proponents of the CVA say that one of the best things is that once an ESL teacher introduces the CVC, he or she does not have to reteach it. Rather, it then becomes a permanent fixture in the classroom that a teacher just refers to when a new word comes up. A teacher does not have to do separate drills and the like with each sound. Instead, as a new word is taught, introduced, and discussed in class, the teacher can ask students, “What color is it?” and students can add it to their graphic organizers. In this way, it is seamless and just becomes part of everyday learning. Some of the other beneficial characteristics associated with the CVC include the kinesthetic element with rubber bands, the open hand method, color vowel yoga, and others. Another is its "simple-deep" approach in teaching where no technology is necessary. Moreover, the idea that it makes pronunciation something that can be integrated or incorporated into everyday teaching and not just one or two separate or isolated pronunciation days or drills during a school year.

Normally, pronunciation is something that teachers teach in isolation with random vocabulary that they pick for its sounds. For example, hit versus hat for minimal pairs, a long list of short i words like hill, mister, etc. However, with the CVC, a teacher is using real vocabulary that students are coming across in their everyday lessons. Because of this, pronunciation can be incorporated into any class, not just English class. Math, science, history, etc. teachers can use the CVC, too. For example, in an anecdotal record of a professor in Miami University, she had a tutorial class with her Business English student. She had her student bring in 10 words related to her work or company that she has to use regularly - words that may have given her difficulty or she is not sure if she is pronouncing them correctly. In their last session, they went over these 10 words and classified them. She noted that her student now is able to pronounce them correctly when she meets with business clients or has to give a presentation at work because she has an easy color reference to guide her. The words that she picked, like police, politician, policies, would probably never be found on a pronunciation drill list. However, they are words that she needs and uses. Hence, communication and language use for real purposes or communicative approach.

As a matter of fact, the U.S. Department of State’s Ofﬁce of English Language Programs distributes the Color Vowel Chart to English teachers outside the U.S. through Regional English Language Ofﬁcers. In addition, U.S. Peace Corps TEFL Volunteers are trained with the Color Vowel Chart. The Color Vowel Chart is used in hundreds of TESOL, ESL and literacy programs across the United States. Some K-12 schools use the Color Vowel Chart including Aurora Public Schools, Bloomington Public Schools, Boise School District, Campbell County Public Schools, Cape Girardeau School District, Christina School District, Clark County School District, and more other schools. Adult ESL programs use the approach such as Aims Community College, All Souls Unitarian Church ESL Program, Anne Arundel Community College, Apollo Community College, Arlington Education and Employment Program, and many more. There are also universities which use the Color Vowel Chart. This includes American University TESOL Program, Bowling Green State University, Bringham Young University Hawaii, University of California Los Angeles, University of California Merced, California State Polytechnic University, Pomona, Central Michigan University, and the University of Miami. Moreover, there are language schools around the world that use the Color Vowel Chart including Bigler ESL, California College of Communications, Conﬁdent Voice, English Speaking Success, and many more. From this pool of educational institutions, it only implies that the Color Vowel Approach is deemed effective in increasing the phonemic awareness and uplifting the confidence and self-esteem of ESL learners especially in using the language for daily communication.

Relatively, a study was conducted by Taylor and Thompson with Dr. Robin Barr with their ESL students at the American University to evaluate the effectiveness of the Color Vowel Approach in teaching pronunciation. The study revealed that with the use of the intervention, a dramatic increase of phonemic awareness was evident in the students’ performance (Murphy, 2017). This was manifested in their conversational activities conducted by the researchers. Another study on Experimenting with the Sound or Color Chart Pronunciation by Donald E. Cherry revealed that with the use of the CVC, it allowed teachers and students to temporarily isolate and work on the challenge of producing new sounds and melody, independent of the meaning and the script, incorporating these challenges when appropriate (Cherry, 2002). The chart also respects and makes use of what can be done visually, recognizing the problems that can result by introducing new sounds and combination of sounds aurally by mere drills and repetitions.

To complement the foundational knowledge posed by the contention of the Color Vowel Approach, theoretical underpinnings are considered and highlighted. Chiefly, the study follows Dale’s Cone of Experience that highlights the progression of learning from abstract to the most concrete learning experience. This holistic learning involves sensory experience in the classroom setting which works in agreement with the concept behind the communicative approach.

Another theory that serves as a springboard for the approach is the Cognitive Load Theory. In this theory by Sweller states that effective instructional materials facilitate learning by directing cognitive resources toward activities that are relevant to learning. It is concerned with the manner in which cognitive resources are focused and used during learning. Many learning procedures encouraged by instructional formats result in students engaging in cognitive activities far removed from the ostensible goals of the task (Sweller, 1988). In this case, the imagery system processes information about nonverbal objects, including images for shapes, pictures, models, animation, color, and sound. Effective instructional medium sets the minds of the students to think and participate more during discussion.

