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Rise of Phonological Awareness in Spanish Early Childhood Education Students

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Abstract
Acquiring phonological awareness involves becoming aware of language as a tool for communication and aspects, such as the sound structure of words and their correspondence with the written language. Researchers place the onset of these cognitive and metalinguistic abilities between the ages of two and a half and four years, coinciding with the Early Childhood Education stage. Therefore, the objective of this study is to conduct a mixed study divided into five stages to verify the results of the application of Jolly Phonics in a 5-year-old classroom, with children learning English as a foreign language. Our motivation was mainly to include activities that encouraged the development of listening comprehension skills in Early Childhood Education. The findings of the research showed some inconsistencies in the learning of foreign language phonemes. Despite some pronunciation errors, the students increased the number of hits once the Jolly Phonics method was applied. The main implication of this study is that difficulties in learning the correct pronunciation can be solved using synthetic methodologies with a variety of resources.

Key words
Early childhood education; foreign language; jolly phonics; phonological awareness; synthetic phonics

1. Introduction

The Spanish curriculum does not include any specific learning objective for English pronunciation. However, for the effective teaching of English, the inclusion of pronunciation skills in the Early Childhood curriculum is necessary. English is a subject for which children often need more reinforcement, which raises the question of whether curricular teaching is insufficient to achieve good linguistic competence in a foreign language (Porta & Ramírez 2019). It is true that material, economic, and human resources have increased, but this is not sufficient. It is necessary to provide a high-quality educational methodology that overcomes these obstacles and addresses the deficiencies that our educational system has traditionally presented in this regard.

Teaching foreign languages in Early Childhood Education is not a task without difficulties. The main barriers are cognitive immaturity and insufficient exposure

to the new linguistic model, which prevent access to explicit grammar teaching and learning in a natural and direct manner. The novelty lies in the development of phonological awareness by learning phonemes in the most effective way to acquire linguistic competence. The search for effective methods has led to the development of phonological awareness through the application of the Jolly Phonics method. Teaching methods based on Synthetic Phonics, such as Jolly Phonics, have been developed in a systematic, structured, progressive, and playful manner, using a variety of resources, techniques, and procedures to learn to recognise phonemes and the correspondence of oral language with its graphic representation.

The most palpable ones are related to phonological production. The differences between Spanish and English linguistic codes are evident, starting from the most elementary unit: the phoneme. Spanish has 22 sounds, whereas English has 44 sounds. Therefore, Spanish speakers find it difficult to pronounce English words. How can they cope successfully with a language that is phonetically much more complex than their own? It is difficult for children to produce or identify sounds that they do not have in their native language if they are not taught how to do so.

A common failure of many teachers of English as a foreign language is not to pay due attention to pronunciation since it is not considered as important as other areas of English, such as grammar, lexicology, and vocabulary (Balikci 2020). Pronunciation is established in Early Childhood Education when a child can effortlessly become accustomed to unusual sounds, accents, and words. Children who practice reading individual phonemes apply them by sounding them out, putting them together in other words, and writing them down without effort (Vetorico 2022). Therefore, phonological awareness is important, even if the children's phonological skills are limited (Yeung et al. 2017).

It is recommended that Early Childhood Education teachers use a methodology based on synthetic phonics from the earliest stages of education (Alghazo and Al-Hilawani 2010). The commitment to systematic language teaching through a synthetic phonic approach centralised our research, which concluded with the discovery of the Jolly Phonics method. Mohamed et al. (2021) confirmed that using a synthetic phonic approach improves the decoding skills of all students.

Jolly Phonics is a teaching method based on the learning of phonemes and their relationship to letters. The learning of phonemes necessarily involves the acquisition of linguistic skills, which makes it possible to recognise that spoken language comprises a sequence of elements: words. The word, in turn, is made up of smaller elements (syllables and phonemes) that give it a particular structure. According to Fernández Molina and Guillén (2021), when children recognise the structure of a language, they demonstrate phonological awareness.

Phonological awareness is, therefore, the basis for learning phonemes and letters, which are the main elements of synthetic phonetic teaching. Children with good phonological awareness can manipulate and detect sounds independently of their meanings (Mohamed et al. 2021). Therefore, the phonological awareness of the child ranges from a simple operation of audio processing to more complex operations: rhyming, separating, and mixing syllables, separating, and mixing the beginning and end, and separating and mixing individual phonemes (Bdeir et al. 2020).

