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The use of the Color Vowel ® approach to foster 4th graders' decoding skills of vowels /i:/, /u/, /eɪ/ and /aʊ/.

Tesis para optar al grado de Magíster en Innovación de la Enseñanza, Aprendizaje y Evaluación del Inglés

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Table of contents

List of figures

List of tables

List of acronyms

AR: Action Research

EFL: English as a Foreign Language

MINEDUC: Ministerio de Educación (Ministry of Education)

MMA: Multisensory, Multicognitive Approach

OA: Objetivo de Aprendizaje (Learning Objective)

OECD: Organization for Economic Co-operation and Development

PIE: Programa de Integración Escolar (School Integration Program)

UDL: Universal Design for Learning

Abstract

The present action research study focuses on the use of the Color Vowel ® approach to enhance learners' decoding skills. Teaching young learners to read in a second language, identifying spelling and sounds that may be different from their first language and developing phonological awareness presents a significant and challenging task that demands thoughtful consideration. This action research was conducted in a subsidized school in Talcahuano, Chile. Data was collected from 4th grade students using a checklist as a pre- and post-intervention test to analyze their decoding skills, and a Likert scale and focus group to identify their perceptions on the use of the strategy. Data was analyzed through descriptive statistics and content analysis, respectively. The results showed that the use of the Color Vowel ® approach was beneficial for these learners' decoding skills, particularly regarding enhancement of vowel sounds development and accuracy from 4th graders. Additionally, these students displayed a positive perception on the use of this approach, highlighting the importance of learning English pronunciation in their practical and future lives. These findings could shed light on the importance of explicit phonological awareness instruction, as well as the significance of considering young learners' voices about the implications that language learning has on their lives.

Key words: EFL, decoding, phonological awareness, young learners

CHAPTER I
INTRODUCTION

1.1 Background information

Currently, the National Curriculum Guidelines provide a proposal for the English as Foreign Language subject for 1st to 4th grades. They provide Learning Objectives (OA from its acronym in Spanish "Objetivos de Aprendizaje") that enable teachers to focus their instruction in the four language skills (listening, reading, speaking and writing). In terms of decoding skills (i.e. reading and speaking), the curriculum proposal does not mention explicitly the way to achieve and improve decoding skills. Nevertheless, OA10 for 4th grade refers "to reproduce brief and simple chants, songs, rhymes and dialogues to become familiar with the sounds of English" (MINEDUC, 2015, p. 30). This document also remarks on the identification and comprehension of sounds, this time in terms of oral comprehension. In the same guidelines, OA3 mentions that students will "demonstrate comprehension of spoken texts: identifying sounds specific to English that may interfere with comprehension" (MINEDUC, 2015, p. 27). Moreover, the curriculum proposal suggests, in terms of pronunciation, working with combinations of letters that are common, since this allows young learners who are learning to read to recognize some combinations that correspond to words already learned and, therefore, to associate them with the pronunciation they already know (MINEDUC, 2015, p. 16). Therefore, students should be able to recognize patterns or combinations of letters that occur with some frequency, if they have opportunities to read and see many words in their classroom and participate in activities aimed at classifying words according to sounds and blends (MINEDUC, 2015, p. 16)

1.2 Problem identification and aim

In a subsidized school in Talcahuano, students from 4th grade at struggle when they have to decode vowels, in short sentences or single words. In this sense, decoding skills have been somehow neglected during the course of their primary education, or it is treated incidentally. For instance, when a word that is unknown or problematic for students, that word is addressed in that specific moment, lacking a more profound explanation or a systematic way in which pronunciation and spelling is taught, which is prevalent in English as a Foreign Language (EFL) teaching (Bayu, A. M., & Mustafa, M., 2019). Moreover, there is a lack of activities in which learners develop an awareness of sound combinations or classifications of words and sounds i.e. phonological awareness. The activities carried out in the EFL classroom do not provide great support for practicing or improving their decoding skills. In addition, the coursebook they use, titled Be Curious 4 (Cambridge University Press, 2020) does not provide many opportunities to practice spelling and pronunciation, as it focuses mainly on grammar and vocabulary activities. To this issue is added the problem that English has a deep orthography, i.e., there is no correspondence between spelling and pronunciation (Miller, 2019). Several times these young learners have expressed they do not know how to pronounce words when they read them and that is why they are reluctant to read or speak aloud.

In order to address this issue, and particular vowel sounds and their combinations, using the Color Vowel ® approach may be suitable, especially for young learners. The Color Vowel ® approach is a system that enables young learners to associate different colors to specific vowel combination sounds (*The Color Vowel Chart*, n.d.). For instance, they associate green with the sound /i:/ as in "tea" or "sheep", gray with the /ei/ diphthong as in "make" or "day" or the color white for the /ai/ sound as in "tie" or

“ice”. Eventually, the implementation of this system could bring beneficial results, and also could encourage young learners to engage and gain confidence when speaking or reading aloud. This system can be implemented not only to 4th graders, which are the subjects of this action research, but can be implemented as a system in an entire school, which ultimately would be beneficial for all.

CHAPTER II
THEORETICAL FRAMEWORK

2.1 Pronunciation instruction

The Chilean Ministry of Education (hereafter MINEDUC) provides curriculum guidelines for 4th grade. These guidelines focus on four skills that English learners should develop; reading, listening, speaking and writing. Regarding pronunciation instruction, the guidelines provide some learning objectives, class activities and assessment examples.
The national curriculum guidelines for the English subject for 4th grade has stated that the English language does not have a letter-sound correspondence, therefore there are a variety of ways in which words can be pronounced; however, this combinations are limited and the most frequent ones are easy to learn, allowing Young Learners to identify those combinations and associate them to new words. For instance, if learners know the word *cow*, they will know the pronunciation of words such as *bow* or *plow* (MINEDUC, 2015b, pp. 15-16). Although this illustrates one aspect of phonological awareness, the preceding statement would be debatable if it is extrapolated to other words such as *low*, *slow* or *blow*.

The national curriculum guidelines provide a pronunciation lineament for the English subject in 4th grade, focusing on four sounds throughout the year.

Figure 1
Sounds to be addressed during the year (MINEDUC, 2015b, p. 27)

Sonidos			
Unidad 1	Unidad 2	Unidad 3	Unidad 4
Sonidos: /h/	Sonidos: /j/	Sonidos: /sh/, /ch/	Sonidos: /sh/, /ch/

The approach that the MINEDUC has regarding pronunciation focuses on two Learning Objectives (OA3 and OA10) and provides some suggestions for assessment indicators and activities.
Table 1 below shows the main aspects of an entire Unit from the 4th grade curriculum guidelines.

Unit 1: How do you feel?
Sound: /h/

Table 1
Learning objectives, assessment indicators and activities for Unit 1 (adapted from MINEDUC, 2015b).

Learning Objectives	**Suggested assessment indicators**	**Suggested activities**
OA3 (Listening) Demonstrate comprehension of oral texts, identifying: • general ideas and explicit information related to characters, objects, places and dates • learned vocabulary words and frequently used expressions • English sounds that can interfere with understanding, such as /h/, /j/; /sh/, /ch/	They imitate the pronunciation of words with the initial sounds /h/, /j/ as in ham/jam. They recognize the written form of words with initial sounds /h/, /j/.	The teacher shows them pictures of items that begin with the initial sound /h/, such as *hat, hippo, helicopter, hen*. As he shows them, he says the words and asks them to repeat them. Then, he shows the images, and they say the respective word. The teacher repeats the previous activity, but with the initial sound /j/. Some words he can use are *jam, jellyfish, jet, jaguar*. Students draw the letter *h* on a piece of glossy paper and the letter *j* on another. They then glue each piece of paper to a pencil or popsicle stick. Next, the teacher says words that begin with /h/ or with /j/ and they raise the stick with the corresponding letter.
OA 10 (Speaking) Play short, simple chants, songs, rhymes, poems, and dialogues to become familiar with the sounds of English and identify the sounds /h/, /j/; /sh/, /ch/ in particular.	Read aloud, striving for fluency They pronounce words in an intelligible way when singing, role-playing or exposing. Recognize and repeat rhyming words in a text. Repeat and intelligibly pronounce words with the sounds /h/, /j/.	Students read and listen to a chant projected on the blackboard. They reread it several times and accompany it with actions modeled by the teacher. Then they receive a sheet with the written chant. The teacher underlines a word with the /h/ sound and asks them to underline other words with the same sound. Text examples: *Hands on my hips* *Hands on my hips* *What have I here* *This is my brain box* *Dicky, dicky doo*

		That's what my teacher *Taught me in school.*

The previous table shows that there are references to some aspects of pronunciation, such as the recognition and repetition of sounds to raise phonological awareness, and reproducing monologues, songs, rhymes, and dialogues to identify and recognize the target language sounds (MINEDUC, 2015b). The MINEDUC guidelines acknowledge the importance of achieving an intelligible message which can help students communicate effectively in English. Nevertheless, according to Martínez & Zurita (2020), some downsides concerning the development of English pronunciation proposed by the MINEDUC can be found. According to these scholars, out of the 16 objectives in the proposed curriculum, only two refer to aspects of pronunciation. This narrow focus on pronunciation may result in insufficient time and attention dedicated to developing students' pronunciation skills (Martínez & Zurita, 2020).

Another -sometimes overlooked- aspect of pronunciation instruction is teachers' attitudes towards it. A study conducted by Villablanca (2022) focuses on the knowledge and beliefs of pre-service teachers about pronunciation teaching, unveiling interesting results. A total of 293 pre- and in-service teachers from three EFL Teacher Education programs in Chile were surveyed. The findings showed four different areas that address pre-service teachers' knowledge and beliefs about pronunciation teaching and the factors that influence the development of their cognitions about English pronunciation instruction. Villablanca (2022) summarizes their findings as follows:

1) Pronunciation importance: Third-year students believe that perfect pronunciation is unnecessary for successful communication. Fifth-year teacher candidates prioritize communication over correct pronunciation, focusing on listening and conversational skills.

2) Goal of pronunciation teaching: Some participants emphasize the importance of intelligibility in pronunciation instruction, while others believe in acquiring a native-like pronunciation. There is a suggestion of differentiated goals based on the type of English learners.

3) Pronunciation teaching models: First-year candidates consider American and British accents as widely used and more neutral, thus more intelligible. Fifth-year participants advocate for a balanced inclusion of different accents due to their international interactions and idealized concept of "correct" English.

4) Confidence and self-efficacy: Participants' self-evaluation of pronunciation skills improves over the years, with the first cohort acknowledging the need to improve segment production. The last two cohorts show significant improvement attributed to training and practical experience. Suprasegmentals are seen as the most challenging aspect but do not affect speech or teaching significantly.

The research findings indicate that participants experience cognitive changes in their views on pronunciation teaching, suitable learning models, and their own pronunciation and ability to teach pronunciation throughout their training and early career. The demanding nature of Phonetics and Phonology courses influences how teachers perceive pronunciation teaching, often associating it with specialized content. The lack of a direct link between pronunciation instruction and intelligibility development suggests, according to Villablanca (2022), a focus on improving pre-service teachers' pronunciation rather than meeting the needs of future learners.

2.2 Vowel sounds and intelligibility

Celce-Murcia et al. (2010), as cited in Ghorbani et al. (2016), state that learners of English as a Foreign Language (EFL) need a minimum level of pronunciation for comprehensible and intelligible oral communication. Many would agree that achieving an intelligible pronunciation is a goal for any English learner in order to communicate effectively (Skočdopolová, 2012).
The correct realization of vowels plays a crucial role in oral communication intelligibility, especially for EFL learners. Research findings suggest the significance of vowel recognition and production in the process of language acquisition (e.g. Bent et al. 2007; Ghorbani et al. 2016; Nguyen et al. 2021).

For instance, Iverson et al. (2010) as cited in Ghorbani et al. (2016), highlights that vowel recognition instruction helps EFL learners to identify and produce phonemes. Therefore, explicit teaching and practice of vowel sounds can foster learners' ability to perceive and produce these sounds accurately. Thus, learners can enhance their overall oral communication skills by improving their vowel production (Nguyen et al. 2021).

Nguyen et al. (2021) have emphasized the influence of erroneous vowel production on comprehensibility. The authors posit that faulty pronunciation of vowel sounds can lead to misinterpretation in oral communication, placing individuals at risk for conveying unintended messages due to listener confusion or difficulty translating their speech accurately caused by inaccuracies in producing vowels. Students who experience challenges rendering proper vowel sounds might encounter problems expressing intended meaning as others struggle with understanding them correctly or may misconstrue their words altogether owing to flawed articulation skills regarding vowels.

A study by Bent et al. (2007) involving 15 adult learners from Northwestern University in the United States found vowel sounds to play a crucial role in auditory speech intelligibility. The investigation disclosed that, compared to consonants, vowels supply more information about spoken language and contribute significantly towards overall perception and comprehension.

Similarly, Cole et al. (1996) conducted an experiment at the OGI School of Science and Engineering, currently the Oregon Health and Science University in the United States. This study showed that vowels play a crucial role in speech recognition and intelligibility by providing sufficient coarticulatory information about adjacent consonants for recovering intended words among 79 participants. The results

emphasize the significance of paying careful attention to teaching vowel sounds in language instruction since they significantly impact learners' overall oral communication comprehensibility.

Thus, to achieve successful oral communication in EFL environments, it is crucial to produce vowel sounds precisely. Since listeners rely on vowels for comprehending spoken language, faulty production may impede their understanding. Therefore, instructors must emphasize training their students' recognition and pronunciation of vowel sounds during lessons to improve the clarity and effectiveness of learners' verbal interactions.

2.3 The role of L1 for developing decoding skills

The role of the learner's native language (in this case, Spanish) can have an impact on the way they learn to pronounce vowels in English. This is due to the fact that Spanish vowels have a direct one-to-one correspondence between letters and sounds, whereas English vowels typically have several spellings; therefore, there is significantly more phoneme-grapheme correspondence to learn in English than in Spanish (Fashola et al. 1996). Learning to read and spell in English is more complex than learning to read and spell in Spanish because of the deep orthography of the English language (Sun-Alperin & Wang, 2008). For example, there are some vowel sounds in English that are alike to vowel sounds in Spanish, such as /i:/ (as in "beat") and /u:/ (as in "boot"). These sounds may be more accessible for Spanish speakers because they are similar to sounds in their language. On the other hand, there are also some vowel sounds in English that are significantly different from vowel sounds in Spanish, such as /æ/ (as in "bat") and /əʊ/ (as in "boat").

There is also another aspect of language which is the cross-language influence between L1 (Spanish) and L2 (English). Johnson (2008) refers to it as positive and negative transfer. A positive transfer is when a previously acquired knowledge or skill has a beneficial influence on a new task, i.e., learning one thing would help learn another. For instance, if someone learns how to play violoncello, their acquired knowledge about music theory would help them to learn how to play guitar. On the other hand, there is negative transfer, also called "interference" and this happens when an acquired knowledge hinders the learning or performance of a new task (Johnson, 2008). One example would be that someone is used to driving on the right side of the road and then they move to another country in which they have to drive on the left side of the road. Probably, this person would have problems with making turns, using the mirror or even operating the vehicle controls because their muscle memory was used to work on the opposite side, causing confusion.
Cross language influence also occurs in language learning. According to Fashola et al. (1996) a Spanish speaker could write "I tok a lok on cavul." Based on English spelling rules, three words in this sentence are misspelled: "tok," "lok," and "cavul." However, when considering the rules of Spanish spelling, these three words actually represent the closest approximation to the sounds in Spanish for the words "took," "look," and "cable," respectively.
This is a prevalent issue, especially in young language learners, since there are more vowel sounds in the English language than in Spanish. Additionally, there are some vowel sounds that are not present in Spanish or have entirely different ways of

articulation that Young Learners are not familiar with (Fashola et al. 1996). Moreover, vowels are pronounced with less variation in Spanish than in English, which can cause difficulties when speaking the target language. Thus, orthographic properties of the children's native language tend to interfere with their learning to spell and produce vowels in a second language. (Sun-Alperin & Wang, 2008)

2.4 Explicit pronunciation instruction

In recent years, new approaches have arisen in the quest to find innovative ways of teaching pronunciation and adapting to different learning needs, such as involving aural, visual and kinesthetic elements in order to help foreign language learners to foster and strengthen their skills (Hişmanoğlu, 2006). These new approaches distance from the traditional auditory sensory modality (listen and repeat), and they integrate a variety of sensory modalities like the ones mentioned above i.e., visual and kinesthetic sensory modalities (Nguyen et al. 2021).