The evidence that the use of Color Vowel Approach influences the students to learn the sounds of English effectively in class is a significant manifestation of the theory. As students listen to the discussion of the teacher in teaching pronunciation, the information gathered in their minds increases and is well-absorbed due to the interaction with this kind of instructional medium.

Undeniably, the frequent use of this instructional tool enhances students’ participation in class. This is supported by the Instructional Design theory of Robert Gagne. It explains that a certain student will learn the lesson when it is designed to respond to the students’ needs. The mere fact that the Color Vowel Approach incorporates colors triggers the students to be attentive to the teacher throughout the class. It complements the interest of the students, that learning is not just plain recitations of the lesson, but at the same time, a recreation of their minds. Hence, teachers must integrate their lessons with certain media in order to have a collaborative teaching-learning process.

*Vietor Triangle*

The vowel systems of most languages can be represented by vowel diagrams. Mostly the vowel system is triangular. Vertical position on the diagram denotes the vowel closeness, with close vowels at the top of the diagram, and horizontal position denotes the vowel backness, with front vowels at the left of the diagram. Vowels are unique in that their main features do not contain differences in voicing, manner, or place. One specific vowel diagram that has been in use is the Vietor Triangle. It is also known as Vowel Triangle. It is a schematic representation of vowel sounds, created by Wilhelm Vietor, a German philologist and phonetician. This portrays how the jaw should move alongside the tongue in manipulating sound from the voice box according to the vowel sound necessary when speaking (Howatt, 1984). It was created from 1850 to 1918. He wanted to create a guide to help teach ESL learners the right pronunciation of the different vowels depending on the symbol it has or placement of the vowel letter. This is a guide to the different pronunciation of vowels depending on the symbol or the placement of the certain vowel letter. The symbols contained in the Vietor Triangle are based on the International Phonetic Alphabet (IPA). It is composed of twelve vowel sounds in English. It differs from other vowel diagrams which are in a form of a quadrilateral schematic representation composing of more than 15 vowels sounds including diphthongs, monopthongs, and other absent categories in the vowel triangle.

The International Phonetic Alphabet (IPA) is a system in which there is a one-to-one correspondence between each sound in language and each phonetic symbol. Since most languages adapt IPA as standard for transcription, it enables the learners who know it to be guided accordingly on how to pronounce words in any language. This is the chief concept of the Vietor Triangle. Being utilized as a modality in teaching pronunciation among academic communities, it highlights that learning a common standard of the phonetic symbols of vowels particularly is a critical component and determinant of success in learning a language.

In view of this, Wilhelm Viëtor counter argued the poor results of teaching modern languages. As a result, he proposed a radical change in language teaching methods. His pamphlet on Phonetics marked the beginning of a Europe-wide Reform Movement in which pedagogues were offered with insights into how children learn the new study of phonetics that held out the hope of teaching the sounds of a foreign language with scientific accuracy (Vietor, 1886).

Accordingly, because of the advent of the IPA, there are studies conducted relative to the utilization of the vowel triangle. One of these is experimental research on English vowel errors analysis which analyzed the problem of English vowels pronunciation of college students by experimental phonetics methods. It provides a quantitative method for the research of English pronunciation teaching, and used scientific data to find language problems. The results are compared with English standard pronunciation with methods of experimental phonetics. The summarized phonetic pronunciation errors found that they are easy to occur in a tongue position and lip shape errors during the production of vowels (Huang, 2016). Based on the analysis of pronunciation errors, the researcher targeted voice trainings for college students' English pronunciation, which eventually increased the students learning interest and improved the teaching of English phonetics.

Another study on how individuality is expressed through speech production and description for speaker classification revealed that the speech signal carries information about the speaker's own anatomy, physiology, linguistic experience and mental state. These speaker characteristics are found in speech at all levels of description: from the spectral information in the sounds to the choice of words and utterances themselves (Dellwo and Huckvale, 2007). It introduces the standard phonetic classification system for the description of spoken gestures and it presents a catalogue of the different ways in which individuality can be expressed through speech.

These studies are significant contributions to the importance of phonetic symbols in understanding different phenomena and behaviours relating to learning and teaching. It establishes a baseline knowledge that the learning of phonetic symbols dramatically adds to an individual’s cognitive and affective development. It also takes a multifaceted role in honing one’s linguistic competence in interpreting other languages. With IPA as the basis of the phonetic symbols, language learning becomes a resource of not only improved pronunciation, but also a widened span of language flexibility.