We assume that the teaching of a foreign language in Early Childhood Education should include activities that encourage the development of listening comprehension skills, which allows the child to recognise the structure of words at a phonetic level and develop phonological awareness. We work on the hypothesis that the development of phonological awareness through the learning of phonemes is the most effective way to acquire linguistic competence because better performance is achieved in less time (Wasik 2001).

The general objective of this paper is to assess the effectiveness of the Jolly Phonics method in the development of phonological awareness by conducting mixed, quasi-experimental research on children learning English as a foreign language in Early Childhood Education. To achieve this objective, we will first study what phonological awareness is and the meaning of the English term "phonics".

2. Theoretical framework

The terms phonological awareness and phonemic awareness have been used interchangeably. However, there were significant differences between the two groups (Hayward et al. 2017). Phonological awareness is a multilevel oral language skill defined as sensitivity to the sound (or phonological) structure of spoken words, apart from their meanings. Phonological (linguistic) units include syllabic (words and syllables) and subsyllabic (rimes and phonemes). It is the awareness of phonological structures.

Phonemic awareness is the most complex level of phonological awareness because it requires detection and manipulation of the smallest linguistic units: phonemes. Initial phoneme-level skills include isolating, categorising, and blending phonemes to form words, whereas advanced skills require segmenting and manipulating phonemes (adding, deleting, and substituting) within words. Phonological awareness is also defined as one of the key processes of phonological processing, referring to a wide range of activities that increase the sensitivity of the individual to sounds and their use in words (Atabey 2018). Phonemic awareness concerns phonemes.

2.1 The concept of phonological awareness

According to Barker (2018), phonological awareness is the sensitivity to consciously perceiving the phonological structure of words, which requires the ability to become aware of, think about, and manipulate the sounds that make up a word. One of the strongest predictors of a child's future reading success is phonological awareness skills at the end of kindergarten.

In a stimulating classroom setting, phonological awareness appears to be relatively easy for some children, whereas others require more explicit instruction. In this sense, teachers play a critical role in facilitating the acquisition of children's phonological processing abilities through exposure to a variety of spoken and written input (Bennett et al. 2023).

Phonological awareness, according to Anthony and Francis (2005), is critical for learning to read in alphabetic languages like English. It is an area of oral language related to the ability to think about the sounds of a word, and not only to know its meaning. Its acquisition facilitates an understanding of the structure of spoken language, which is made up of words that in turn are formed by smaller syllabic units, intrasyllabic units, and sounds.

The researchers Cassady et al. (2018) include the writing plane in their definition of phonological awareness because it is the result of the knowledge of the writing system and the alphabetic principle, not a prerequisite for the acquisition of writing, but rather a consequence of it. This definition is derived from genetic psychology and the concept of writing as a reflexive model.

Al Otaiba et al. (2012) suggest a relationship between phonological awareness and the process of learning to read. They define phonological awareness as a precursor, a companion to reading, and a facilitator of knowledge of the sound patterns of a language, which is necessary before learning to read formally.

From the perspective of cognitive psychology, phonological awareness is a metalinguistic ability that allows the user of a language to become aware of the minimal meaningless units (phonemes) that form words and makes it possible to perform a series of voluntary operations, such as altering, varying, substituting, blending, and omitting phonemes in a lexeme (Castles et al. 2018). The terms that appear in all the definitions of phonological awareness are phonemes. A very complete and clarifying definition can be found in Moats (2020: 44): "phonemes are the minimal phonological units in a language that allow the establishment of differences in meaning and have a distinctive function based on phonic opposition".

Regarding the evolution of phonological awareness, there have not been enough studies to establish a standardised model of the developmental pattern of phonological awareness acquisition, although recent research shows that children between the ages of two and a half and three years demonstrate phonological sensitivity to rhymes when handling short words according to Yopp and Yopp (2000). However, Phillips et al. (2008) suggested that phonological awareness develops strongly between four and eight years of age, and its development follows a progression that begins with syllabic awareness and culminates in the ability to manipulate phonemes when they are learning to read and write.