Pronunciation instruction enables students to be aware of different sounds and how they are produced, giving them relevant information about spoken English, and eventually achieving the goal of improved comprehension and intelligibility. Therefore, being made aware of pronunciation features will be, as Harmer (2001) states, of "immense benefit not only for their own production, but also to their own understanding of spoken English".

Recent studies show the effects of explicit pronunciation instruction, which goes from segmental to suprasegmental features. Research conducted by Gordon & Darcy (2016) involving 12 undergraduate students from Universidad Nacional, Colombia, demonstrates that an explicit pronunciation curricular component, within oral communication classes, encompassing both segmental and suprasegmental features, can significantly enhance understanding, even within a brief timeframe. Their findings also suggest favoring the use of bottom-up and top-down skills through explicit pronunciation teaching can also be beneficial for learners.

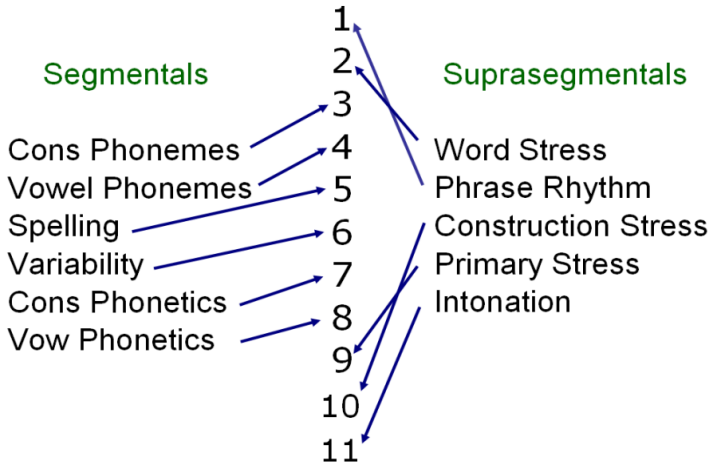
Another study conducted by Ghorbani et al. (2016) demonstrates that EFL learners' vowel perception can improve if they are explicitly made aware of their pronunciation errors. The participants were 38 female Iranian undergraduate EFL learners at Kosar University of Bojnord, Iran. The experimental study consisted of a control and an experimental group where both of them were exposed to the same activities, but only the latter (EG) received the treatment regarding explicit pronunciation instruction. The findings suggest that explicit vowel instruction, by raising learners' awareness and consciousness was more effective than implicit vowel instruction through intuitive-imitative methods (repetition and imitation of sounds). While exposing learners to natural vowel sounds can enhance their perception, the importance of formal explicit instruction in second language (L2) phonology should not be underestimated.

Furthermore, evidence shows that explicit phonetic instruction can benefit L2 learners when it is not restricted to vowel training only (Gordon & Darcy, 2016). This demonstrates that pronunciation instruction is an iceberg where bottom-up and top-down strategies should be implemented in order to gain an improved intelligibility and

fluency (Gordon & Darcy, 2016). However, as it is argued, inferring from this finding that instruction targeting segmental features is ineffective is not warranted.

Moreover, and according to Dickerson (2009), segmental and suprasegmental features interlock between them. Focusing only on individual elements of the sound system while disregarding their interconnections may show significant difficulties when presenting phonological concepts and teaching pronunciation. These challenges arise when attempting to explain a phonological phenomenon without referencing another aspect of the sound system that has not been introduced yet. An example of this is teaching the vowel /ə/ in English without providing instruction on its rhythmic context. This type of situation can be described as a "jam". There it lies the importance to reorganize the content of pronunciation instruction. Figure 2 below illustrates a model proposed by Dickerson (2009).

Figure 2
Reorganization model of pronunciation instruction (Dickerson, 2009).



This model proposes that by initially focusing on the rhythm of phrases and incorporating word stress, students can grasp the concept of how vowel qualities contribute to contrasts between peaks and valleys. Furthermore, starting with rhythm allows for a coherent understanding of almost all aspects of phonetics, as most elements serve to facilitate rhythmic timing. By establishing a solid foundation in these fundamental principles, the relationships among various subsystems are better aligned right from the beginning. This alignment enables the integration of segmental and suprasegmental components, making the introduction of segmental topics more meaningful when accompanied by the suprasegmental aspects of phrase rhythm and word stress.

2.5 Phonological awareness leading to decoding skills development and intelligibility

Research underscores the significance of vowel recognition and production in language acquisition (e.g. Ghorbani et al., 2016; Nguyen et al., 2021). Moreover, Nguyen et al, (2021) state that explicit teaching and practice of vowel sounds can improve learners' ability to perceive and produce them accurately, enhancing overall oral communication skills. These authors also stress the impact of incorrect vowel

production on comprehensibility, i.e., a negative effect on the speaker's intelligibility. Likewise, faulty pronunciation of vowel sounds can lead to misinterpretation in oral communication, posing a risk of conveying unintended messages due to listener confusion caused by inaccuracies in vowel production.

In this sense, phonological awareness plays a crucial role in developing decoding skills that will eventually lead to the correct production of vowel sounds and combinations. Phonological awareness involves recognizing and manipulating sounds in spoken language, essential for reading development (National Reading Panel US, 2000). It encompasses skills like phoneme understanding, rhyme detection, syllable segmentation, and pattern recognition. Phonological awareness skills develop along with early literacy and are vital for fluent reading and language comprehension. In addition, decoding involves understanding how graphemes represent phonemes. These relationships, while consistent, can vary across different word spellings. Different studies have shown the effectiveness of explicit phonological awareness instruction for language learners, even when integrated into regular classrooms. For example, an experimental study carried out by Al-Tamimi and Rabab'Ah (2007) investigates the effect of phonological awareness instruction on word-reading ability among EFL first-graders in a Jordanian state school in the rural Al-Korah District. The population consisted of 145 male EFL students enrolled in the school. The researchers developed a phonological awareness training program and implemented it with the experimental group. After 10 training sessions, the experimental group demonstrated significantly better performance in word-reading ability compared to the control group. The study concludes that phonological awareness plays a crucial role in the development of word-reading ability among first graders, emphasizing the importance of explicit phonological awareness instruction for their progress.

Hence, the significance of pronunciation goes hand in hand with phonological awareness, a critical factor in the development of decoding skills. This set of skills develops together with early literacy and plays a fundamental role in fostering fluent reading and language comprehension.

Overall, phonological awareness is connected with the process of developing sound pronunciation and decoding skills that will lead to better language development and communication for EFL learners (National Reading Panel US, 2000).

2.6 Multisensory and multicognitive learning

Multisensory and Multicognitive Approach (MMA) refers to an instructional approach proposed by Odisho (2007) that engages multiple sensory modalities to enhance the learning and acquisition of pronunciation skills and that combines auditory, visual, and kinesthetic elements. Underhill (2005) also supports the idea that pronunciation encompasses physical, visual, auditory, spatial, affective, and intellectual dimensions, giving pronunciation instruction a holistic learning process and approach, allowing learners to use their strengths and develop their own "more vivid" learning preferences.
The Multisensory, Multicognitive Approach proposed by Odisho (2007) states that "a holistic view of speech – in production, transmission and perception – manifests itself not only via the auditory sensory modality, but also equally significantly via the visual

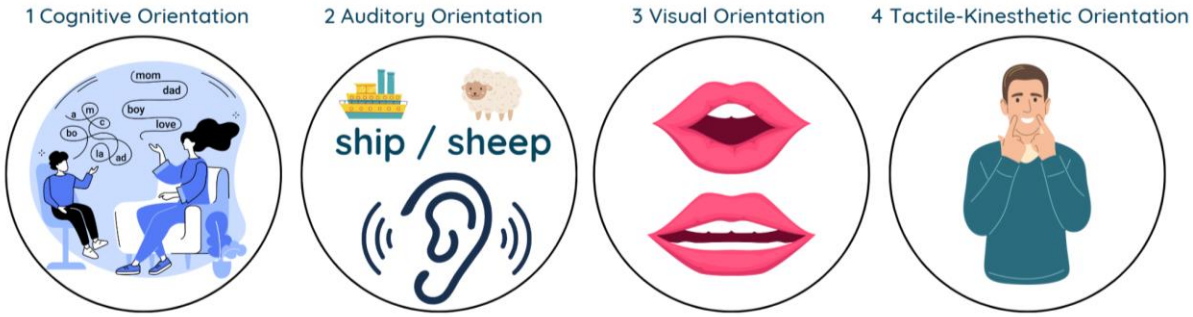
and tactile-kinesthetic sensory modalities" (Odisho, 2007, p. 3) that requires the use of different cognitive processes such as associating, analyzing, synthesizing or comparing.
This approach shows the evolution that pronunciation teaching has had throughout time, incorporating and combining strategies that might be beneficial for English learners. Nonetheless, it is important to say that drilling is still much needed (Odisho, 2007) and cannot be tossed out from the classrooms. According to Kjellin (2004), drilling and choral repetition can have different benefits for learners. Among them are:

1) Taking advantage of the neurophysiological effects of hearing on the speech organs. Mirror neurons, also known as "imitation neurons" (responsible for oral and facial movements) are active during both speaking and listening.
2) Multiplying student-speaking time. It is important for the teacher to provide a great variety of input in the target language. Moreover, it is equally essential for students to have opportunities to use the target language as much as possible. This contradiction can be resolved through choral practice.
3) Providing immediate feedback for the whole class simultaneously. Providing prompt feedback, together with generous praise, is vital for fostering and keeping a high motivation.
4) Giving "shelter" to shy students. Psychological inhibition often arises from feelings of insecurity and inadequacy. After engaging in a successful session of choral practice, learners will feel more secure and accomplished, providing a sense of comfort and support to shy students.

By and large, habit formation is essential when it comes to the teaching-learning process, and it is crucial to foster this process with the company of creativity and cognitive habits (Odisho, 2007).

Furthermore, Odisho (2007) proposes a sequence of orientations in teaching pronunciation. These orientations aim to prepare learners mentally and cognitively to recognize and address pronunciation issues. They also provide a general framework for addressing these issues in a comprehensible manner (Figure 3).

Figure 3
Sequence of orientations for pronunciation instruction (Odisho, 2007).



The sequence of orientations that Odisho (2007) proposes, particularly for teaching vowels, are the following:

1. Cognitive Orientation: This orientation involves mentally preparing learners to recognize the existence of pronunciation problems. It includes steps such as providing instructions and explanations to raise awareness of the issue.

2. Auditory Orientation: This orientation focuses on developing learners' perception of vowel quality and quantity. It involves selecting minimal pairs involving specific English vowels and modeling their pronunciation with emphasis on both sound and meaning.

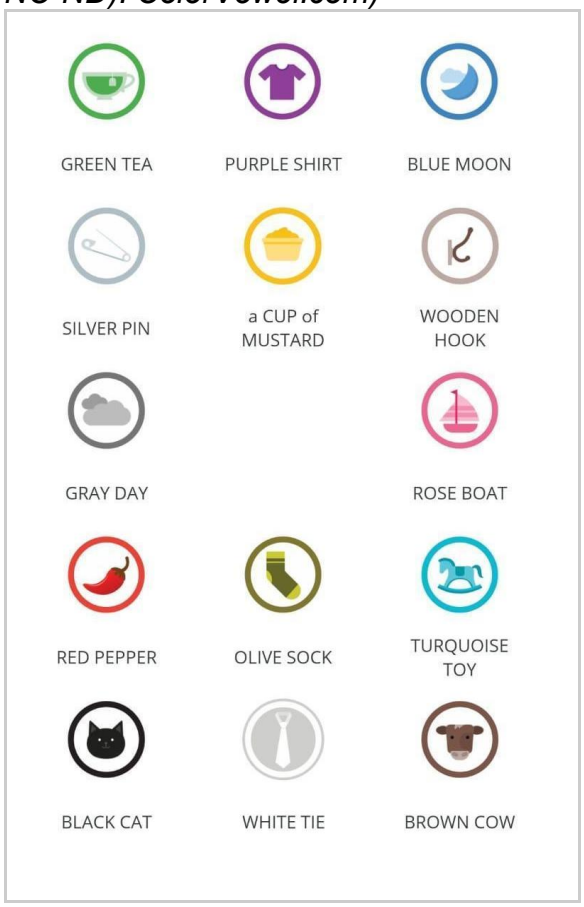
3. Visual Orientation: This orientation emphasizes the visual aspect of pronunciation. Learners are encouraged to observe the facial gestures and mouth shape of the instructor during pronunciation demonstrations. Specific visual cues related to the pronunciation of certain sounds, such as lip separation and mouth spread, are highlighted.

4. Tactile-Kinesthetic Orientation: This orientation involves incorporating tactile and kinesthetic activities to enhance learners' pronunciation skills. It may include physical exercises, hands-on manipulation of articulatory organs, and other techniques that engage the sense of touch and body movements.

In the search for an innovative way of addressing pronunciation instruction regarding vowels particularly, Color Vowel ® approach incorporates the elements mentioned previously. This approach combines colors and keywords to represent the vowel sounds of English without using phonetic symbols, which can be problematic for young learners. For instance, students can refer to GREEN when discussing the pronunciation of the word "leave" or SILVER for the word "live" (Taylor & Thompson, n.d.). The use of the colors will serve as a bridge for understanding and remembering the pronunciation of new words.

Figure 4

The Color Vowel Approach colors and vowel sounds association. (Color Vowel® Anchor Images, 5th Edition © 2019. Used with Creative Commons licensing (CC BY-NC-ND). ColorVowel.com)



Overall, the use of a multisensory approach might be beneficial for young learners, since it provides an engaging system that may be appealing for them and that eventually could foster young learners' autonomy regarding pronunciation.

2.7 A multisensory approach and the Chilean context: Promoting inclusion in language learning

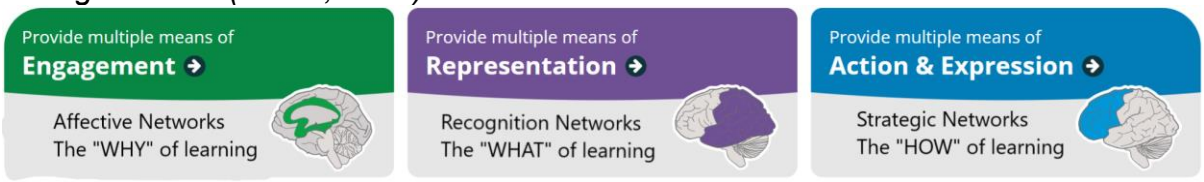
Regarding the Chilean context, according to the OECD (2023) in dependent private educational institutions, i.e., subsidized schools, there are 34 students per classroom on average , and 31 students on average in all public and private educational institutions (OECD, 2023). With this number of students, it is vital to find ways in which explicit pronunciation teaching is addressed effectively and is able to reach every learner. The 83rd Decree (Decreto N° 83/2015, MINEDUC, 2015b) fosters the diversification of education in preschool and primary education, especially for students with special educational needs within the School Integration Program or PIE (fromits Spanish meaning "Programa de Integración Escolar"). This program allows equal opportunities for access, participation and progress in the essential learning objectives of the national curriculum, considering the potential of each student and promotes diversified teaching as a way of responding to the diversity of students in the classroom

(MINEDUC, 2015b). In Chile, there are 5,662 schools with Integration Program and 183,373 students enrolled with special educational needs. This number represents 5.12% of the total national enrollment. From these, 166,780 (90.95%) attended private subsidized schools, which represented 8.65% of the enrollment in this sector (Holz, 2018).