On the other hand, the following studies employed varied approaches in enhancing the performance of the students in a classroom setup. This significantly holds true with the current research as it examines how one methodology affects the achievement scores of students. For instance, a study was conducted by Johannes Derby on the use of multiple intelligence and direct instruction in improving the academic achievement of the students. It applied a quantitative approach to graph a comparison between two distinct instructional methods. The results suggested that the performance on a post English assessment of students who are exposed to multiple intelligences will show considerable increase when compared to those taught using direct instruction, while the pre-English assessment showed no relationship because both were low (Derby, 2008).

The study of Hamurlu also focused on the effect of instruction based on multiple intelligences theory on the students’ achievements in English and their attitude towards English in a foreign language based high school at Gaziantep University, Turkey. It was found that the groups under study had good performance on the pretest (Hamurlu, 2007).

Additionally, Montemayor, et. al. conducted a study on learning styles of high and low academic achieving freshman teacher education students. It focused on the learning styles of high and low academic achieving freshman teacher education students of the University of the Cordilleras using descriptive–comparative method. 29 students were classified as high achievers and 19 students as low achievers. Learning Style Inventory developed by Dunn and Dunn was used in this study. Results of the study revealed that there is no significant difference between the learning styles of the low achievers and high achievers. In other words, it is recommended that teachers must incorporate in their teaching strategies specific methods that are reflective of visual, auditory, tactile, and kinesthetic styles of learning (Montemayor, et.al., 2009).

Finally, Lustro conducted a study on the effect of pop music in the academic achievement of grade two pupils in Valenzuela District II. The respondents of the study are the grade two pupils in the said school. Pretest was administered and only 40 were taken as subjects. The statistical tool used was a Z-test. During the pretest, the academic achievement of both groups showed no significant difference. However, after the intervention was conducted, it was found that the academic achievement of the pupils improved more compared to those in the control group. Pupils in the experimental groups have high academic achievement (Lustro, 2006).

2. material and methods

**2.1 Research Design**

This quasi-experimental research employed the pretest-posttest non-equivalent research design. This design is often used in classroom experiments when the experimental and the control groups are naturally assembled groups as intact classes which may be similar. This research design provides control of when and on whom the measurement is applied.

Two intact groups were used in this study. The experimental group A was exposed to the Color Vowel Approach, while the Control group B was exposed to the traditional approach using the Vietor Triangle in teaching pronunciation.

**2.2 The Subjects**

The subjects of this study, purposively sampled, were composed of two classes enrolled in the subject Speech and Oral Communication (Speech 111) in the College of Science. There were two groups of subjects in the study, the control and experimental groups. The first class, being the control group, was exposed to the use of the Vietor Triangle in teaching pronunciation. It was composed of 29 BS Marine Biology and Environmental Science students. On the other hand, the second class, which was composed of 30 BS Biology students, became the experimental group with whom was used the Color Vowel Approach in teaching pronunciation.

**2.3 Research Instrument**

The main research instruments were a pretest and a posttest. These tests which were both researcher-made took the form of oral and written evaluations. The pretest was a 30-item written test and a 30-item oral test. Similarly, the posttest was composed of 30 items for the written test and oral test. In the oral test, each item was equivalent to two points, one for the correct pronunciation of the word that received the primary stress and another one point for the correct production of the vowel sound or color vowel in the stressed syllable. Thus, the oral test had a total score of 60 points. Overall, the test combining the oral (60 points) and written (30 points) tests had a total of 90 items. The items were categorized at word, phrase, and sentence levels. The instruments for the pretest and posttest were composed of items from the session guides crafted relative to the lessons taught. Specifically, the pretest and posttest made use of some of the specialized words related to the course of the subjects and variants in learning vowel sounds in combination with some generic words in English. The test also included variants in the sounds of English. These were taken collectively from the lessons that were undertaken during the experiment.

**2.4 Scoring and Interpretation**

For the interpretation of data concerning the written and oral pretest and posttest, numerical values were assigned in measuring the variables for statistical computation and subsequent analysis. In the conduct of the oral test, the students were given a copy of the test. The researcher demonstrated first how they would answer the test. Afterwards, the student pronounced the word followed by the production of the stressed vowel sounds in the stressed syllable. The stressed syllable of the word, phrase, or sentence is already identified by having them capitalized and written in bold face. Also, the stressed vowel sound is written in red ink. For example, the word “**PEA**nut” is pronounced /ˈpinət/ with the stressed vowel sound as in /ee/. In other words, every item is equivalent to two points; one for the correct pronunciation of the word, phrase or sentence that received the primary stress and the other for the correct production of the vowel sound in the stressed syllable. Additionally, the written test reflected the stressed syllable of the words, phrases, and sentences to be answered by having them written in the same format as that of the oral test. The students identified and wrote the IPA phonetic symbol that represented the stressed vowel sound guided by the phonetic chart provided in the test. Every correct answer was equivalent to one point.