According to Rendón Romero et al. (2021), studies conducted with Spanish children revealed strong development between the second cycle of infancy and the second year of primary school, a period that coincides with learning reading and writing. To become proficient readers and spellers, students must develop phonological awareness, which includes the ability to identify, think about, and manipulate sounds in an oral/spoken language. Phonological awareness includes two types of skills: phonological sensitivity and phonemic awareness (Gillon 2017). Phonological sensitivity raises awareness of units of language larger than phonemes (words, syllables, onsets, and rimes). Phonological awareness raises awareness of individual phonemes (speech sounds).

Therefore, the acquisition of phonological awareness follows a hierarchical model that includes three components or units to define word structure: syllable awareness, or the ability to consciously segment, identify, or manipulate syllables;

intrasyllabic awareness, which allows conscious segmentation of intrasyllabic segments; and phonemic awareness, the ability to understand that spoken words are made up of a string of minimal sounds with distinctive phonological features, phonemes (Grofčíková and Máčajová 2017).

Although the learning of phonological awareness is addressed by oral games through verbal production, it is important to introduce activities that connect with written language and visually provide the written form of words, as is usually taught during kindergarten, since children do not develop the abilities of sound analysis and other abilities of phonological awareness spontaneously (Pufpaff 2009).

To conclude, we would also like to offer our personal perspective on what phonological awareness is. Phonological awareness is the ability to hear, differentiate, and manipulate sounds. It is a skill that allows children to recognise and use the sounds of spoken language, which is precisely why it is so important during this crucial stage of a child's development.

2.2 *Synthetic Phonics*

Synthetic phonics is a methodology that is used to teach children how to read and write. As the name indicates, this method is based on learning the synthesis of phonemes. Synthetic refers to the ability to develop synthesis processes with sounds (phonemes) to learn how to form words (Bowers 2020). This method applies to teaching English as a foreign language (L2) due to its flexibility, despite the differences between Spanish and English in spelling and pronunciation differences with Spanish.

Synthetic Phonics is a way of teaching children to read. It has been identified as the most successful approach for teaching reading and spelling. Synthetic components reflect synthesis or blending practices. Phonic components reflect the process of linking individual speech sounds (phonemes) with written symbols (graphemes). Essentially, when a child learns to read using synthetic phonics, they learn to link letters to speech sounds and blend these sounds to read words (Antropova et al. 2019).

Before children are introduced to books using synthetic phonics, they are taught letter sounds. After the first few of these have been taught, they are shown how these sounds can be blended to build up words (Machin et al. 2018). The children sound each letter in turn and synthesise the sounds together to generate the pronunciation of the word. Most letter sound correspondence can be taught in the space of a few months at the start of their first year of schooling. This means that children can read many unfamiliar words in the text without the assistance of the teacher.

According to Antropova et al. (2023), synthetic phonics is the most structured approach to phonics, and it is the most widely used. The synthetic phonics approach begins by introducing phoneme-grapheme correspondences one by one. Throughout synthetic phonics instruction, children are taught individual sounds, and they are encouraged to blend sounds together to make words. This is because synthetic phonics begins with sound and letter combinations that are frequently used and simple to understand before moving on to less obvious representations.

The learning objectives of synthetic phonics focus on the following:1) awareness and knowledge of how print represents sounds; 2) graphophonic knowledge; 3) phonemic and phonological awareness; 4) lexical knowledge or understanding that certain words collocate; and 5) syntactic knowledge or how to predict what comes next (Jolliffe et al. 2019). Hence, although synthetic phonics are tailored to teach reading, this method of instruction provides students with grounds for spelling words and writing (Wyse and Goswani 2008).

Therefore, according to Buckingham (2020), a typical synthetic phonics programme consists of the following elements:

- learning letter sounds; the letter names can be taught later but should not be taught in the early stages.
- learning the 44 sounds and their corresponding letters/letter groups; 44 phonemes with their common 'sound pattern' representations.
- learning to read words using sound blending.
- reading stories featuring words the students learned to sound out.

2.3 The Jolly Phonics method

Jolly Phonics is a method for teaching children to read and write, based on synthetic phonics. The wide variety of multisensory resources (songs, videos, gestures, flashcards, stories, cards) and the strategies they employ are highly motivating, both for students who learn in a playful way and perceive their progress, and for teachers who check the effectiveness of the methodology, which is easy to apply (Flynn et al. 2021).