The main objective of the 83rd Decree is to promote the transformation of the pedagogical practices of regular education teachers, incorporating Universal Design for Learning (hereafter UDL) (Valencia & Hernández, 2017). The UDL is an educational approach that recognizes diversity in the learning process of students, acknowledging that each child and adolescent learns in a unique way and benefits from differentiated teaching approaches in the classroom. This educational framework focuses on adapting educational practices, spaces and materials to respond to individual needs and learning preferences in flexible school environments (Diseño Universal para el Aprendizaje y Libros de Texto Digitales Accesibles, 2022), providing multiple means of engagement, representation and action and expression to "ensure that all learners can access and participate in meaningful, challenging learning opportunities" (CAST, 2018).

Figure 5

UDL guidelines (CAST, 2018)



According to Valencia & Hernández (2017), implementing the principles of the UDL in teachers' practices is a governmental objective in Chile as part of the country's commitment to educational inclusion. To achieve this, it is crucial that current and future teachers and all members of the educational community are adequately prepared.

Moreover, a study carried out by Cruz Muñoz (2020) assessed the impact of Universal Design for Learning. A qualitative case study was conducted in a subsidized school in Quilpué, Chile, involving six 10th-grade students with special educational needs. The research design incorporated the implementation of a pedagogical intervention based on UDL and Task-Based Language Teaching (TBLT) principles. Data collection methods included a questionnaire, a journal, and a focus group, which provided valuable insights into the students' perceptions, writing skills, and participation in the EFL class. The main objective of the study was to investigate the effects of UDL on the students' writing skills and their engagement in the EFL class. Furthermore, the study revealed favorable outcomes of UDL principles on students' participation in the EFL class, including increased motivation and interest in learning. UDL principles, such as multiple means of representation, expression, and engagement, serve as a means of support, allowing students to develop abilities necessary for thriving in a constantly evolving world where individuals learn through diverse methods. Hence, the findings indicate that UDL represents a valuable approach for addressing the needs of EFL students with special educational needs, fostering their engagement, motivation, and overall learning experience in the English classroom.

Considering this information, these factors that affect the learning process of young learners must be taken into consideration. This can be directly related to students' learning preferences and needs and using the Color Vowel ® approach could represent an advantage in terms of diversified education since it provides multiple mediums to teach pronunciation e.g., aural, oral, visual and kinesthetic.

2.8 Listening to Children's Voices

Research on children often focuses on adult-centered topics, overlooking children's perspectives. It has been argued that children can challenge experts' beliefs and provide new perspectives (Pinter, 2014). Thus, to gain deeper insights about their learning experiences, new relationships between adults and children should be built. In this regard, Kucha and Pinter (2012) argue that overcoming power barriers can lead to different views that teachers may not have been aware of. Moreover, in ELT research studies, traditional views of childhood persist, such as the belief that children should be seen and not heard, suggesting that children are primarily seen as passive objects of adult interest rather than as active subjects. This traditional perspective restricts children's participation in research projects and fails to recognize their potential as knowledgeable contributors with valuable insights (Pinter et al., 2013).

Studies (e.g. Burri, 2023; Modesti, 2016; Shrestha, 2013; Tergujeff, 2013) have shown important observations regarding students' perceptions about language learning and pronunciation teaching revealing interesting insights about these topics. For instance, a study by Modesti (2016) examined students' perceptions of learning English and pronunciation in three public primary schools in Italy. The study involved 227 students aged 8-10 years. Almost half of them (40.5%) felt uncomfortable when speaking English, while 6.2% always felt uncomfortable. Nearly 75% found it difficult to pronounce English words. Additionally, the study reveals that most students were aware of the difficulties associated with pronunciation, and the complex relationship between spelling and pronunciation was perceived as difficult to cope with while reading aloud.

Other studies by Tergujeff (2013) and Burri (2023) revealed that students were keen to improve their English pronunciation in education. Burri's (2023) study involved 49 students aged 12 and above from Australia and Japan and found that most learners wanted opportunities to work on their pronunciation and have errors corrected. Similarly, Tergujeff's (2013) study involved 10 Finnish students learning EFL and found that improving fluency and intelligibility were their main goals. Some students felt they received insufficient help with pronunciation in classes, while others took the initiative to develop their skills on their own. They also improved their pronunciation outside the classroom through listening to English music, watching English TV and movies, and playing online games.

Furthermore, in a study conducted by Shrestha (2013), research was conducted to explore the experiences of Bangladeshi primary school students regarding teaching practices in English language classrooms. The study involved conducting a semi-structured group interview with 600 Grade 3 students from various regions of Bangladesh. The results revealed that the students held favorable opinions regarding activities such as reciting and drills and working with visuals and flashcards, while they

held unfavorable views about memorization, the teacher's use of the Bangla language, audio elements (such as songs, rhymes, dialogues, and stories), and instances of teacher mistreatment towards students. They expressed they liked sentence drilling, singing songs, reciting poems and repeating words with their teacher.

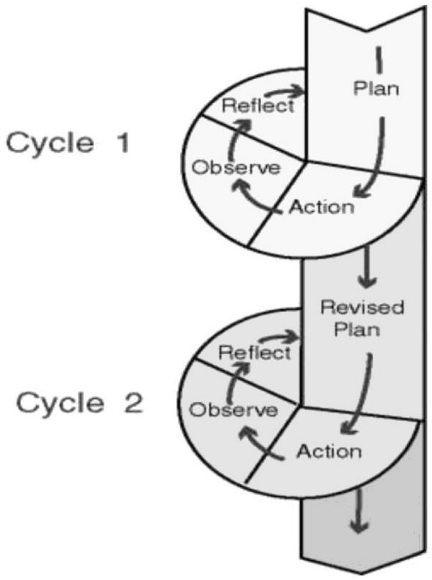
All in all, students' perception about English learning, particularly English pronunciation, must be taken in consideration when teaching it. Their perceptions can provide valuable insights for educators and researchers that might not have been accessible otherwise. Additionally, by taking into account the perspectives of children, teachers could adapt and improve their teaching strategies to create more engaging and effective learning experiences..

CHAPTER III
METHOD

3.1. Type of research

The present study is an Action Research study aimed at finding solutions to specific problems identified through reflective practice in my teaching context. I, as a teacher-researcher, have observed difficulties in students' reading and decoding of printed words into speech. To address this issue, the teacher-researcher considers implementing the Color Vowel® approach as a helpful system for improving students' phonological awareness and decoding learning process.
According to Burns (2010), action research involves four phases: planning, action, observation, and reflection. As the teacher-researcher, the problem has been observed and identified, leading to the initiation of the action research process. Thus, I planned four sessions in order to address the problem, which considered the design of the activities and materials needed for the sessions. Finally, the reflection part of the process was also present while and after every session; through the recordings of the audiologs, a way to keep a record of any problem or significant event while I was observing the students' performance on the different tasks, I could realize some changes or points that needed to be clarified or reinforced.

Figure 6
Action plan cycle (Burns, 2010, p.9)



3.2. Participants

In order to conduct this current Action Research and answer my research question, I have to collect data from a sample that was selected for this purpose.
This action research was applied in a subsidized school in Talcahuano, Chile. It has more than 1000 students from pre-k to 12th grade. Classes are quite large, with an average of 40 students per class.
This action research was applied to a population of 43 4th-grade students, aged between 9 and 10 years old, where seven of them have transitory special needs. The teacher-researcher has been their English teacher for two years now. These students have 5 hours of English a week, where vocabulary and grammar are the main aspects to be evaluated. This 4th-grade class was highly participative, they have good behavior and follow the instructions given by the teacher. In terms of their sociocultural

background, their access to English outside school is ample; i.e., some of them have private English lessons, others have traveled abroad, they usually watch movies and play video games in English. Their parents are very concerned and keen on their acquisition of the language.

Concerning the selection of the sampling, it was a non-probabilistic convenience sample. Non-probability sampling is often associated with qualitative research (Given, 2008), because it allows the researcher to select the participants of the study based on certain criteria (easy access and availability). For the purpose of this study, the sample was chosen according to the students that were present throughout the entire intervention session. This type of sampling also allowed the researcher to examine a real-life phenomenon and develop an understanding of an under-researched population (Taherdoost, 2016). The sample chosen by convenience means that participants are selected due to their easy access and availability to the teacher. There was a selection based on the availability and convenience of the students who were present. One advantage of convenience sampling is that it can provide an easy and inexpensive way of collecting data and this helps to overcome many limitations associated with research (Taherdoost, 2016).

3.3. Research question and objectives

3.3.1 Research question

To what extent can the implementation of the Color Vowel ® approach benefit 4th graders' vowel decoding skills from print to speech?

3.3.2 General objective

To explore the contribution of the Color Vowel ® approach on 4th graders' vowel decoding skills from print to speech.

3.3.3 Specific objectives

Specific Objective 1: To analyze students' vowel decoding skills from print to speech when using the Color Vowel ® approach.

Specific Objective 2: To describe students' perception on the use of the Color Vowel ® approach and influence on their vowel decoding skills from print to speech.

3.4 Research problem

The national curriculum guidelines provide a proposal for 1st to 4th grades (MINEDUC, 2015), including specific objectives and outcomes related to pronunciation and sound comprehension. The guidelines emphasize the correct production of English sounds that interfere with communication, as well as the use of chants, songs, rhymes, and dialogues to familiarize students with English sounds. Furthermore, the curriculum suggests working with common combinations of letters to help young learners recognize patterns and associate them with known pronunciations. The guidelines highlight the importance of providing opportunities for students to read and see words

in various contexts and engage in activities that involve classifying words based on sounds and blends.

In a subsidized school from Talcahuano, Chile, 4th grade students struggle with reading and decoding vowel combinations. Pronunciation is neglected, only addressed when specific words cause difficulty. There is a lack of activities and support for improving phonological awareness and decoding words. The coursebook used, Be Curious 4 (Cambridge University Press, 2020), focuses on grammar, reading, writing, and listening skills, providing few opportunities for phonological awareness practice. The deep orthography of English, with no consistent spelling-pronunciation correspondence (Miller, 2019) adds to the challenge. Students feel unsure about pronouncing words and are reluctant to read aloud.

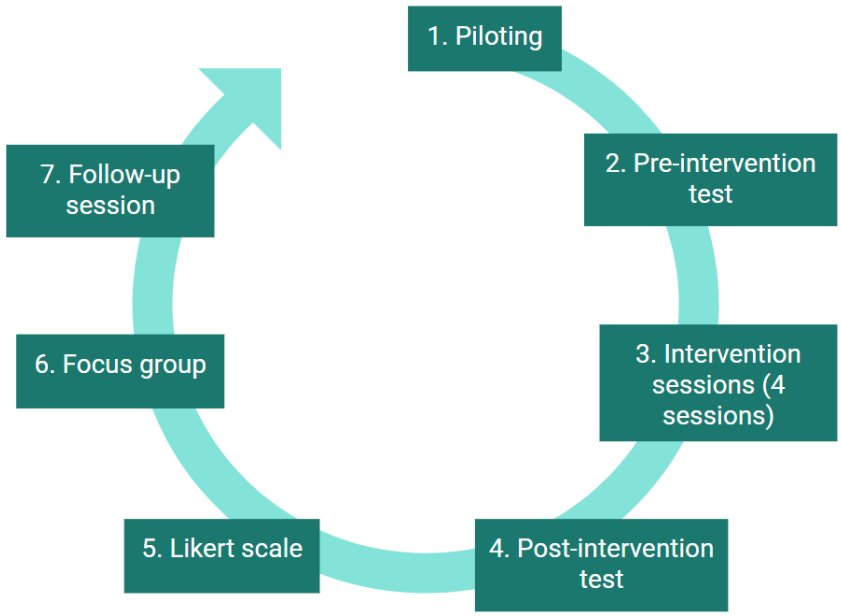
The Color Vowel ® approach can address the struggles of young learners with vowel sounds combinations. It associates colors with specific vowel sounds. Implementing this system could eventually benefit young learners, motivating and building confidence in their speaking abilities. Moreover, it could be beneficial not only for 4th graders but for the entire school.

3.5. Stages of the Action Research study

There were seven stages considered in this Action Research, namely piloting stage, pre-intervention test, intervention sessions, post-intervention test, Likert scale application, focus group and a follow-up session.

Figure 7

Action Research stages (own authorship).



3.5.1 Piloting stage

In the Piloting stage of this Action Research (AR) project, the pre- and post-intervention test, the Likert scale and the questions of the focus group were tested with a group of ten students per instrument. Each participant came from the same grade with a different class. The aim was to assess the accuracy and consistency of the instruments, and to make any necessary improvements to ensure a reliable data collection process.

3.5.2 Pre-intervention test

Students read aloud a 20-item word list, individually. The teacher assessed correct and incorrect answers as “expected” or “other”, respectively.

3.5.3 Intervention sessions

The intervention took four sessions in which each vowel and diphthongs were addressed. The first session was aimed at recognizing and producing vowels /i:/ and /u/ and the second sessions was aimed at recognizing and producing diphthongs /eɪ/ and /aʊ/. These two sessions aimed at reaching SO1 “to analyze students’ vowel decoding skills from print to speech when using the Color Vowel ® approach”. Sessions three and four were aimed at recalling vowel sounds and colors and creating an anchor chart in the classroom in order to provide visual aid to students.

Table 2

AR intervention sessions (own authorship).

Sessions	**Procedure**	**Research Objective**
Session 1	Introduction of /i:/ and /u/ vowels. Practice through listening and repeat, reading aloud. Students complete a worksheet where they color the words according to their vowels.	SO1
Session 2	Introduction of /eɪ/ and /aʊ/ vowels. Practice through listening and repeat, reading aloud. Students complete a worksheet where they color the words according to their vowels.	SO1
Session 3	Recalling sounds and colors from previous lessons. Reading aloud the words with all the vowels presented. Students take turns to read words according to their colors.	SO1
Session 4	Recalling sounds and colors from previous lessons. Reading aloud words and classifying and gluing them in an anchor chart placed on the classroom walls.	SO1

3.5.4 Post-intervention test
After the four intervention sessions were carried out, students read the same 20-item wordlist, this time the words were in a different order and they had the color from the Color Vowel ® approach. The teacher assessed correct and incorrect answers as “expected” or “other”, respectively.

3.5.5 Likert scale
After the intervention sessions were carried out, students answered a six-question survey asking the levels of agreement (agree, does not know, disagree) regarding the use of the Color Vowel ® approach.

3.5.6 Focus group
A focus group was carried out in order to gather qualitative data about the students’ opinions about the use of the Color Vowel ® approach. Students were asked five questions; three about their perceived pronunciation. It was a semi-structured interview with groups of five students.

3.5.7 Follow-up session
Two weeks after the intervention was conducted, the teacher presented new words to students, each one with their corresponding color. Students raised their hands in order to read the words aloud. The purpose of this session was to verify students’ recalling of the vowel sounds and color correspondence that the Color Vowel ® approach provides.

3.6. Data collection techniques

For the present Action Research, four different instruments were used, namely pre-intervention test, post-intervention test, Likert scale and focus group to assess both students' pronunciation accuracy and their perceptions of the Color Vowel ® approach, respectively. Furthermore, the instruments designed were validated by Master students and English teachers.