In analyzing the 90-item pretest and posttest of the students in the control and experimental groups, mean score was applied with the following scoring and interpretation:

List 1 : **Scoring scale and interpretation**

**Scores Interpretation**

73 – 90 Excellent

55 – 72 Above Average

37 – 54 Average

19 – 36 Below Average

1 – 18 Poor

Moreover, the same conditions were satisfied in the conduct of the daily assessment before and during the intervention particularly on the identification of the stressed vowel sounds to be answered and combination of the specialized words relative to the respondents’ course and generic words in English. Seven sessions were accounted before the start of the experiment. Similarly, seven daily formative tests were given during the intervention. These included the topics: Introduction of Vowel Sounds of English, Variants, Characteristics of the Vowel Sounds, Vietor Triangle or Color Vowel Approach, Front Vowels, Back Vowels, Central Vowels, and Diphthongs. The results of the daily assessment of the two groups were compared to complement the results of the pretest and posttest. Furthermore, the results of the formative test before the start of the intervention were recorded in order to determine if the performance of both groups increased or decreased even before they were exposed to the target methodology in teaching pronunciation.

These tests made use of the 40-60 grade transmutation regardless of the total number of items for every formative test before and during the intervention. This passing percentage is generally used and applied for Speech classes in the University. Consequently, the pretest, posttest, and daily assessment results were transmuted and interpreted using the following transmutation based on Section 2, Chapter 20 Examinations and Grades of the University Code.

**List 2 : Transmuted rating and corresponding interpretation**

**Scores Transmuted Rating Interpretation**

96 - 100 1 Excellent

94 - 95 1.25 Superior

92 - 93 1.5 Very Good

89 - 91 1.75 Good

87 - 88 2 Highly Satisfactory

84 - 86 2.25 Very Satisfactory

82 - 83 2.5 Satisfactory

79 - 81 2.75 Moderately Satisfactory

75 - 78 3 Fair

0 - 74 5 Poor

**2.5 Validation of Research Instrument**

The researcher-made oral and written pretest and posttest used as instruments in gathering data from the subjects were sent critiqued by language professors of the University and experts on test construction. Subsequently, the tests were validated in another Speech class of the College of Education handled by the researcher in the same semester and school year. During the validation of the instruments, the researcher observed that the students who took the test found a difficulty in understanding the instructions. This specifically pertained to understanding the meaning of the stressed syllable in a word and how the students could identify such in word, phrase, and sentences levels. Some had no prior knowledge of this concept. Another was the blurry representation of the Vietor Triangle which triggered a lot of questions that the researcher clarified. These observations during validation were recorded by the researcher as subjects for revision and approval from the language professors who critiqued the instruments. As a result, the researcher modified the instructions. The stressed syllable in a word was capitalized and the vowel sound was written in red ink. In this way, the students were guided on how to answer the oral and written test. All revisions made in the test were approved by the language professors.

**2.6 Data Gathering Procedure**

After the research instruments, the pretest and posttest, were critiqued and checked by experts on test construction and validated in another Speech class in the College of Education, the researcher asked permission from the Dean of the College of Arts and Communication through the Chair of the Languages Department to conduct the study with the identified two classes enrolled in Speech and Oral Communication for the second semester under his workload. The classes met twice a week on Tuesdays and Thursdays. To avoid bias and maintain the naturalness of the groups, these two classes were handled by the researcher from the start until midterm. The two Speech classes were scheduled in the afternoon particularly 1:00 to 2:30 for the experimental group and 4:00 to 5:30 for the control group. The first week of classes was intended for the usual orientation on the course and VMGO presentation. This was followed by the first formal lesson on the topics specified in the course syllabus. In addition, at the end of every lesson, the researcher administered a formative test to measure the student performance. Seven sessions were conducted before the pretest. After the first four weeks of classes, the pretest in the form of oral and written tests were conducted with both groups. Then, the intervention was introduced for the following seven sessions. Before the intervention was administered, the researcher introduced first the variants of words, particularly on spelling and sounds. The experiment started in the fifth week of classes. The same was true in the following weeks in the course of experiment. The researcher had a journal of his daily observations of the performance and behavior of the students during the classes. The results of the assessment in both groups on a per session basis from the start of the experiment were compared and analyzed to enrich the findings of the study. Aside from this, the researcher made use of the time series design in the form of a comparison test. The scores of the formative tests conducted in the first four weeks before the start of the intervention were compared with the scores accumulated from the per session assessment in the second four weeks during the experiment. Thereafter, the researcher conducted the posttest to the control and experimental groups. The researcher was personally in-charge in facilitating as well as retrieval, and evaluation of the instrument. Then, the classes continued following the sequence of topics or lessons stipulated in the course syllabus.