Its resources teach 42 sounds of English speech, grouped into seven groups according to the frequency or presence in the language and the difficulty or irregularity of their distinctive features. The group /s, a, t, i, p, n/ is the first to be taught because it is from these sounds that most simple consonant-vowel-consonant (CVC) structure words in English can be formed. Therefore, letters are not taught in the alphabetical order (Belbes et al. 2022). The order or grouping proposed by this method is as follows.

1. s, a, t, i, p, n
2. c k, e, h, r, m, d
3. g, o, u, l, f, b
4. ai, j, oa, ie, ee, or
5. z, w, ng, v, oo, oo
6. y, x, ch, sh, th, th
7. qu, ou, oi, ue, er, ar

Figure 1. Sequence of learning letters. (Source: Taylor 2020)

Srikandewie and Yon (2021) stated that the Jolly Phonics method emphasised learning these five skills:

1. Learning sounds (phonemes). Each sound is learned in association with a gesture, song, or card.
2. Learning letter forms. They work simultaneously with the learning of sound to learn their correspondence in a very solid way, producing an automatic cognitive response.
3. Synthesis or "blending" of phonemes. This begins with blending simple CVC words with the phonemes of the first group. Cards are used with each phoneme-grapheme, and they are presented together in a chain. The sounds are first pronounced in isolation and progressively more pronounced in succession until the word is identified.
4. Identifying the sounds within the word "segmenting". From the phoneme-grapheme cards, the children learn in a visual way that helps them discriminate and identify the structure of the word and manipulate its segments while they acquire spelling skills.
5. Tricky words. These words follow irregular pronunciation; therefore, they are introduced following a planned order, more slowly and individually.

The author of this method is Sue Lloyd, an Early Childhood Education teacher in England. The idea of teaching children to develop auditory competence in identifying and recognising sounds in words and relating them to letters was an innovative response to the problem of some pupils being unable to acquire reading competence through the visual word-teaching method used in schools until 1975.

After learning the phonemes in isolation, the sound of their union with another phoneme is learned, forming a simple chain structure of CVC, the result of which is a word with full lexical meaning. In this way, children first learn to identify and recognise sounds (phonemes) and then relate them to letters (graphemes) that represent them (Saadu et al. 2022). They work with the "phonics" method, with which they develop their phonological awareness, and then they are taught to put the letters together.

Spanish educational authorities have also introduced this methodology, supported by numerous research studies, and have imported it, which is being implemented in a growing number of schools (Díez de Ulzurrun2020). To this end, we designed a study using the resources of the Jolly Phonics method, which aims to assess its effectiveness in teaching words and phonemic awareness, a more abstract and complex aspect perceived by children. This represents an important qualitative and quantitative leap in language learning that allows the foundations of these language development skills to be laid in a shorter period than in other analytical methods.

3. Methodology

This paper assumes that the teaching of foreign languages in Early Childhood Education should include activities that encourage the development of listening comprehension skills. These activities allow children to recognise the structure of words at the phonetic level, thereby developing phonological awareness.

Based on this hypothesis, we believe that the development of phonological awareness by learning phonemes is the most effective way to acquire linguistic competence, because better performance is achieved in less time.

3.1 Methodological design

The approach of the present research will be mixed, as it allows us to gain a deeper insight into the problem to be studied and represents a combination of qualitative and quantitative approaches. Therefore, our study is based on the use of mixed methods, where both approaches are combined because a characteristic of mixed research is methodological pluralism.

The research design serves as a strategy to achieve the research objectives. Therefore, Creswell (2021) defined mixed research as a methodology in which the researcher combines quantitative (closed) and qualitative (open) data, integrating both to draw inferences that offer a broader perspective than type of data alone. A fundamental premise of this approach is that merging statistical trends (quantitative data) with personal experiences (qualitative data) enhances understanding of the research problem compared to using a single dataset.

Ortega Sánchez (2023) argued that mixed research naturally complements both qualitative and quantitative research, recommending the combination of these methods to leverage their strengths while minimising their weaknesses. This allows us to gain a more comprehensive view of the research problem.