3.6.1 Pre- and post-intervention tests (Appendix A and B)

In the initial phase of data collection, a pre-intervention test was administered to evaluate the pronunciation skills of the students. These tests belong to the category of non-parametric tests, because they were designed for a specific population (4th grade) and offer relevant and focused feedback on students' performance (Cohen et al., 2017). The instrument used was a checklist (20 wordlist) divided in four different vowels (/i:/, /u/, /eɪ/ and /aʊ/). The vowels were selected based on a study conducted by Fashola et al. (1996), where phonetic and orthographic sources of spelling errors for Spanish-speaking children who were transitioning to literacy in English were examined. The checklist consisted of 20 isolated words related to the thematic unit “Food”. Each vowel sound had 5 words that students had to read aloud. Students’ decoding skills were assessed in terms of the accuracy of their production. Correct decoding was assessed as “expected” and incorrect as “other”. The checklist had 20 points in total, 1 point per word. At the end of the intervention, a post-intervention test was applied. It consisted of the same 20-word list, this time with the colors of the Color Vowel ® approach in order to assess students’ decoding skills when using the strategy aforementioned.

3.6.2 Likert scale (Appendix C)

A Likert scale was designed considering students' perceptions about the use of the Color Vowel ® approach. The Likert scale with 6 items had three dimensions; one about students' perceptions about the improvement they felt in their decoding performance after the implementation of the Color Vowel ® approach (1 item), another one about students' perceptions on the effectiveness of the Color Vowel ® approach (4 items), and the other about communication purposes they perceived after the implementation of the approach (1 item). For instance, one statement refers to if the Color Vowel ® approach helped students remember the vowel sounds presented. This instrument was validated by Master's students and English teachers and also piloted with another group of 4th grade students.

3.6.3 Focus Group (Appendix D)

The focus group followed a semi-structured format, therefore students avoided off-topic answers. The instrument was designed considering the age of students, making questions with clear and simple language, and carried out in Spanish. Each question gave the opportunity to students to develop their ideas, as they had to explain their answers. Students answered 5 questions in groups of 5. For instance, one of the questions asked was "do you think the Color Vowel ® approach helped you with the pronunciation of words?". Students were taken to the library so they could answer the questions more comfortably. Students took turns to speak and they could intervene whenever they wanted, respecting their classmates' turns.

3.7 Data analysis

In order to answer the Research Question of the present Action Research, quantitative and qualitative data were analyzed.

Descriptive statistics (Burns, 2010) were employed to analyze and compare the results obtained from the pre- and post-intervention tests. The mean and median were used in order to describe the scores obtained by the learners. Moreover, a Shapiro-Wilk test and Wilcoxon signed-rank test were used to assess the normality of the data distribution and determine the significance of differences observed between the pre- and post-intervention pronunciation accuracy scores, respectively.

Additionally, the Likert scale used frequency analysis of students' answers according to their level of agreement of the Color Vowel ® approach.

For the Focus group, content analysis technique was used. The main objective of this analysis was to uncover and delineate the themes and subthemes that emerge from the students' responses (Given, 2008). By identifying these patterns, the study aims to identify common topics of discussion and ultimately derive meaningful interpretations from the data.

CHAPTER IV
FINDINGS

In this chapter, the data collected from the intervention is presented in alignment with specific objectives.

4.1 Specific Objective 1: To analyze students' vowel decoding skills from print to speech when using the Color Vowel ® approach.

4.1.1 Pre-intervention test

A pre-intervention test was conducted in order to assess students' decoding skills of /i:/, /u/, /eɪ/ and /aʊ/ vowels. The instrument used was a checklist. Students read aloud 20 isolated words and they were assessed as "expected" (correct) or "other" (incorrect).
The checklist was divided in four different vowels (/i:/, /u/, /eɪ/ and /aʊ/), with five words per vowel and the maximum score was 20 points, i.e., 1 point per each correct word.

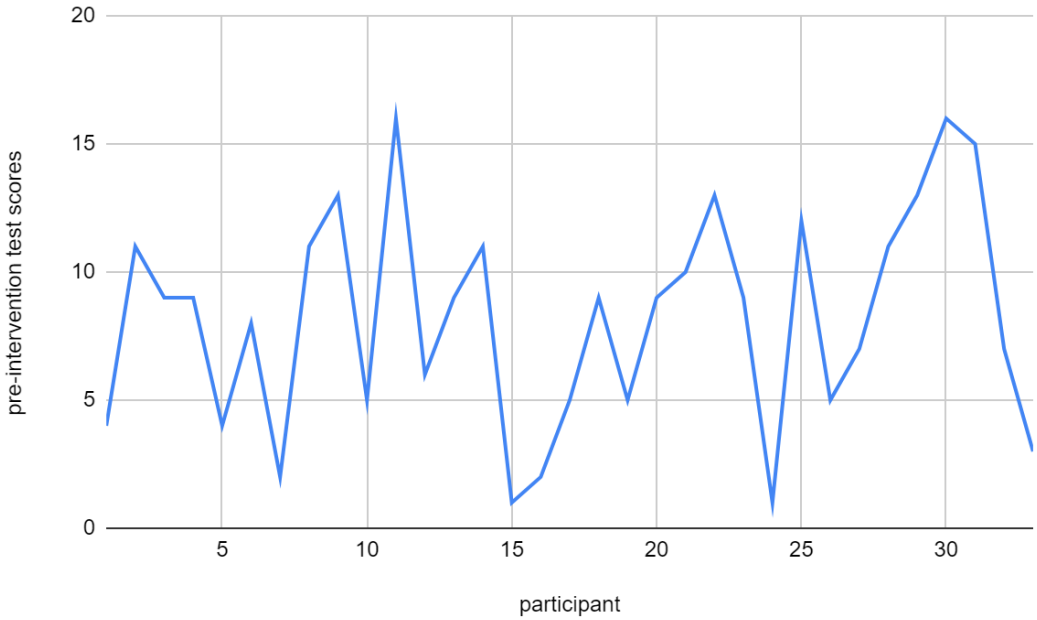
The descriptive analysis below (Table 3) showed that from 33 participants of the pre-intervention test, the average score obtained was 8.21 points (mean). Half of the participants scored less than 9 points and the other half more than 9 points (median). The standard deviation measured the dispersion of data points around the mean. Here, the standard deviation was 4.26, indicating that the scores varied by approximately 4.26 points on average, suggesting a moderate dispersion in the SD.

Table 3
Global descriptive pre-intervention test analysis

	N	Mean	Median	SD	Minimum	Maximum
Pre-intervention test scores	33	8.21	9	4.26	1	16

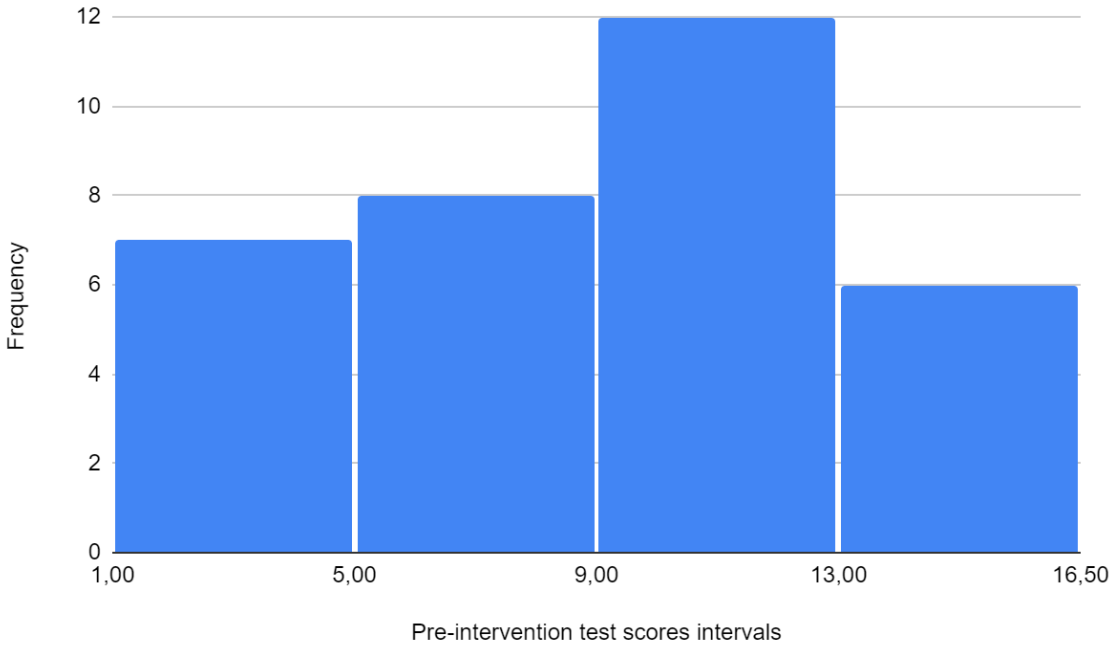
Furthermore, Figure 8 below shows the scores of each participant. It could be said there was a moderate variability in scores before the Color Vowel ® approach was implemented, where the minimum score was 1 and the maximum 16 out of 20 points in total.

Figure 8
Pre-intervention test scores per participant



From the histogram below (Figure 9), it can be observed that the most frequent scores fell within the interval of 11-15, with a frequency of 9. The next most frequent interval was 6-10, with a frequency of 8. The intervals 1-5 and 16-20 had lower frequencies, with 8 and 2, respectively. Most scores fell within the range of 11-15.

Figure 9
Pre-intervention test histogram



4.1.2 Post-intervention test

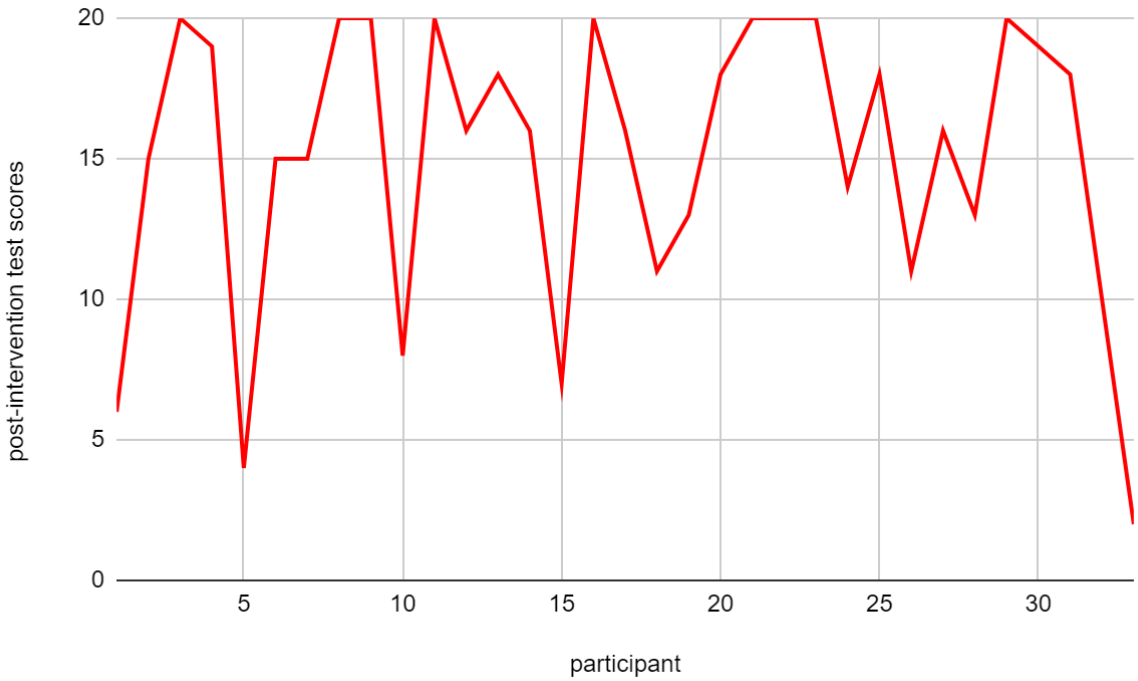
At the end of the Color Vowel ® approach implementation, a post-intervention test was conducted in order to assess students' decoding skills of /i:/, /u/, /eɪ/ and /aʊ/ vowels. The same checklist was used as in the pre-intervention test, with the same 20 words but this time in a different order and with the words colored according to the Color Vowel ® approach.
The descriptive analysis below (Table 4) shows that from 33 participants of the post-intervention test, the average score obtained was 15.1 points (mean). Half of the participants scored less than 16 points and the other half more than 16 points (median). The standard deviation was 5.14, indicating that the scores vary by approximately 5.14 points on average, indicating a higher variability than the pre-intervention test.

Table 4
Global descriptive post-intervention test analysis

	N	Mean	Median	SD	Minimum	Maximum
Post-intervention test scores	33	15.1	16	5.14	2	20

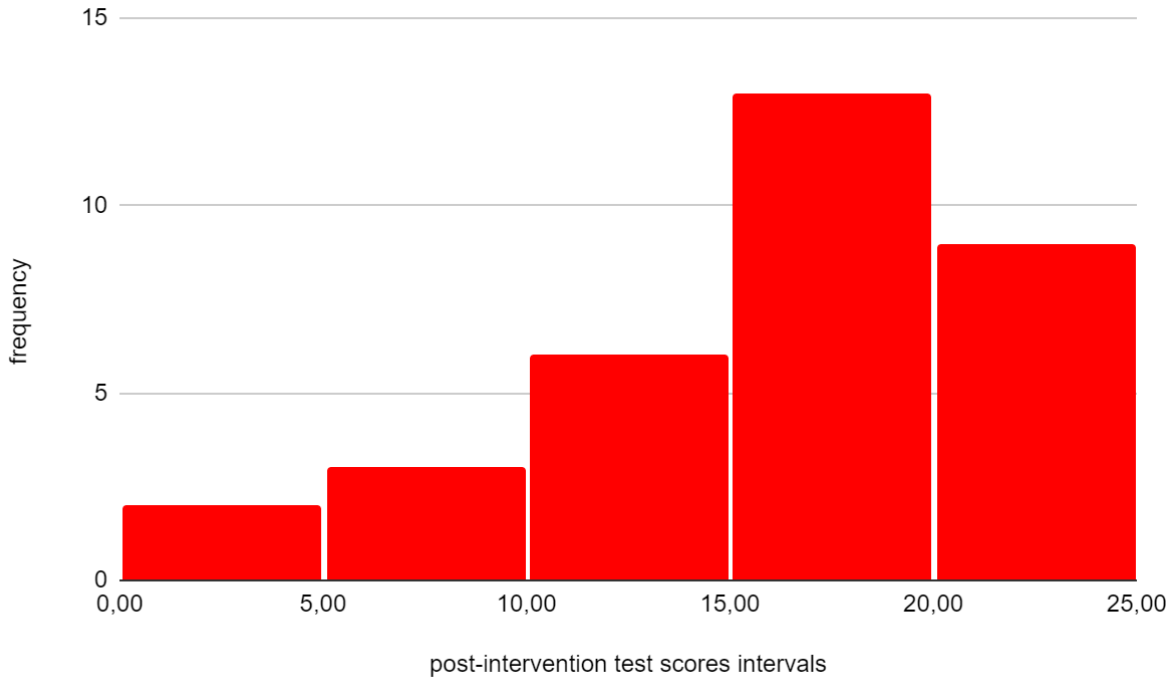
In addition, Figure 10 below illustrates the scores of each participant in the post-intervention test. After the Color Vowel ® approach was implemented, a difference in the scores of each participant could be observed. Moreover, the difference between the minimum and maximum scores in the post-intervention test were 1 and 4 points respectively. This time, the maximum score achieved was 20 points, instead of 16 as in the pre-intervention test.

Figure 10
Post-intervention test scores per participant



From the histogram below (Figure 11), it can be observed that the most frequent scores fell within the interval of 16-20, with a frequency of 24. The next most frequent interval was 11-15, with a frequency of 7. The intervals 6-10 and 0-5 have lower frequencies, with 4 and 2, respectively. The majority of scores fall within the range of 16-20.
Overall, it was observed that students improved their vowel decoding skills in general, as seen in the improvement of scores from the pre-intervention test to the post-intervention test.