The study started on January 15 and culminated on March 29 covering the whole midterm period for the Second Semester, School Year 2018-2019. For proximity to the researcher’s office in the College of Education Student Resource Center, he decided that classes be transferred from the College of Science to the College of Education. He borrowed necessary instructional materials like LCD projector, among others. Thus, the study was completed after nine (9) weeks following the Tuesday-Thursday schedule for every week.

**2.7 Data Analysis**

The t-test for correlated samples was used in comparing the means before and after the treatment or the pretest and the posttest of the control and experimental groups. The t-test for two independent samples or groups was used to compare two means, the means of two independent samples particularly the pretest results of the control and experimental groups and their posttest results.

**2.8 Ethical Considerations**  
This study strictly adhered to ethical standards for conducting research involving human participants. Participation was entirely voluntary, and written informed consent was obtained from all participants prior to data collection. To ensure anonymity and confidentiality, identification codes were used in place of personal information, and all data were securely stored on password-protected devices. The research protocol received approval from the institutional ethics committee, and all procedures were conducted in compliance with the Data Privacy Act of 2012.

3. results and discussion

**3.1 Pretest Results of the Control and Experimental Groups**

**Table 1. Pretest Results of the Control and Experimental Groups**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Pretest Results | | Control Group | | Experimental Group | |
| Descriptive Rating | Range | F | % | F | % |
| Above Average | (55-72) | 1 | 3.45 | 0 | 0.00 |
| Average | (37-54) | 6 | 20.69 | 12 | 40.00 |
| Below Average | (19-36) | 20 | 68.97 | 18 | 60.00 |
| Poor | (1-18) | 2 | 6.90 | 0 | 0.00 |
| TOTAL | | 29 | 100.00 | 30 | 100.00 |
| Mean | | 30.55 =  Below Average | | 34.13 =  Below Average | |

Table 1 presents the pretest results of the control and experimental groups, both of which showed below average performance. In the control group (n=29), the majority (68.97%) scored below average, with a mean score of 30.55. Only one student (3.45%) scored above average. Most students struggled with identifying and producing stressed vowel sounds at word, phrase, and sentence levels, resulting in poor oral and written test outcomes.

In the experimental group (n=30), 60% scored below average and 40% scored average, with a slightly higher mean of 34.13. Similar to the control group, students showed fair articulation skills but poor performance in recognizing and producing stressed vowels, especially in written tasks. Overall, both groups demonstrated weak pronunciation skills prior to the intervention.

**3.2 Posttest Results of the Control and Experimental Groups**

**Table 2. Posttest Results of the Control and Experimental Groups**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Posttest Results | | Control Group | | Experimental Group | |
| Descriptive Rating | Range | F | % | F | % |
| Excellent | (73-90) | 2 | 6.90 | 7 | 23.33 |
| Above Average | (55-72) | 8 | 27.59 | 17 | 56.67 |
| Average | (37-54) | 18 | 62.07 | 6 | 20.00 |
| TOTAL | | 29 | 100.00 | 30 | 100.00 |
| Mean | | 52.03 =  Average | | 62.93 =  Above Average | |

Table 2 shows the posttest results of the control and experimental groups. In the control group, most students (62.07%) scored within the average range, while 27.59% were above average and 6.90% reached the excellent level, yielding a mean score of 52.03 (average rating). Students generally showed very satisfactory articulation of words and phrases but continued to struggle with identifying stressed vowel sounds, particularly in written tasks. As a result, their overall performance was rated satisfactory.

In contrast, the experimental group demonstrated stronger results, with a mean score of 62.93 (above average). Over half (56.67%) scored above average, 23.33% scored excellent, and only 20% were in the average range. Most students in this group showed excellent to very satisfactory performance in articulating words, phrases, and sentences and in identifying the corresponding stressed vowel sounds using the Color Vowel Approach. Their oral and written test outcomes were rated as highly satisfactory overall, which indicate notable improvement in pronunciation skills after the intervention.

**3.3 Test of Difference between the Pretest Results of the Control and Experimental Groups**

**Table 3. Test of Difference between the Pretest Results of the Control and Experimental Groups**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Group | Mean | Difference | t-stat | Sig. | Interpretation |
| Control | 30.55 | 3.58 | 1.509 | 0.137 | Not significant |
| Color Vowel Approach | 34.13 |

Table 3 presents the results of the independent samples t-test comparing the pretest scores of the control and experimental groups. The computed *t*-value was 1.509 with a significance level of *p* = 0.137, which is greater than 0.05. This indicates no statistically significant difference between the two groups prior to the intervention. The mean score of the control group was 30.55, while the experimental group scored slightly higher at 34.13, both falling within the below average range.