Guelmes Valdés and Nieto Almeida (2015) proposed several reasons for the use of this research method because it facilitates data collection and analysis by linking qualitative and quantitative methods. Furthermore, they justified its importance by pointing out that when both are combined, the information obtained will be more reliable.

Likewise, Martínez Llantada (2015) recommended combining the two methods so that the strengths of both methods are chosen. The goal of mixed research is not to replace qualitative or quantitative research, but to use the strengths of both by combining them and trying to minimise their weaknesses.

In our research, we employed a concurrent design within the mixed methods framework, according to the classification made by Hernández Sampieri et al. (2014). This design enables the integration of multiple perspectives and approaches in the same research, facilitating the simultaneous collection of qualitative and quantitative data for a more complete and enriching understanding of the phenomenon under investigation

3.2 Participants

According to Hernández Sampieri et al. (2014), the population is defined as the set of all study units. This research is aimed at a population of children whose mother tongue is not English but already have some linguistic competence in the foreign language, given that they have been exposed to this second language in the classroom for at least two years. The selected group of pupils was in the third year of the second cycle of Early Childhood Education in a Spanish public centre. The group consisted of 28 pupils (13 boys and 15 girls), aged between 4 and 5 years.

We could not apply the formula proposed by Fischer and Navarro (1997) to select the sample because the selection criterion was not that of inclusion, but of experimentation. As stated by Gómez-Nuñez et al. (2020), the number of participants is not linked to their representativeness, but to the potential information they can offer. In fact, the sample we provide is justified by the quality of the data obtained to the detriment of a larger number of students.

Students did not receive specific instruction in the development of phonological awareness from English teaching methods but were learning to read and write in the mother tongue. They learn English as a foreign language in the classroom using a method that utilises a variety of resources to acquire new vocabulary, both orally and visually. The teaching resources used were picture cards, word cards, songs, flash cards, and the teachers' oral presentations.

The teacher provides an oral model (intonation, accent, and pronunciation) of language and interaction situations to develop the content. Through simple explanations and brief instructions, already known to the children, they perform activities and games, so that they can acquire competence in the new language in a playful and unconscious way. The children received English lessons every day in 30-minute sessions.

In this methodology, there are no specific activities for developing phonological awareness. However, children learn to name and recognise objects, and therefore, know words, although they have no metalinguistic knowledge or awareness of their internal structure, nor do they know the sentence structure (syllables, rhymes, or phonemes).

3.3 Research method

The research method in this study comprised several phases. In the first phase, we conducted the direct observation in class and tested the students' prior knowledge. In the second phase, we designed the instruments used for the class intervention. The first data collection period came in the third phase with the pre-intervention in class before making use of the Jolly Phonics method. It is in the fourth phase when we applied the Jolly Phonics method in class to raise the students' phonetic awareness. Finally, the second date collection period arrived in the fifth and last phase after having applied the method.

Phase 1: Observation and assessment of prior knowledge

For two weeks, the normal development of English classes was observed for two purposes: first, to know the usual method of teaching English in the classroom (type of methodology, objectives, contents, techniques used, routines, etc.), and second, to know the children and evaluate their linguistic competence and knowledge.

Direct observations were used as the evaluation methods. We were interested in observing teaching-learning processes and children's performance in terms of oral comprehension, oral expression, pronunciation, and access to written code. We were also interested in knowing the level of comprehension demonstrated by the pupils, as well as the resources and techniques used by the teacher to transmit the content to the children and create situations of interaction and communication in the classroom.

On the other hand, we needed to know the level of oral expression and children's use of the foreign language, whether they used the language to solve needs or for other purposes, whether they used gestures or the mother tongue, and whether they did so always or occasionally. We also examined whether they produced simple but grammatically structured sentences or if they only used isolated nouns and words.

Children were asked to complete the instruments on two occasions. The first data collection was conducted to determine the children's prior knowledge, and the second was conducted after the intervention and application of the Jolly Phonics method in the classroom. The subsequent descriptive analysis, comparing the results collected before and after explicit teaching, allowed us to discover whether changes occurred and whether they led to an improvement that proves our hypothesis.

Phase 2: Design of instruments

The instruments designed *ad hoc* for data collection throughout the three tasks are described below.