Figure 11
Post-intervention test histogram



4.1.3 Pre and post intervention tests

Comparing the two sets of data, it can be observed that there was an increase in both the mean and median scores from the pre-intervention to the post-intervention test, indicating an improvement in decoding skills performance after the intervention. The standard deviation for the post-intervention test scores was higher than that of the pre-intervention test scores, indicating a slightly greater variability in the scores after the intervention. The range of scores for both tests also increased. The maximum scores obtained in the pre- and post-intervention tests were 16 and 20 points, respectively, where the total score was 20 points.

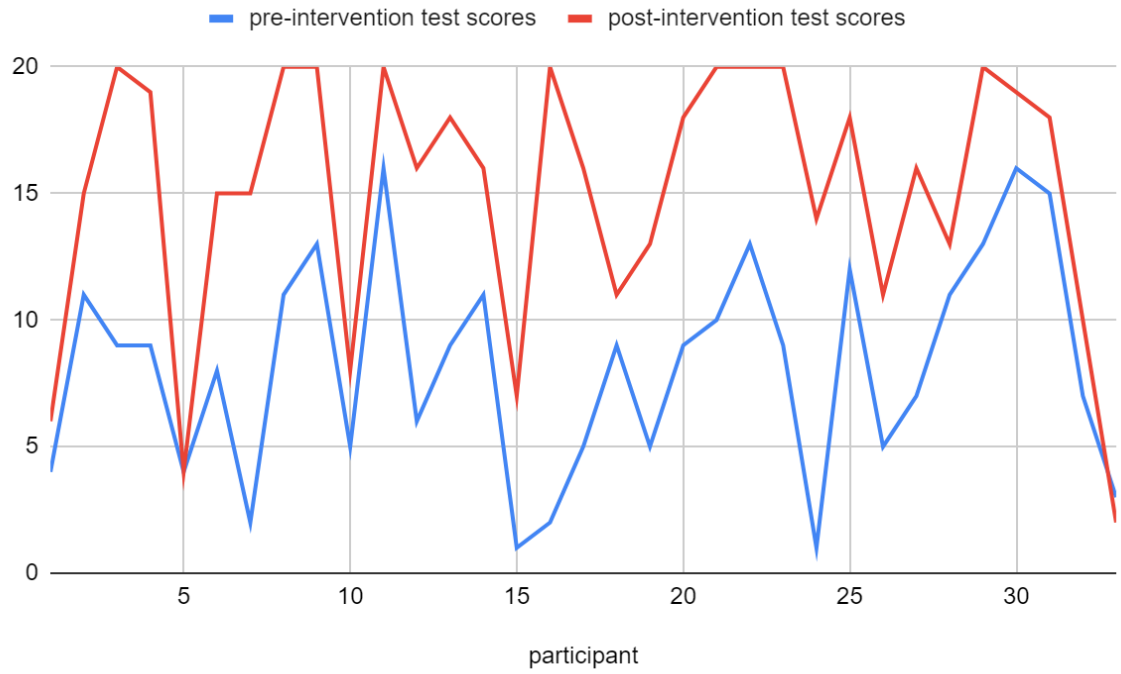
Table 5
Pre- and post-intervention test descriptive analysis

	N	Mean	Median	SD	Minimum	Maximum
Pre-intervention test scores	33	8.21	9	4.26	1	16
Post-intervention test scores	33	15.09	16	5.14	2	20

As a general analysis, Figure 12 showed that the majority of participants had an improvement in scores in the post-intervention test. However, there was still some variability in the scores, suggesting individual differences in performance, e.g., participant 5 shows no change in their score between the pre and post intervention

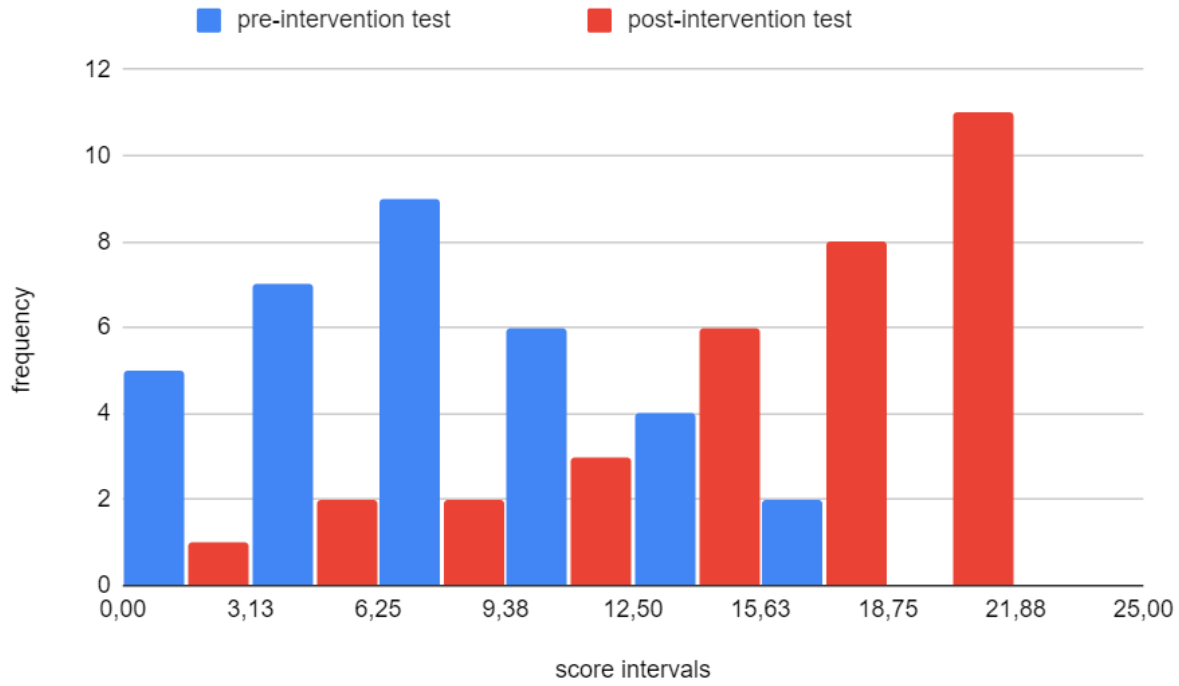
test and participant 33 shows a decrease in 1 point (from 3 to 2 points) between the pre and post intervention test.

Figure 12
Pre- and post-intervention test scores per participant



From the histogram below (Figure 13) it can be said that according to the pre-intervention test scores the distribution appears slightly tilted to the left, with the most frequent scores being in the range of 4 to 9.
On the other hand, post-intervention test scores show that the distribution was more evenly spread out, with a peak around the scores of 9 and 20. There was a higher frequency of scores in the higher range, particularly 16 and 20. This suggested an improvement in students' vowel decoding skills.

Figure 13
Pre- and post-intervention test histogram



Furthermore, the Shapiro-Wilk test results (Table 6 below) suggested that the distribution of scores for the pre-intervention test was approximately normal, while the distribution of scores for the post-intervention test significantly deviated from normality. The "W" value of 0.965 suggested that the data from the pre-intervention test closely approximates a normal distribution. As the "W" value approaches 1, the data exhibited a stronger resemblance to a normal distribution. In contrast, the "W" value of 0.864 for the post-intervention test indicates a notable departure from a normal distribution. It falls significantly below 1, suggesting that the data in the post-intervention test does not closely conform to a normal distribution.

Based on the provided information about the Shapiro-Wilk test results, conducting a Wilcoxon signed-rank test was suitable to analyze the paired pre-intervention and post-intervention test scores, which can be observed in Table 6 below.

Table 6
Shapiro-Wilk test results

		Shapiro-Wilk	
	N	**W**	**p**
Pre-intervention test	33	.965	0.357
Post-intervention test	33	.864	< .001

The p-value being less than 0.001 indicates strong evidence against the null hypothesis. Regarding the p-values, the one associated with the pre-intervention test, which was 0.357, exceeds the typical significance level of 0.05. This implies that there was no substantial deviation from a normal distribution in the pre-intervention test data. On the other hand, the p-value for the post-intervention test was less than 0.001, significantly lower than the common significance level of 0.05. This low p-value indicates a significant departure from a normal distribution in the post-intervention test data, suggesting that it does not exhibit a normal distribution pattern.

Table 7
Wilcoxon signed-rank test results

			Statistic	**p**
Pre-intervention test	Post-intervention test	Wilcoxon W	1.00 [a]	< .001

Note. $H_a\ \mu_{\text{Measure 1 - Measure 2}} < 0$

[a] 1 pair(s) of values were tied

Therefore, it can be concluded that there was a significant difference between the pre-intervention and post-intervention test scores, with the post-intervention scores being higher.

Overall, the results suggest that the intervention had a positive contribution on the test scores, leading to a positive change in students' vowel decoding skills from print to speech when using the Color Vowel ® approach.

4.1.4 Pre- and post-intervention test results by vowel sound

In this section, test results were reported by vowels /i:/, /u/, /eɪ/ and /aʊ/ respectively.

4.1.4.1 /i:/

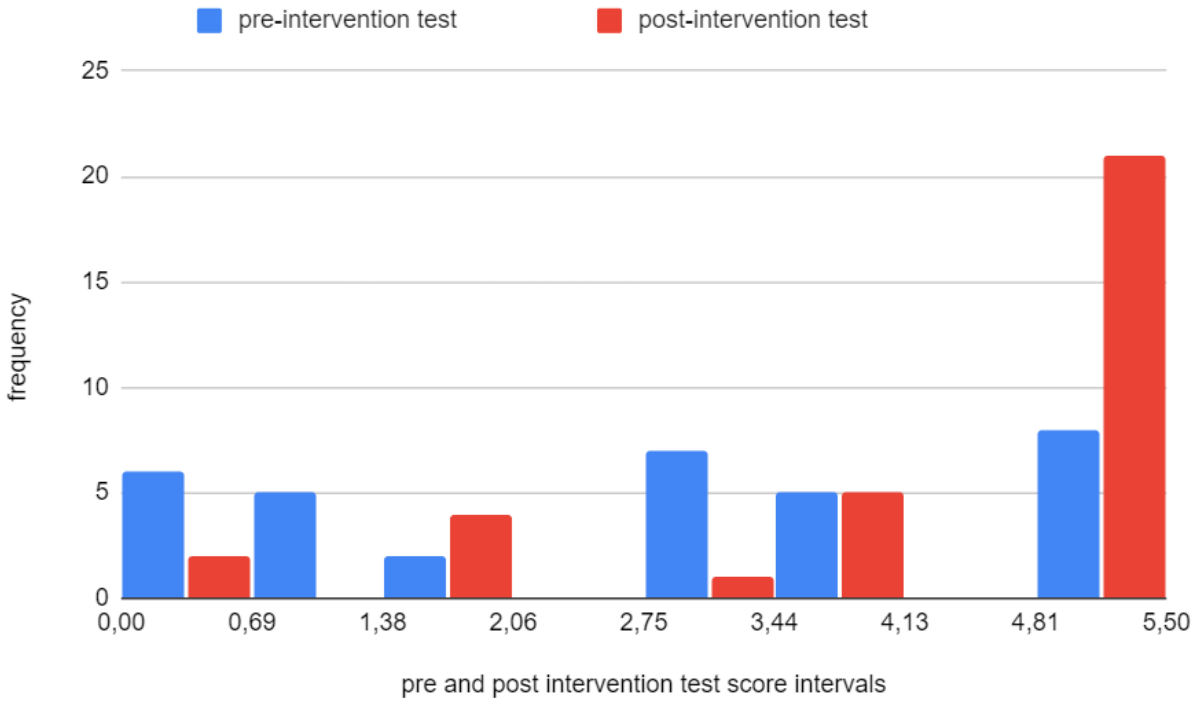
According to the results shown in Table 8, there was an improvement in the test scores from the pre-intervention to the post-intervention phase. The mean and median scores increased, indicating a positive change.

Table 8
Pre and post-intervention test descriptive analysis of decoding skills of vowel /i:/

	N	Mean	Median	SD	Minimum	Maximum
Pre-intervention test scores	33	2.73	3	1.86	0	5
Post-intervention test scores	33	4.12	5	1.47	0	5

The histogram shown below (Figure 14), illustrates that there was an improvement of the scores obtained by participants regarding the decoding of the vowel /i:/. Moreover, the majority of the data points fall within the intervals 0-1, 1-2, and 4-5. The interval 4-5 has the highest count with 12 data points, followed by intervals 0-1 and 3-4 with 6 data points each.

Figure 14
Histogram of pre and post intervention test scores referring to decoding skills of vowel /i:/



4.1.4.2 /u/

Table 9 below shows there was an improvement in the test scores from the pre-intervention to the post-intervention phase. The mean and median scores increased, indicating a positive change. In the case of the pre-intervention test scores, the

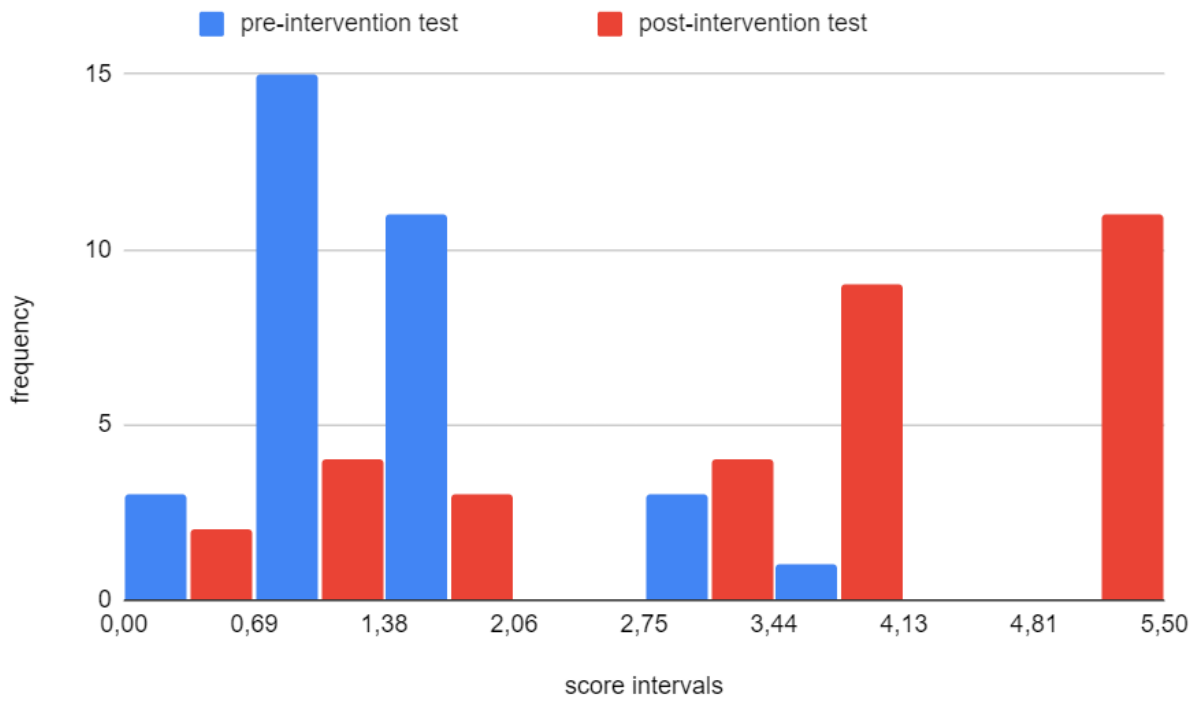
standard deviation was 0.906, indicating that the scores were relatively close to the mean of 1.52. However, for the post-intervention test scores, the standard deviation was slightly higher at 1.621, suggesting a greater spread or variability in the scores.