This result confirms that both groups had comparable levels of pronunciation skills and knowledge in Speech and Oral Communication at baseline, which validate their suitability for the intervention. Subtest results further support this finding: the control group generally performed poorly in both oral and written tasks, especially in producing and identifying stressed vowel sounds. Meanwhile, the experimental group showed slightly better, though still fair, performance, particularly in articulation and recognition of vowel sounds at the word, phrase, and sentence levels.

**3.4 Test of Difference between the Posttest Results of the Control and Experimental Groups**

**Table 4. Test of Difference between the Posttest Results of the Control and Experimental Groups**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Group | Mean | Difference | t-stat | Sig. | Interpretation |
| Control | 52.03 | -10.9 | 3.615 | 0.001 | Significant |
| Color Vowel Approach | 62.93 |

Table 4 displays the results of the independent samples t-test comparing the posttest scores of the control and experimental groups. The analysis yielded a *t*-value of 3.615 and a significance level of *p* = 0.001, indicating a statistically significant difference between the groups. The experimental group achieved a higher mean score (M = 62.93) compared to the control group (M = 52.03), which confirm the effectiveness of the Color Vowel Approach in enhancing pronunciation skills.

Posttest subtest results show that the control group demonstrated satisfactory oral performance, with good articulation of words and moderately satisfactory production of stressed vowel sounds. Their written performance was also satisfactory, particularly in identifying phonetic symbols at phrase and sentence levels.

In contrast, the experimental group performed at a highly satisfactory level in both oral and written tests. They showed excellent articulation of words, very satisfactory identification and production of stressed vowel sounds, and consistently strong performance across word, phrase, and sentence levels. These findings affirm the positive influence of the Color Vowel Approach on students' pronunciation development.

**3.5 Test of Difference between the Pretest and Posttest Results in the Control Group**

**Table 5. Test of Difference between the Pretest and Posttest Results in the Control Group**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Control Group | Mean | Difference | t-stat | Sig. | Interpretation |
| Posttest | 52.03 | 21.48 | -20.44 | 0.000 | Significant |
| Pretest | 30.55 |

Table 5 shows the results of the paired samples t-test comparing the pretest and posttest scores of the control group. The analysis yielded a *t*-value of -20.44 with a significance level of *p* = 0.000, indicating a statistically significant improvement. The mean score increased from 30.55 (below average) in the pretest to 52.03 (average) in the posttest. This demonstrates that students exposed to the traditional method of teaching pronunciation using phonetic symbols and the Vietor Triangle showed measurable gains in their pronunciation skills.

Subtest results support this improvement. Students progressed from moderately satisfactory to good word articulation, poor to moderately satisfactory production of stressed vowel sounds, and fair to highly satisfactory pronunciation of phrases and sentences. In the written test, identification of phonetic symbols also improved from poor to moderately satisfactory at the word level and from fair to satisfactory at the phrase and sentence levels. Overall, the control group’s performance improved from a poor rating in the pretest to a satisfactory rating in the posttest.

**3.6 Test of Difference between the Pretest and Posttest Results in the Experimental Group**

**Table 6. Test of Difference between the Pretest and Posttest Results in the Experimental Group**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Control Group | Mean | Difference | t-stat | Sig. | Interpretation |
| Posttest | 62.93 | 28.2 | -20.68 | 0.000 | Significant |
| Pretest | 34.13 |

Table 6 displays the results of the paired samples t-test comparing the pretest and posttest scores of the experimental group. The analysis yielded a *t*-value of -20.68 with a significance level of *p* = 0.000, indicating a statistically significant improvement. The mean score increased from 34.13 (below average) in the pretest to 62.93 (above average) in the posttest, demonstrating a substantial enhancement in pronunciation skills following the use of the Color Vowel Approach.

Subtest results reflect consistent improvement: students progressed from moderately satisfactory to excellent in word articulation, from poor to very satisfactory in producing stressed vowel sounds, and from fair to good in phrase and sentence pronunciation. Similar gains were observed in the written test, where students improved from fair to very satisfactory in identifying phonetic symbols at the word level, and from fair to highly satisfactory at the phrase and sentence levels. Overall, the experimental group advanced from a fair rating in the pretest to a highly satisfactory performance in the posttest, which affirm the effectiveness of the Color Vowel Approach.