Task 1: PHONOLOGICAL WORD AWARENESS.
The objective of the activity was to assess whether the children orally recognised the names of the objects on the sentence cards that the teacher showed them. Therefore, the instruction was verbal by the teacher, with visual support from the picture, and the child's response required a gesture to solve it. The activities were performed individually. It is convenient to know which words they know for later selection and elaboration of questions.

The teacher showed four sentence cards with different objects and asked the child a question accompanying the production of each word with a clap. Each child's response points on the correct card, placing another card in its place, so that there are always 4 cards on the table and continuing with the next question from the list. Hits = 1 and errors = 0. The list of words for task 1 comprised the following: bag, bin, blackboard, board rubber, book, chalk, crayon, pencil, pencil case, rubber, ruler, scissors, sharpener, and smock.

Task 2: PRONUNCIATION
The second activity allowed for recording their oral competence in pronunciation. Another aspect indirectly related to phonological awareness is that it involves auditory language skills and sensitivity that are expressed orally. This analysis was conducted by means of the Ansys acoustic analysis software.

On this occasion, we interviewed each child individually and showed them a picture card. The question asked to the child was "What is this?" (indicating a card), and the child had to verbally indicate the name of the object on the card. The instruction was repeated three times, once for each object.

The data were recorded in a manual file and analysed later. The pronunciation of each word was recorded and scored based on these criteria. The correct score is = 1 when all phonemes were correct. Incorrect answers are = 0 in the following cases: when one of the phonemes is wrong or when the answer is left unanswered. The list of words for task 2 are bag, bin, and book.

Task 3: PHONOLOGICAL AWARENESS
As the objective was the identification of phonemes, this task allowed us to identify whether children recognised the first/second phoneme of written words, and they matched them correctly with the corresponding picture. We provided them with the phonemes to see if they could identify the correct word. The following aspects were considered in the selection of terms:

- Their structure and length. The words "bin" and "bag" have a simple and short structure: they are monosyllables consisting of consonant, vowel, consonant (CVC).
- The word "scissors", although is made up of a long string of phoneme-graphemes, was selected because the first phoneme is the /s/ and we were going to work on it in the intervention with the Jolly Phonics method.
- The three words in this task can be solved if the children have the skills to identify the first and second phonemes, skills that they worked on with the Jolly Phonics programme. In the same sense, the training they received taught them to recognise the phonemes and graphemes of the first group /s, a, t, i, n, p/. The three words selected for this test "bin, bag, scissors" contain the phonemes /s, a, i, n/, which are supposed to facilitate their oral and written discrimination.
- The score will be hit = 1 and miss = 0.

As children have very little contact with the written language in English, it is expected that they use the knowledge they acquired in their native language learning in relation to the development of phonological awareness to analyse English words and recognise their structure. However, significantly better results are expected after the Jolly Phonics sessions, where the language will be explicitly worked on at this level of phonological awareness, phoneme-grapheme learning, and word structure.

The worksheet contained three pictures and three words, presented in rows and columns. To solve this activity, the written word and the picture had to be

matched. The words selected for this phonemic discrimination test were "bin, bag, and scissors".

Phase 3: Data collection 1. Pre-intervention

During the data collection phase, prior to the intervention using the Jolly Phonics method, dates and times were set for individual interviews with the children to collect data for the study. To avoid any further interference with the usual English classes and considering that the application of the instruments is individual, it was decided to carry them out during the ICT class, which was also taught by a specialist English teacher.

Thus, the interviews were conducted in a typical English classroom, and the children were able to attend the ICT class and answer the survey questionnaires. They were organised in pairs, and once in the classroom, they individually approached the teacher's desk where we provided explanations and showed the task to be completed. After completing the tasks, they returned to the ICT class and two more pupils completed the questionnaires.

Finally, the data collection session took longer than planned, and several playground periods had to be used by children to complete the study tasks. After completing the first data collection, the intervention was scheduled to begin with sessions of explicit activities to develop phonological awareness of the word, its structure, and the discovery of phonemes, using the resources of the Jolly Phonics method.

Phase 4: Intervention with the application of the Jolly Phonics method

The main purpose was to focus on children's attention to the sounds and pronunciation of English to acquire awareness of the different sounds that make up words, as well as the correspondence of the sounds with the written language. A daily intervention was conducted during the first ten minutes of the class to continue with the contents of the programme.