Table 9
Pre and post-intervention test descriptive analysis of decoding skills of vowel /u/

	N	Mean	Median	SD	Minimum	Maximum
Pre-intervention test scores	33	1.52	1	0.906	0	4
Post-intervention test scores	33	3.42	4	1.621	0	5

The histogram below (Figure 15) shows that for the pre-intervention test scores, the majority of the data points fall within the intervals 1-2 and 0-1, with 12 and 9 data points, respectively. Similarly, for the post-intervention test scores, the majority of the data points fall within the intervals 1-2 and 4-5, with 9 data points each. This illustrates that there was an improvement in the participants' scores, as there were fewer data points in the lower score intervals and more data points in the higher score intervals in the post-intervention test.

Figure 15
Histogram of pre and post intervention test scores referring to decoding skills of vowel /u/



4.1.4.3 /eɪ/

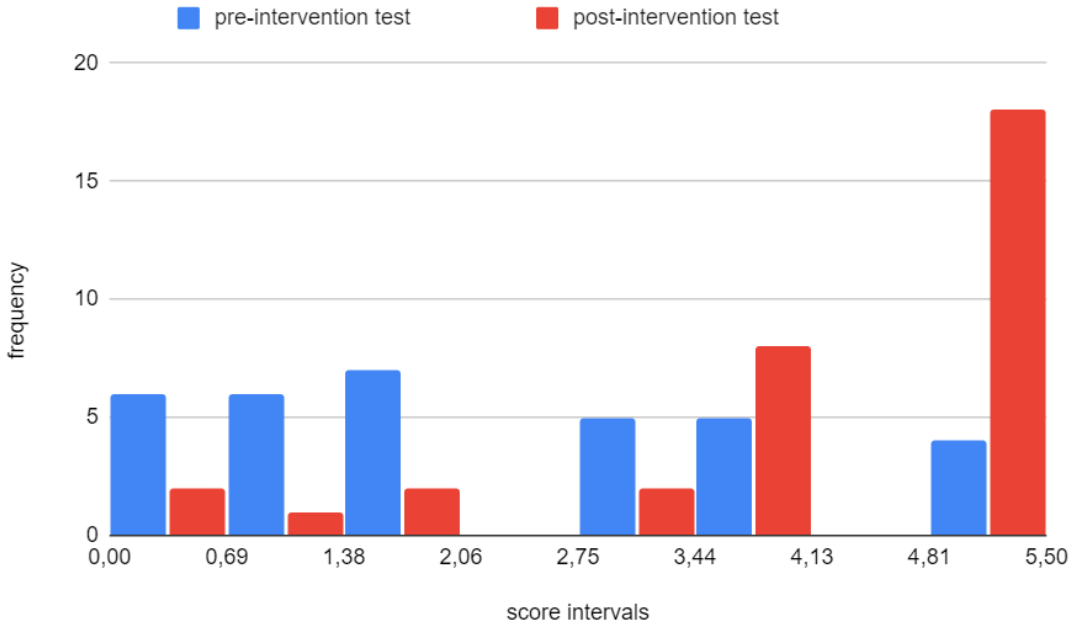
On average, the test scores increased from the pre-intervention to the post-intervention test, as shown in Table 10. The middle score shifted from 2 to 5, showing an increase in the test scores after the intervention. Overall, the statistics indicate that there was an improvement in the test scores from the pre-intervention to the post-intervention phase. The mean and median scores increased, indicating a positive change as shown in Table 10 below.

Table 10
Pre and post-intervention test descriptive analysis of decoding skills of vowel /eɪ/

	N	Mean	Median	SD	Minimum	Maximum
Pre-intervention test scores	33	2.27	2	1.66	0	5
Post-intervention test scores	33	4.03	5	1.47	0	5

The histogram below (Figure 16) shows that for the pre-intervention test scores, the majority of the data points fall within the intervals 1-2 and 4-5, with 9 and 8 data points, respectively. Similarly, for the post-intervention test scores, the majority of the data points fall within the interval 4-5, with 16 data points, indicating an improvement in the participants' scores, as there were more data points in the higher score intervals in the post-intervention test.

Figure 16
Histogram of pre and post intervention test scores referring to decoding skills of vowel /eɪ/



4.1.4.4 /aʊ/

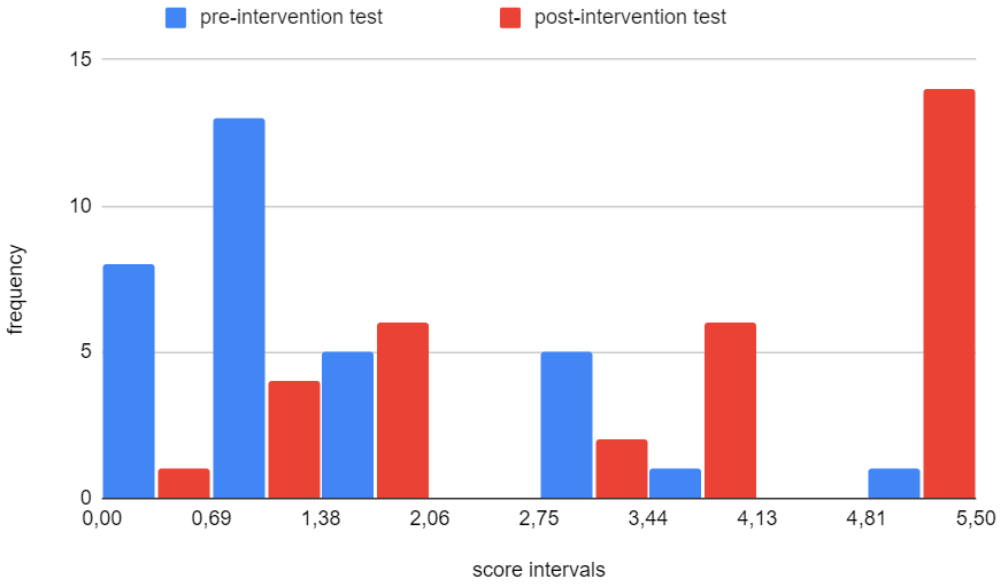
As shown in Table 11 below, for the pre-intervention test scores, the mean was 1.42, and for the post-intervention test scores, the mean was 3.52. This suggests that, on average, the test scores increased from pre-intervention to post-intervention. The median shifted from 1 to 4, showing an increase in the test scores after the intervention. Moreover, the pre-intervention and post-intervention test scores had moderate standard deviations, indicating a moderate spread of scores around the mean.
Overall, the statistics indicate that there was an improvement in the test scores from pre-intervention to post-intervention. The mean and median scores increased, indicating a positive change.

Table 11
Pre and post-intervention test descriptive analysis of decoding skills of vowel /aʊ/

	N	Mean	Median	SD	Minimum	Maximum
Pre-intervention test scores	33	1.42	1	1.28	0	5
Post-intervention test scores	33	3.52	4	1.62	0	5

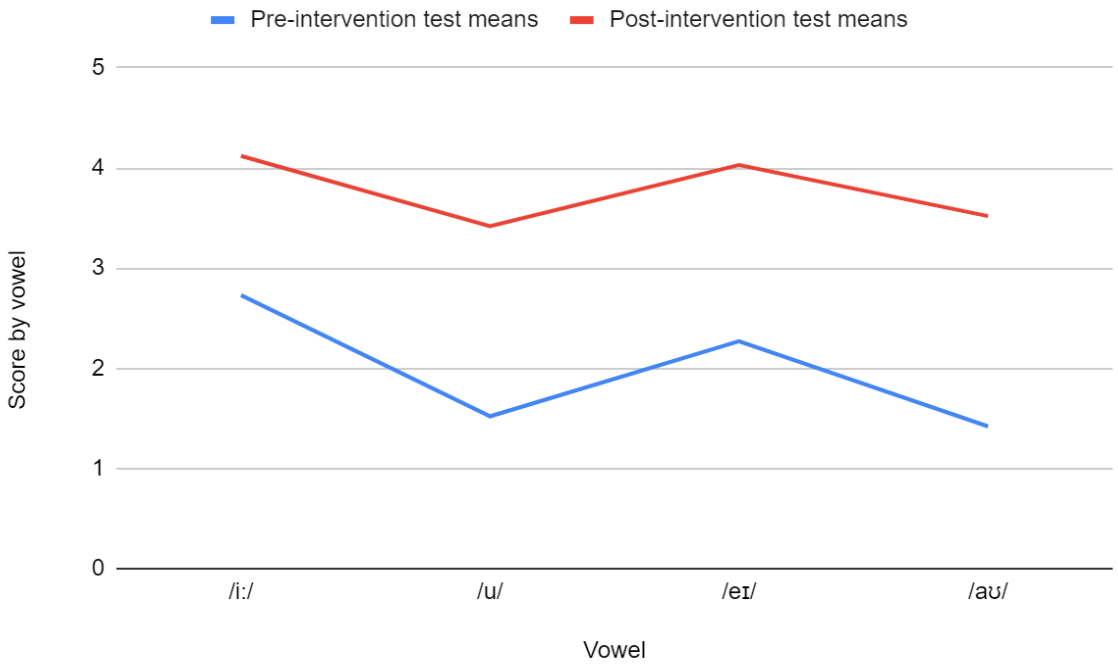
The histogram below (Figure 17) showed that for the pre-intervention test scores, the majority of the data points fall within the intervals 0-1 and 1-2, with 10 and 8 data points, respectively. Similarly, for the post-intervention test scores, the majority of the data points fall within the interval 4-5, with 19 data points. This reveals an improvement in test scores, specifically of vowel /aʊ/ decoding skills.

Figure 17
Histogram of pre and post intervention test scores referring to decoding skills of vowel /aʊ/



In Figure 18 and Table 12 below, at a glance it can be observed the difference in the mean scores illustrating that the vowel that showed greater improvement in terms of decoding skills from print to speech was the vowel /aʊ/. These findings reinforce the potential benefits of the Color Vowel ® approach and explicit phonological awareness training in improving pronunciation and decoding skills in 4th grade students.

Figure 18
Pre and post-intervention test mean scores difference by vowel



Comparing the difference in the mean of each vowel, it was obtained:

Table 12
Pre and post-interventions mean scores difference

Vowel	Pre-intervention mean	Post-intervention mean	Difference
/i:/	2.73	4.12	1.39
/u/	1.52	3.42	1.90
/eɪ/	2.27	4.03	1.76
/aʊ/	1.42	3.52	2.10

The differences between initial and final mean scores highlighted positive change in decoding skills across the examined vowels. Specifically, the differences of 1.39 (/i:/), 1.90 (/u/), 1.76 (/eɪ/), and 2.10 (/aʊ/) indicate an enhanced progress following the

intervention, emphasizing its effectiveness in enhancing decoding skills for these vowel sounds.

4.2 Specific Objective 2. To describe students' perception on the use of the Color Vowel ® approach and influence on their vowel decoding skills.

For this Specific Objective, a Likert scale and a Focus Group were applied to gather data about students' perceptions. These instruments allowed the teacher-researcher to report students' answers in two ways, with numbers (percentages indicating the frequency of students' perception with a Likert scale) and with qualitative descriptions of their responses through content analysis, respectively. In addition, the Likert scale gave an overview of the perceptions of the learners, and the Focus Group allowed the teacher-researcher to go in depth into their perspectives.

For the Likert scale, 4 dimensions were considered and from the focus group 4 dimensions emerged from students' responses, as seen in Figure 19 below.

Figure 19

Likert scale and Focus Group dimensions and themes

Dimension	Theme
Improvement in EFL	Performance in the lesson
	Pronunciation
Effectiveness of the Color Vowel ® approach	The use of colors as a medium to recall vowel sounds
	Enjoyment of the Color Vowel ® approach
Communication purpose	Future lives
Difficulties when decoding	Discriminating spelling and vowel sounds

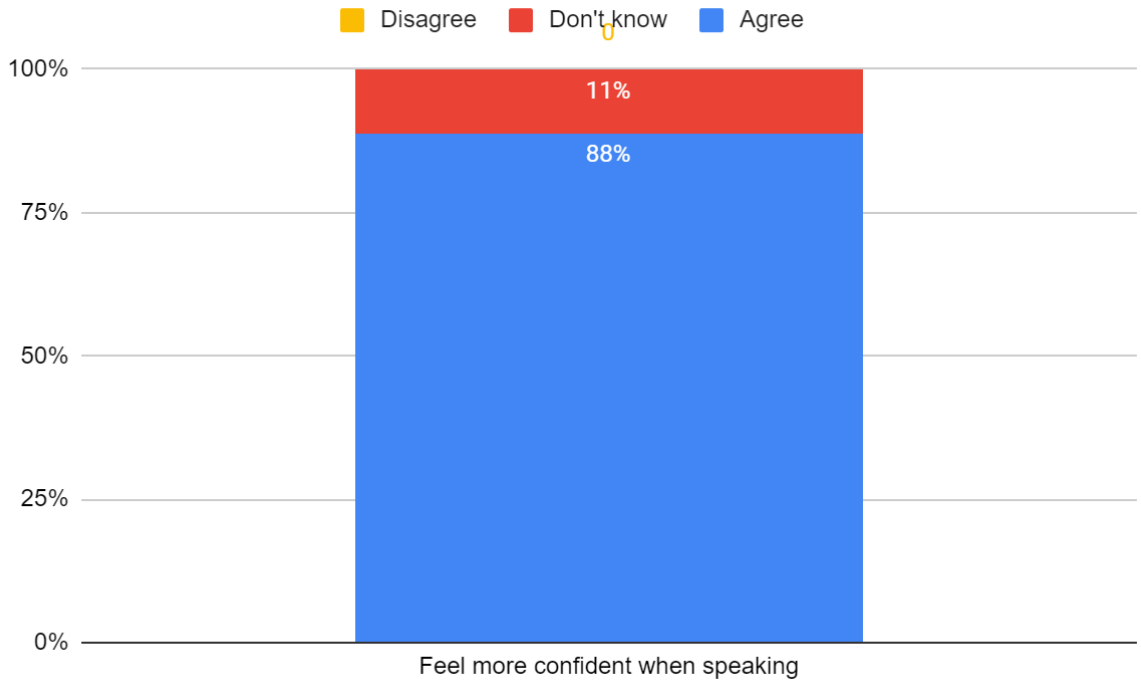
4.2.1 Dimension 1: Improvement in EFL

This dimension was about how students expressed the improvements they perceived after the Color Vowel ® approach was implemented.

Dimension 1 consists of one question from the Likert scale "I feel more comfortable speaking English when using the Color Vowel ® approach" and the answers collected from the Focus Group.

As observed in Figure 20 below, 88% of students agree with the statement "I feel more confident when speaking". From this it could be inferred that when students are knowledgeable and aware of how to decode vowel sounds, they are more certain about how to pronounce different words, hence feeling more confident when speaking.

Figure 20
Likert scale response for Dimension 1: Improvement in EFL



Furthermore, students' responses from the Focus Group were analyzed by dimension in detail in Table 13 below.

The responses from the Focus group reveal that students had positive perception regarding the improvement of their own pronunciation and also their decoding skills. The majority of them expressed they felt an improvement after the intervention took place.

Table 13
Focus Group Dimension 1: Improvement in EFL

Dimension	Theme	Sub-theme	Frequency	Examples
Improvement in EFL	Performance in the lesson		2	**Student Nº 1:** "antes me iba mal en inglés y ahora me va mejor" **Student Nº 3:** "antes me costaba más inglés y ahora no tanto"
	Pronunciation		3	**Student Nº 15:** "a mi me ayudó la estrategia y yo creo que a todos a pronunciar 'aʊ' y no

				‘əʊ’ porque a muchos les costaba” **Student Nº 18:** “la estrategia me ha ayudado demasiado, por ejemplo ‘cow’ tiene una parte con ‘aʊ’ y yo antes decía ‘cow’ con ‘əʊ’” **Student Nº 19:** “la estrategia me ayudó porque los colores y los sonidos me ayudó mucho porque de chica yo me confundida demasiado por ejemplo una palabra decía ‘moon’ y yo la decía con ‘o’”

Overall, students’ positive perceptions regarding the improvement of their pronunciation and decoding skills and their confidence when speaking, indicate a positive effect that the Color Vowel ® approach had on students’ perception about its use.