**3.7 Summary of the Formative Test Results before the Intervention**

**Table 7**. **Assessment Results on a Per Session Basis of the Control and Experimental Groups**

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Sessions  *(Before the Intervention)* |  | Control Group | | | Experimental Group | | |  | Difference | t-stat | Sig. | Interpretation |
|  | **Mean** | **Score** | **Descriptive Rating** | **Mean** | **Score** | **Descriptive Rating** |  |
| Ses. 1 | Relationship of Language, Speech, & Communication | 13.55 | 87.10 | Highly Satisfactory | 14.17 | 88.33 | Highly Satisfactory |  | -0.62 | 0.837 | 0.406 | NS |
| Ses. 2 | Speech Mechanics | 14.51 | 89.03 | Good | 14.76 | 89.53 | Good |  | -0.25 | 0.277 | 0.783 | NS |
| Ses. 3 | Speaking Process | 15.34 | 90.69 | Good | 18.77 | 97.53 | Excellent |  | -3.43 | 5.767 | 0.000 | S |
| Ses. 4 | Function and Types of Communication | 16.66 | 93.31 | Very Good | 18.43 | 96.87 | Excellent |  | -1.77 | 3.115 | 0.003 | S |
| Ses. 5 | Elements and Other Types of Communication | 13.21 | 95.22 | Superior | 14.57 | 98.84 | Excellent |  | -1.36 | 2.314 | 0.024 | S |
| Ses. 6 | The Desirable Speaking Voice | 9.59 | 98.34 | Excellent | 9.1 | 96.40 | Excellent |  | 0.49 | 1.322 | 0.192 | NS |
| Ses. 7 | Factors that Aid Voice Projection | 13.76 | 87.52 | Highly Satisfactory | 16.1 | 92.20 | Very Good |  | -2.34 | 3.024 | 0.004 | S |
| TOTAL |  | 96.62 | 91.60 | Very Good | 105.9 | 94.24 | Superior |  | -9.28 |  |  |  |

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Sessions  *(During the Intervention)* |  | Vietor Triangle | | | Color Vowel Approach | | |  | Difference | t-stat | Sig. | Interpretation |
|  | **Mean** | **Score** | **Descriptive Rating** | **Mean** | **Score** | **Descriptive Rating** |  |
| Ses. 1 | Vowel Sounds of English | 20.59 | 83.53 | Very Satisfactory | 27.5 | 91.43 | Good |  | -6.91 | 3.674 | 0.000 | S |
| Ses. 2 | Characteristics and Variants of Vowel Sounds | 14.03 | 88.07 | Highly Satisfactory | 15.5 | 91.00 | Good |  | -1.47 | 2.123 | 0.038 | S |
| Ses. 3 | Vietor Triangle | 19.59 | 82.38 | Satisfactory | 26.37 | 90.13 | Good |  | -6.78 | 7.256 | 0.000 | S |
| Ses. 4 | Front Vowels | 10.83 | 88.87 | Good | 12.63 | 93.69 | Superior |  | -1.8 | 2.640 | 0.012 | S |
| Ses. 5 | Central Vowels | 14.03 | 88.07 | Highly Satisfactory | 16.4 | 92.80 | Very Good |  | -2.37 | 3.985 | 0.000 | S |
| Ses. 6 | Back Vowels | 11.86 | 91.63 | Very Good | 13.83 | 96.89 | Excellent |  | -1.97 | 3.822 | 0.000 | S |
| Ses. 7 | Diphthongs | 14.41 | 88.83 | Good | 17.67 | 95.33 | Superior |  | -3.26 | 4.418 | 0.000 | S |
| TOTAL |  | 105.34 | 87.34 | Highly Satisfactory | 129.9 | 93.04 | Very Good |  | -24.56 |  |  |  |

Table 7 presents the formative test results of the control and experimental groups across seven sessions conducted prior to the intervention. These sessions, based on the approved course syllabus, covered foundational lessons leading up to the instruction on vowel sounds and the application of the Color Vowel Approach.

Independent samples *t*-tests revealed no significant differences in Session 1 (*P* = .41) and Session 2 (*P* = .78), where both groups performed at highly satisfactory and good levels, respectively. However, significant differences were noted in Sessions 3, 4, 5, and 7 (*P* = .001, *P* = .003, *P* = .02, and *P* = .004, respectively), with the experimental group consistently outperforming the control group. The experimental group earned excellent ratings across these sessions, while the control group ranged from good to very good.

The performance gap appeared linked to student engagement and attendance. Observational data and learning logs indicated that students in the experimental group were more active in discussions and classroom activities. In contrast, some control group members expressed discomfort in early class interactions, which may have affected their formative performance.

In Session 6, no significant difference was observed (*P* = .19), and both groups achieved excellent ratings. Overall, while both groups demonstrated a range of satisfactory to excellent outcomes during the pre-intervention phase, the experimental group showed greater consistency. These results established a baseline for measuring the effectiveness of the intervention in subsequent sessions.

**3.8 Summary of the Formative Test Results during the Intervention**

In conjunction with the formative assessments before the intervention, there were also seven sessions conducted in the course of the experiment complementing the number of hours needed to complete the midterm period. The control group was exposed to the traditional method of teaching pronunciation using the Vietor Triangle, while the experimental group employed the Color Vowel Approach. Both methodologies in teaching pronunciation were integrated in the following seven sessions.

In Session 1 on *Vowel Sounds of English*, the experimental group significantly outperformed the control group (*t* = 3.674, *P* = .001), earning a very satisfactory rating versus a good rating. This trend continued in Session 2 (*Characteristics and Variants of Vowel Sounds*) with the same *t*-value and significance level, confirming the experimental group’s better performance (*P* = .001). In Session 3, which focused on the *Color Vowel Chart* for the experimental group and the *Vietor Triangle* for the control group, a highly significant difference was observed (*t* = 7.256, *P* < .001), with the experimental group achieving a good rating and the control group a satisfactory rating.

Significant differences were also observed in Session 4 (*Front Vowels*, *t* = 2.640, *P* = .01), Session 5 (*Central Vowels*, *t* = 3.985, *P* < .001), Session 6 (*Back Vowels*, *t* = 3.822, *P* < .001), and Session 7 (*Diphthongs*, *t* = 4.418, *P* < .001), with the experimental group consistently earning higher performance ratings ranging from very good to excellent.

Although both groups showed high scores prior to the intervention, there was a slight dip in average performance during the experiment. This is attributed to the increased complexity of the lessons and assessment items, which moved beyond recall to the analysis level of Bloom’s Taxonomy. While pre-intervention tests focused on basic knowledge, the intervention-phase assessments required students to analyze, distinguish, and apply phonological patterns.

The experimental group maintained a high average score of 93.04% during the intervention (compared to 94.24% pre-intervention), whereas the control group’s performance dropped more sharply from 91.60% to 87.34%. When combining performance before and during the intervention, the experimental group obtained a superior rating (93.64%), while the control group was rated good (89.47%).

In summary, all seven formative test results during the intervention revealed significant differences favoring the experimental group. These findings affirm the effectiveness of the Color Vowel Approach in enhancing pronunciation skills, particularly in articulating and producing vowel sounds at word, phrase, and sentence levels.

4. Conclusion

As the findings shed light on the inquiries of the study, the following conclusions and implications were drawn:

The students in the control and experimental groups did not perform well in the pretest. This implies that they lacked knowledge on oral communication particularly pronunciation.

The students in the control and experimental groups performed well in the posttest implying that the students had improved their knowledge in oral communication particularly on articulating words, phrases, and sentences and producing vowel sounds.

On the test of difference between the pretest and posttest results of the control and experimental groups, the significant findings revealed the following conclusions and implications:

There was no significant difference between the pretest results of the control and experimental groups. This means that the students in the control and experimental groups had approximately the same performance and level of knowledge in Speech and Oral Communication even before the intervention was implemented. This implies that the students are the best subjects for the experiment.

There was a significant difference between the posttest results of the control and experimental groups. This means that the experimental group performed better than the control group after the intervention was implemented. The implication is that the use of the Color Vowel Approach was effective in teaching and improving the pronunciation skills of the students in the experimental group.

There was a significant difference between the pretest and posttest results in the control group. This means that the pronunciation skills of the students taught using traditional method improved from below average in the pretest to average on the posttest. This implies that the use of the Vietor Triangle in teaching vowel sounds resulted in an increase of performance particularly in the students’ pronunciation skills.

There was a significant difference between the pretest and posttest results in the experimental group. This means that the students’ pronunciation skills improved from below average in the pretest to above average in the posttest. It can be implied that the use of the Color Vowel Approach is effective in improving the students’ pronunciation skills at word, phrase, and sentence levels.

On the other hand, there were seven formative test results on a per session basis that were conducted before the intervention. In sum, the formative test results of the students in the control and experimental groups before the intervention revealed that their performance was rated from highly satisfactory to excellent. Contrariwise, in the following seven sessions conducted during the course of intervention, the formative test results of the students in both groups revealed that their performance was from good to excellent. The implication is that the students’ performance in the formative test on a per session basis for both groups gradually improved before and after exposing them to the intervention.

Overall, a significant difference was found in the formative test results of the experimental and control groups. This implies that the use of the Color Vowel Approach was effective in producing higher test results and improving the pronunciation skills of the students throughout the course of intervention.

Consent

Informed consent was obtained from all participants prior to data collection.

Ethical approval

The author hereby declares that the study was reviewed and approved by the Ethics Review Committee of the Graduate Studies Department, University of Eastern Philippines. All procedures were conducted in accordance with established ethical standards and in compliance with the provisions of the Data Privacy Act of 2012.

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