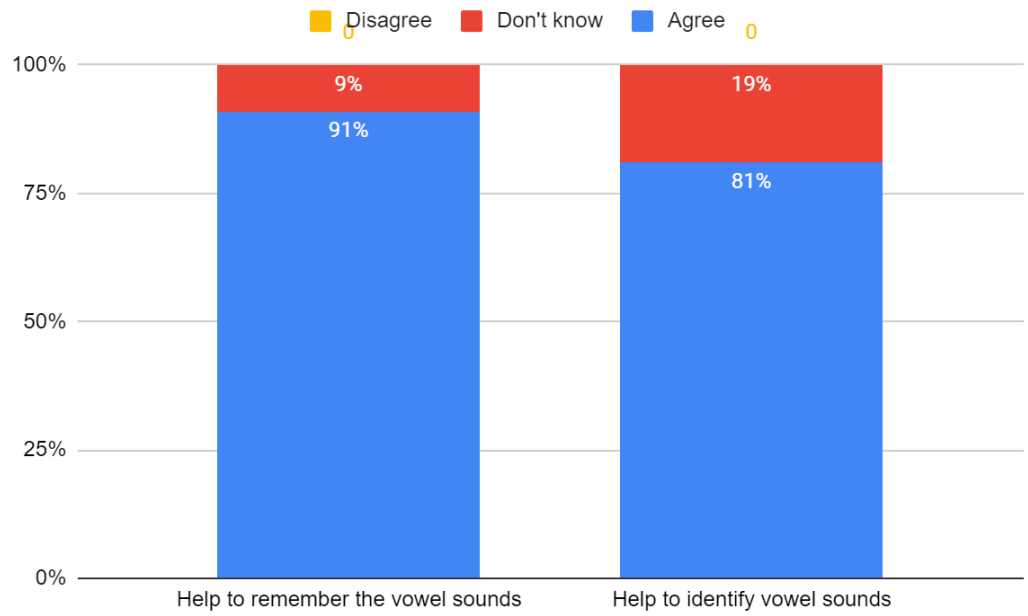
4.2.2. Dimension 2: Effectiveness of the Color Vowel ® approach

This dimension expressed the effectiveness students perceived after the Color Vowel ® approach was implemented. Dimension 2 consists of four statements from the Likert scale: “The strategy helps me to remember the vowel sounds”, “the strategy helped me to identify vowel sounds”, “I enjoy learning the sounds of English” and “Activities are fun”. These statements were presented in two parts; the first two statements represent the theme “the use of colors as a medium to recall vowel sounds” and the other two represent the theme “enjoyment of the Color Vowel ® approach”.

In Figure 21 below, 91% and 81% of students think that the Color Vowel ® approach helps them to remember and identify vowel sounds, respectively.

Figure 21

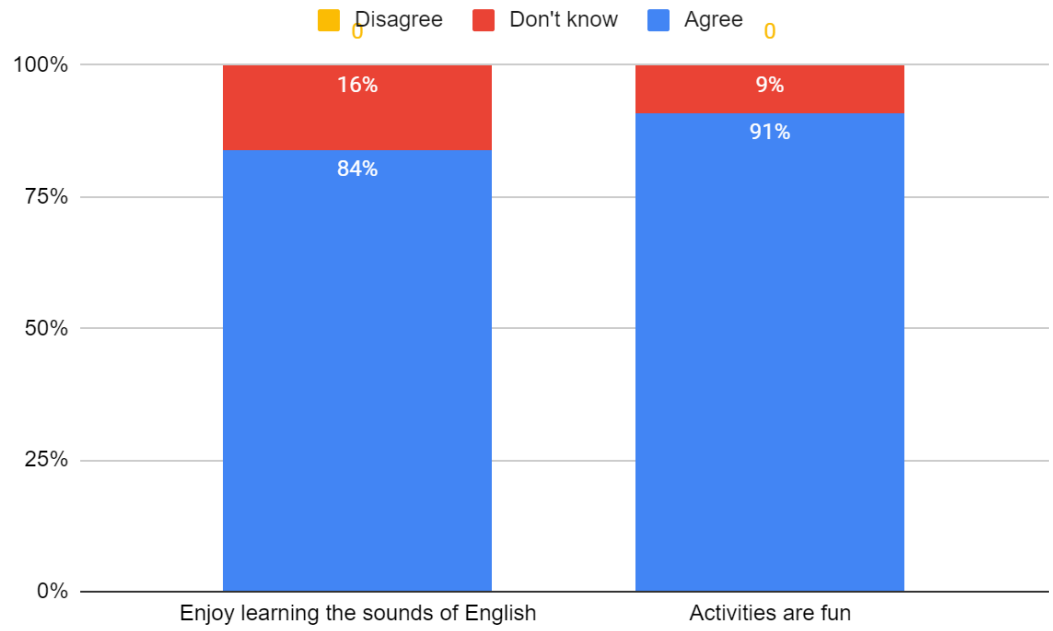
Likert scale responses for Dimension 2: The use of colors as a medium to recall vowel sounds.



Furthermore, figure 22 below shows 84% of the students agreed with the idea that they enjoyed learning the sounds of English using the Color Vowel ® approach, and 91% of the students agreed with the idea that the activities carried out were fun.

Figure 22

Likert scale responses for Dimension 2: Enjoyment of the Color Vowel ® approach.



The results from the Likert scale aligned with students' responses from the Focus Group. The answers that illustrated this were analyzed in detail in Table 14 below.

Students' responses from Theme 1 revealed that students perceived the implementation of the Color Vowel ® approach as effective and helpful. They recognized the link between the color-coded words and the pronunciation of the words. Moreover, responses from Theme 2 told us that students enjoyed and were entertained by the Color Vowel ® approach and the activities carried out in its implementation. Furthermore, it seems that students associated the enjoyment of the activities with the helpfulness and improvement in their vowel decoding skills.

Table 14

Focus Group Dimension 2: Effectiveness of the Color Vowel ® approach.

Dimension	Theme	Sub-theme	Frequency	Examples
Effectiveness of the Color Vowel ® approach	The use of colors as a medium to recall vowel sounds.		4	**Student Nº 8:** "los colores me ayudaban a memorizar las palabras" **Student Nº 17:** "podía saber de inmediato cómo se pronunciaban las palabras" **Student Nº 25:** "cuando ponían los colores yo sabía con qué letra iba a pronunciar" **Student Nº 26:** "para mi también cuando ponían los colores en la pizarra se me hacía fácil pronunciar las palabras como 'green', 'beans'"
	Enjoyment of the Color Vowel ® approach.		3	**Student Nº 22:** "me pareció divertida y es más fácil con los colores para distinguir las letras" **Student Nº 17:** "es divertido porque podía saber de inmediato cómo se pronunciaban las palabras" **Student Nº 2:** "entretenido me ayudó a mejorar la

				pronunciación de las palabras como blueberry, brownie, cow milk y otras más” **Student Nº 18:** “es mas entretenido mas facil, me ha ayudado demasiado” **Student Nº 29:** “divertida y me ayudó entonces fue cool y divertido”

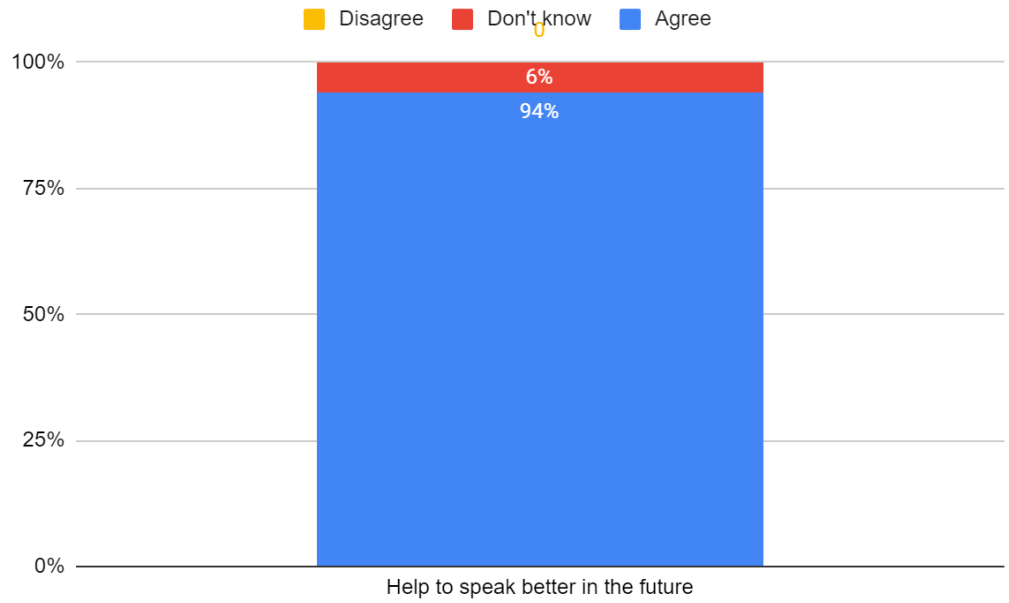
Overall, the evaluation of the Color Vowel ® approach's effectiveness and likability reflects a favorable and significant response from students. Their explicit connection between color-coded words and decoding demonstrates a solid understanding of the strategy's efficacy. The relation observed between enjoyment and learning outcomes in these results are encouraging. In essence, the positive responses from students, reinforced by quantitative evidence from Likert scale responses and qualitative insights from the Focus Group, highlights that the Color Vowel ® approach was successful in improving learners' vowel decoding skills.

4.2.3. Dimension 3: Communication Purpose

This dimension expressed students' responses regarding the Communication purposes they grasped from the implementation of the Color Vowel ® approach, specifically communication purposes in their future lives.

Students' answers from the Likert scale supported these ideas of improving their decoding skills for communication purposes. Figure 23 below showed that 94% of students agreed with the idea that using the Color Vowel ® approach will help them to speak better in the future.

Figure 23
Likert scale response for Dimension 3: Communication purpose.



To go more in depth, students' responses from the Focus Group also supported and explained such perceptions, as seen in Table 15 below.

These answers revealed that students acknowledged the importance that English has in their future lives. Moreover, students reflected on the fact that if they were able to decode and pronounce correctly, they would be able to communicate better, whether it be in social contexts (family living abroad), cultural exchange (travel) or future jobs (football club).

Table 15
Focus Group Dimension 3: Communication purpose.

Dimension	Theme	Sub-theme	Frequency	Examples
Communication Purpose	Future lives		4	**Student Nº 28:** "la estrategia nos ayudó a pronunciar para cuando seamos grandes seamos mejores para hablar inglés por si nos dan un trabajo o si uno está en un club extranjero de fútbol" **Student Nº 27:** "me gustaría seguir usando la estrategia porque si quiero viajar a EEUU me puede servir para comunicarme con las personas de EEUU como por ejemplo saber las palabras que ellos dicen porque si yo voy y no sé nada de inglés no voy a entender qué dicen, por ejemplo me dicen "ven a mi casa" y yo no entiendo no voy a saber cómo responder" **Student Nº 10:** "me gustó usar la estrategia porque en diciembre va a venir un familiar de Canadá y me va a hablar en inglés y podría entenderle y podría hablarle" **Student Nº 22:** "me gustaria saber mas pronunciaciones y así viajar a otros países y que no se me dificulte el inglés"

Overall, students' responses in Dimension 3 revealed that learners acknowledge the importance of English proficiency in their future lives. They recognized the practical implications of language learning, emphasizing the significance of accurate decoding

and pronunciation for effective communication in diverse contexts, including familial interactions, cultural exchanges during travel, and potential future job opportunities. The findings highlight a comprehensive and integrated perception on language development, with a focus on real-world communication.

4.2.4 Dimension 4: Difficulties When Decoding

This dimension considers the difficulties perceived in differentiating spelling and vowel sounds. This was expressed in quotes shown in Table 16 below.

Table 16
Focus Group Dimension 4: Difficulties When Decoding

Dimension	Theme	Sub-theme	Frequency	Examples
Difficulties When Decoding	Discrimina-ting spelling and vowel sounds		2	**Student Nº24:** “algunas pronunciaciones de algunas palabras fueron difíciles porque no sabía de qué color eran y lo mismo que mi compañera, me confundía con “sweet” y “stew” se me hacian dificil porque tenían las mismas letras pero en diferente orden” **Students 17**: “algunas palabras se parecen y eso me va a confundir qué color va en cada palabras, por ejemplo “sweet” y “stew” porque tenían las letras casi iguales”

These answers revealed that the student experienced confusion and struggled distinguishing certain words based on their pronunciation and spelling patterns. The specific examples of "sweet" and "stew" were cited by Students 14 and 24, indicating a challenge in recognizing and associating the correct decoding of those words. These insights emphasize the importance of incorporating additional strategies to avoid confusion in the development of their decoding skills.

In conclusion, considering the 4 dimensions that emerged from students’ responses, it can be observed that students have their own perceptions and opinions about English. This highlights the need for researchers to be continuously attentive to

children's emotions, interests, and perspectives in various aspects that directly affect their lives.

CHAPTER V
DISCUSSION

The purpose of this AR was to analyze the use of the Color Vowel ® approach to foster 4th graders' decoding skills of the vowels /i:/, /u/, /eɪ/ and /aʊ/ and to describe students' perceptions on the use of the Color Vowel ® approach and the influence on their vowel decoding skills from print to speech.

5.1 Phonological awareness development

The results indicate there is an improvement in terms of decoding skills. Overall, students improved their scores in all the vowels assessed. Findings showed that the vowel that was improved the most in terms of decoding and pronunciation was the diphthong /aʊ/. Some students expressed that after the intervention they were aware that some words that they used to pronounce with /əʊ/ were pronounced with /aʊ/ instead. A student stated, "the strategy helped me, and I think it helped everyone to pronounce 'aʊ' and not 'əʊ' because it was difficult for many of my classmates". This vowel was of special attention for 4th graders since they expressed that they were not familiar with the place or manner of articulation of this sound. These findings are consistent with Al-Tamimi and Rabab'Ah (2007), who investigated the effect of phonological awareness instruction on word-reading ability among EFL first-graders. Their study findings suggest that a strong grasp of phonological awareness significantly influences the development of word-reading skills in first-grade students, highlighting the necessity of direct teaching focused on phonological awareness to support its progress. Although the words practiced for this current action research were mainly one-syllable words, children were able to be aware of the new sounds and to make sense of the color-sound correspondence, according to the Color Vowel ® approach. These findings also align with what Ghorbani et al (2016) demonstrated; explicit instruction of vowels, by increasing the awareness and consciousness of learners, can be more effective than implicit teaching methods. In addition, teachers may help their students to develop a deeper comprehension of the vowels by stimulating them so that they become more conscious and capable of understanding the importance of good decoding skills.

Furthermore, all the four vowel sounds taught and practiced in this current action research showed an improvement in terms of the learners' performance and accuracy. Particularly, the diphthong /aʊ/ was of special attention to students, while before the intervention they struggled with it, they expressed that after being trained with the Color Vowel ® approach they were able to decode it correctly. These results are consistent with Underhill (2005) argument on the importance of noting that pronunciation is also a physical activity. According to this scholar, teachers and students must be aware of how sounds are produced by manipulating or controlling muscles involved in producing speech and understand the connection between a physical feeling of using these muscles and what is heard through their ears. Generating this phonological awareness in English language learners is helpful for enhancing their overall pronunciation and communication skills. By fostering an understanding of the physicality behind sound production, learners can develop a

more insightful grasp of phonetics. This increased awareness enables them to refine their articulation, leading to clearer and more intelligible speech. Moreover, gaining phonological awareness not only improves individual vowel sounds but also lays the basis for mastering other phonetic aspects, facilitating better comprehension and expression in spoken English Underhill (2005). In addition, 81% of students of the present action research expressed that the Color Vowel ® approach helped them to identify vowel sounds and in the focus group they also expressed that the colors helped them remember the pronunciation of words and that after the intervention they were able to differentiate the pronunciation of /əʊ/ and /aʊ/.

In essence, this study underscores the potential advantages of explicit phonological awareness training in enhancing both pronunciation and decoding skills among 4th graders. It reinforces the value of methodologies like the Color Vowel ®, offering a more engaging approach to teaching vowel sounds. These findings advocate for teachers to consider incorporating such strategies into their teaching methods to enhance and facilitate improved understanding and pronunciation skills among learners.

5.2 Multisensory learning

Multisensory and multicognitive learning, as suggested by Odisho (2007), involves an instructional method that uses various sensory modalities to improve the acquisition of pronunciation skills. It integrates auditory, visual, and kinesthetic components to enhance the learning process. Moreover, Odisho's (2007) sequence of orientation for teaching vowels i.e., cognitive, auditory, visual and tactile-kinesthetic orientations, provides a path for preparing learners to recognize and address pronunciation issues in a comprehensible way, which can be very useful for teachers concerned with this matter. In this sense, 4th grade learners seem to enjoy these types of activities where they are able to use their senses to enhance a particular skill. The current study findings showed that most of the students (88%) enjoyed using the Color Vowel ® approach because they thought the activities were fun or helped them to identify better different sounds in English. Moreover, in the focus group they expressed that the colors helped them memorize words and when the teacher put the colors they knew what letter they were going to pronounce. These results align with Shrestha (2013) findings, where teaching practices in the EFL classroom were examined, considering children's perceptions. The findings indicated that students had positive attitudes towards practices like recitation, drills, and using visual aids and flashcards. Moreover, most students expressed they enjoyed playing games during English lessons because they are fun and spontaneous. They also enjoyed using posters and pictures in class. These visuals were perceived as helpful by these young learners.

In addition, multisensory learning also adapts to students with special educational needs within the School Integration Program. By incorporating the Universal Design for Learning (an educational approach that recognizes diversity in the learning process

of students) the learning process can be adapted to educational practices, places and materials to respond to individual needs and learning preferences in flexible school environments (Diseño Universal Para El Aprendizaje y Libros de Texto Digitales Accesibles, 2022). Incorporating the UDL approach, providing multiple means of engagement, representation and action and expression "ensures that all learners can access and participate in meaningful, challenging learning opportunities" (CAST, 2018). In this particular action research, students that were part of the School Integration Program were able to participate in all the activities involving the Color Vowel ® approach. They demonstrated engagement and took active participation during the lessons. Therefore, the connection between multisensory learning and UDL is crucial for creating an inclusive educational environment. The integration of multisensory learning aligns seamlessly with the principles of Universal Design for Learning, offering a diverse range of learners, including those with special educational needs, varied paths to access and engage with educational content and objectives. This reciprocal relationship between multisensory approaches and UDL principles ensures that educational materials, methods, and environments are not only accessible but also flexible, allowing for personalized learning experiences. By providing multiple means of engagement, representation, and expression, combining multi-sensory learning and UDL principles, empowers educators to cater to unique learning preferences of individual learners, fostering a fairer and richer learning experience for all.

Furthermore, according to a study carried out by Cruz Muñoz (2020), six 10th-grade students from Quilpué, Chile, were selected for investigating the impact of UDL on their English as a Foreign Language (EFL) experience. Findings revealed that UDL principles impacted positively on students' participation; they expressed their desire to learn English and they recognized its importance. Moreover, engagement in students also increased. These findings align with what 4th graders expressed in the Focus Group regarding the importance of learning English for different purposes and also in their willingness to participate more in class. These findings suggest that UDL principles and the Color Vowel ® approach promote a higher engagement in an EFL class, enabling students to decide and communicate by adapting materials through visual and kinesthetic aid, and facilitating different learning opportunities through the implementation of strategies.

5.3 Listening to children's voices

Considering 4th graders' perception about the use of the Color Vowel ® approach on their vowel decoding skills from print to speech, it provides valuable insights regarding what students have to say in this particular issue. Moreover, it provides a deeper understanding of how they are able to reflect upon the relevance of pronunciation and decoding skills.

According to Zafary (2021), students acknowledge the importance and necessity of good pronunciation, comfort in sounding correct, the fun and interest in pronunciation activities, and understanding the relationships between sounds and spelling. This goes in line with the results obtained in the Likert scale, where students expressed that they enjoyed the activities carried out when using the Color Vowel ® approach. Moreover, 84% of the students expressed they enjoyed learning the sounds of the English vowels. These results might reveal a directly proportional relationship between enjoyment of the activities and their performance in the English class.

In another study, a significant portion of participants reported sometimes feeling uncomfortable when speaking English (Modesti, 2016). According to Modesti (2016), this discomfort could be attributed to the perceived difficulty of speaking English, as the majority found it challenging to pronounce English words and struggled with the relationship between spelling and pronunciation. These results are consistent with 4th graders' Focus group responses, where they mentioned struggling with the decoding of words that had similar spellings, for instance when they had to discriminate the pronunciation between ‘stew’ and ‘sweet’, because they had similar spelling. Nonetheless, Modesti (2006) findings must be interpreted with caution, since in this current action research students expressed the difficulties, they had when decoding some words, especially before the intervention was carried out. These might suggest that students feel uncomfortable when speaking English when they are not explicitly trained in terms of uttering vowel sounds or pronunciation in general.

Furthermore, Tergujeff (2013) and Burri (2023) point out the importance of communication as the main goal for students to achieve in EFL classes and their desire for pronunciation instruction. These results align with the Likert scale and Focus group results where the majority of students expressed the desire to continue learning about pronunciation so they could communicate better in different instances of their lives. This suggests that children have a say in what they think about learning English and how it can be connected to their future lives in very practical and specific ways; teachers can gain valuable insights by considering children's perspectives on effective teaching, preferred learning methods, and opinions on classroom activities, as research has shown Pinter et al. (2013). Furthermore, learners can provide new perspectives on language learning, recognizing children as knowledgeable individuals who can make valuable contributions to the field of English language teaching. For instance, in this actions research 4th graders expressed the desire of continuing learning about decoding and pronunciation because they could travel abroad so they would be able to communicate better, they would listen and understand family members that live abroad, they would be able to travel abroad and communicate with people and even it would be useful for their future EFL lessons next year because they already know how some words are pronounced.

These findings lead us to what Pinter (2014) says about children's participation in research; in the context of research involving children, it is essential to recognize them

as active participants in the events and institutions that shape their lives. This perspective emphasizes the importance of involving children, keeping them informed, seeking their input, and listening to their voices on matters that significantly affect them. Therefore, this highlights the need for researchers to be continuously attentive to children's emotions, interests, and perspectives in various aspects of their lives.

5.4 Limitations

Although general results were positive, there are some limitations that need to be taken into consideration when analyzing the results. For instance, some factors such as socio-economic background, parents' level of studies, aspirations or others, may influence the results. This particular class is usually involved and engaged in the lessons and parents are usually very present and interested in their learning process. In this matter, Butler & Le's (2018) study revealed a positive correlation between students' English performance and both parental income and educational level. Additionally, the study identified parental beliefs about their child's ability to succeed in English learning as the strongest predictor of their child's English performance. Furthermore, the sample size can also be a factor to consider. 33 students were selected for this AR through a convenience sample. The results of this action research may not be extrapolated to other contexts due to the small sample size and particularities of the context. Moreover, the intervention took eight sessions. This may be limited to assure the long-term contribution of this study. Nonetheless, these limitations may be presented as a possibility of expanding research in this field.

In conclusion, considering the 4 dimensions that emerged from students' responses, it can be observed that students have their own perceptions and opinions about English. These findings can lead us to what Pinter (2014) and Kucha & Pinter (2012) say about children's participation in research; in the context of research involving children, it is essential to recognize them as active participants in the events and institutions that shape their lives. Therefore, this highlights the need for researchers to be continuously attentive to children's emotions, interests, and perspectives in various aspects that directly affect their lives.

CHAPTER VI
CONCLUSION

6.1 Summary of main findings

Overall, the results of the present action research were particularly positive, showing significant progress towards the overall objective which was analyzing students decoding skills of vowels /i:/, /u/, /eɪ/ and /aʊ/. Furthermore, students demonstrated an improvement in their decoding skills when using the Color Vowel ® approach. In addition, their phonological awareness also improved, especially in the articulation of previously unknown sounds and the recognition of different word patterns, such as in the case of the diphthong /aʊ/. This positive result aligns well with the principles of phonological awareness and multisensory and multicognitive learning. Using multiple senses, students developed an awareness of the location and articulation of different vowels and associating the color-coded words from the Color Vowel ® approach, helping them to improve their decoding skills.

Explicit phonological awareness training that Color Vowel ® approach provides can be an effective tool for improving young learners' decoding skills and pronunciation abilities. This action research highlights the importance of incorporating such strategies into teaching methods to facilitate improved understanding and pronunciation skills among young learners. The positive perception of the Color Vowel ® approach by students emphasizes the significance of considering young learners' voices and perspectives in language learning, as it can help to motivate and engage them in the learning process. Overall, the study underscores the value of explicit phonological awareness instruction in enhancing both pronunciation and decoding skills among young learners, and advocates for teachers to consider incorporating such strategies into their teaching methods to improve the quality of English language education.

Moreover, the Color Vowel ® approach highlights the effectiveness of multisensory and multicognitive learning in enhancing the acquisition of pronunciation skills among 4^{th} graders. This approach integrates auditory, visual, and kinesthetic components to create a more comprehensive learning experience. By engaging multiple sensory modalities, students are able to reinforce their understanding of vowel sounds and improve their pronunciation skills in a more holistic manner.

This action research suggests that the use of multisensory and multicognitive learning, as exemplified by the Color Vowel ® approach, allows students to not only hear the sounds but also see and physically engage with them through color associations. This approach provides a more interactive and engaging learning experience, which can lead to better retention and application of pronunciation skills.

Furthermore, the positive reception of the Color Vowel ® approach by students, who found the activities enjoyable and helpful for identifying different sounds in English, underscores the value of such multisensory methods in language education. By incorporating auditory, visual, and kinesthetic elements, teachers can create a more dynamic and effective learning environment that caters to diverse learning preferences and enhances students' pronunciation skills in a comprehensive manner. Likewise, students' positive perception of the Color Vowel ® approach emphasizes the significance of learning English pronunciation in their practical and future lives. By incorporating young learners' voices and perspectives into language learning, teachers can create a more engaging and effective learning environment that caters

to their unique needs and interests. Findings from this action research also emphasize the value of listening to children's voices and considering their emotions, interests, and perspectives in various aspects that directly affect their lives. By doing so, teachers can create a more inclusive and supportive learning environment that fosters students' motivation and engagement in the learning process. This approach aligns with the principles of Universal Design for Learning (UDL), which emphasizes the importance of providing multiple means of engagement, representation, and expression to cater to diverse learners' needs. In addition, the positive results were supported by student perceptions, as evidenced by Likert scale results (an average of 88% of agreement in all the statements assessed) and focus group discussion (favorable answers regarding the strategy Color Vowel ® approach). Students attributed their progress to a number of factors, including the use of colors, classroom activities and the use of the multisensory and multicognitive approach. The use of colors not only makes the learning experience more engaging, but also helps children gain a deeper understanding of the decoding process. Students were drawn to the multisensory and multicognitive approach that the Color Vowel (r) approach provides, enhancing their overall learning experience.

Similarly, findings suggest that incorporating young learners' voices and perspectives into language learning can help to motivate and engage them in the learning process. By providing opportunities for students to express their opinions and interests, teachers can create a more student-centered learning environment that fosters their autonomy and agency in the learning process. This approach can lead to better learning outcomes and a more positive attitude towards language learning among young learners.

6.2 Personal reflection

Doing action research is a process of constant change and questioning. It is not just about observing results but also about reflecting on my own practices throughout the process. This involves a continuous evaluation of what works and what could be improved. In this regard, I think there is always room for growth and improvement, if pedagogical reflection is part of our daily practice.

During this research, I also reflected on the type of activities carried out during the intervention. Looking back, I would have tried to include more kinesthetic activities so the lessons would not be repetitive. Keeping a good balance in terms of activities is an important issue, especially when we talk about inclusion in the classroom.

Moreover, engaging in action research also involves navigating through doubts and questioning my own capacities. Recognizing these uncertainties is crucial because it prompts ongoing learning and adaptation. Thus, there is always space for improvement and learning, and acknowledging this is crucial to the process.

Reflecting on this process, it is evident that action research is a dynamic process that requires adaptability and openness to change. Embracing challenges as opportunities for growth and consistently assessing and refining teaching practices contribute to an ongoing cycle of improvement.

6.3 Recommendations

Further research studies could be carried out to explore the interactions of these elements (socio-economic factors, number of students in the classroom) within a wider and more varied range of educational environments and conditions. By conducting wider research studies across various contexts, researchers can gain a deeper understanding of the nuances of these educational dynamics and shed light on how they manifest in different circumstances, especially in EFL learning in the Latin American and Chilean context. For instance, new studies about the influence of cultural backgrounds on language acquisition and classroom dynamics in EFL settings within Latin America and Chile could be immensely beneficial. Additionally, exploring the relationship between UDL principles and multisensory teaching, and in EFL instruction could also be relevant for Chilean and Latin American context.

Moreover, investigations focusing on the specific requirements and challenges that children encounter while learning EFL is needed, especially in Latin American and Chilean context. This emphasis on local contexts and student needs can inform more targeted and effective educational practices, eventually benefiting a wider range of learners and contributing to the enhancement of EFL education in these regions.

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Appendices

Appendix A

Checklist: Pre-intervention test

Vowel sound	Word	Expected	Other
/i:/	Beet		
	Beans		
	Peach		
	Cream		
	Sweet		
/u/	Soup		
	Juice		
	Blueberry		
	Fruit		
	Stew		
/eɪ/	Cake		
	Grapes		
	Steak		
	Pancake		
	Grapefruit		
/aʊ/	Brownie		
	Cloud bread		
	cow milk		
	sour		
	flour		
Score	**_____ /20**		

Appendix B

Checklist: Post-intervention test

Word	Expected	Other
Beet		
Brownie		
Peach		
Stew		
Grapes		
Flour		
Sweet		
Blueberry		
Steak		
Sour		
Cake		
Juice		
Cow milk		
Cream		
Grapefruit		
Beans		
Cloud bread		
Fruit		
Pancake		
Soup		
Score: ___ /20		

Appendix C

Likert Scale

Nombre: _____	👍 De acuerdo	🖐 No sé	👎 En desacuerdo
1) Disfruto aprender sobre los sonidos del inglés cuando uso la estrategia Color Vowel®.			
2) Me siento más confiado al hablar inglés cuando uso la estrategia Color Vowel®.			
3) Creo que la estrategia Color Vowel® me ayudará a hablar mejor en inglés.			
4) Creo que las actividades de Color Vowel ® son divertidas			
5) La estrategia Color Vowel® me ayuda a recordar los sonidos del inglés.			
6) La estrategia Color Vowel® me ayuda a identificar mejor los sonidos del inglés.			

Appendix D

Focus group

¿Te ha ayudado el enfoque Color Vowel ® a mejorar tu pronunciación en inglés? ¿Cómo lo notas?
¿Qué te pareció usar el enfoque Color Vowel? Explica.
¿Qué fue lo más fácil durante estas clases?¿Por qué?
¿Qué fue lo más difícil? ¿Por qué?
¿Te gustaría seguir usando esta estrategia? ¿Por qué?