It is therefore an experiment in which some resources of the Jolly Phonics method were applied in a brief and accelerated way to introduce children to phonemes, spelling, and the formation of simple words made up of three letters. We proceeded in the following sequence:

- Progressive introduction of the phoneme-graphemes of the first group, which correspond to the sounds /s, a, t, i, p, n/.
- Consolidation of the relationship between phonemes and the corresponding spelling /s, a, t, i, n, p/, and graphomotor learning of their form.
- Formation of words of simple structure, consonant, vowel, consonant (CVC), by means of the union of three phoneme-graphemes from the group that has worked on.

Phase 5: Data collection 2. Post-intervention

After three weeks of intervention, new data collection was carried out using the same activities and forms as the previous data. The timetables were organised, and individual interviews were conducted. As the main objectives of the intervention were to develop phonemic awareness and the recognition of structure and phonemes, in this second phase of data collection, only tasks 2 and 3, which are more directly related to the aspects of the language worked on, were applied.

With the results obtained in both phases of data collection, a comparative analysis of the variables under study was performed to verify whether there was an improvement in the children's performance in the acquisition and development of phonological awareness, pronunciation, and recognition of spelling after the intervention.

3.5 Chronogram

The research which concluded this study was carried out following the phases and procedures described graphically in the following chronogram.

Table 1. Timeline of the research

Process	**October**			**November**				**December**
	Week 3	Week 4	Week 5	Week 1	Week 2	Week 3	Week 4	Week 1
Design								
Data collection 1								
Task 1		x						
Task 2		x						
Task 3			x					
Jolly Phonics Phase 1								
Jolly Phonics Phase 2								
Data collection 2								

4. Findings

The following results were obtained from the observation and assessment of the prior knowledge phase. In oral comprehension, the children showed that they understood the simple and familiar instructions provided by the teacher to participate in the classroom and solve the games of identifying objects, actions, etc. The children also knew how to name the objects the teacher showed on the picture cards, sing the songs, and complete the worksheets. Children's oral expressions were limited to facilitating their responses.

Assessing pronunciation is complicated because oral production is usually scarce at this stage, and they do not produce structured or isolated words. The teacher offers the pronunciation model with their oral production of language, and when a child confuses one term with another, the teacher provides corrective feedback to facilitate vocabulary acquisition. It is better to engage them in play where we can model and use sounds while playing. For this reason, songs are a good resource for assessing children's oral production and level of oral competence because they are simple, have catchy rhythms, and use vocabulary they are learning.

Reading is not considered an objective for this age group; therefore, the only form of spelling contact is through word cards. They are used to provide an approach to written language, but no work has been done on explicit reading, and no method or technique has been applied to teach students how to read words and recognise spellings, syllables, or phonemes. These cards are used in association games to link images to words. Word cards are believed to be an efficient way of learning since they are easy to create and can be adapted to play alone or in groups.

Writing, like reading, is not an objective of this stage in the learning of a foreign language, although some cards review the tracing of words or letters and promote an approach to the written code. However, they are not used as resources to explain the structure to children or to promote the discrimination of its elements, and their purpose is more oriented towards the motor development of tracing and hand-eye coordination.

From this assessment, we faced the problem of selecting instruments to measure the level of phonological awareness based on the oral or written use of the foreign language. The standardised and validated methods used to measure phonological awareness in the English-speaking child population cannot be applied to our sample, because they use unknown lexical content or content that is grammatically more complex than the knowledge acquired by our students. Therefore, we designed *ad hoc* instruments to meet our demands based on the vocabulary and prior knowledge of our sample.

Therefore, three different tasks were performed to analyse the data obtained. The first consisted of word recognition, to determine the phonological awareness of the word. Making use of effective word recognition strategies, children learn letters or spelling patterns. In the second task, we recorded the children's pronunciation. And finally, the third task comprised a task of phoneme and spelling recognition, to assess the phonemic awareness that the children possess.

The first task revealed the children's level of listening and comprehension abilities in terms of vocabulary recognition. The following graph shows the percentage

of correct answers, with the word "scissors" being the most identified or recognised word by 100% of the pupils and "smock" being the least identified word in the list.

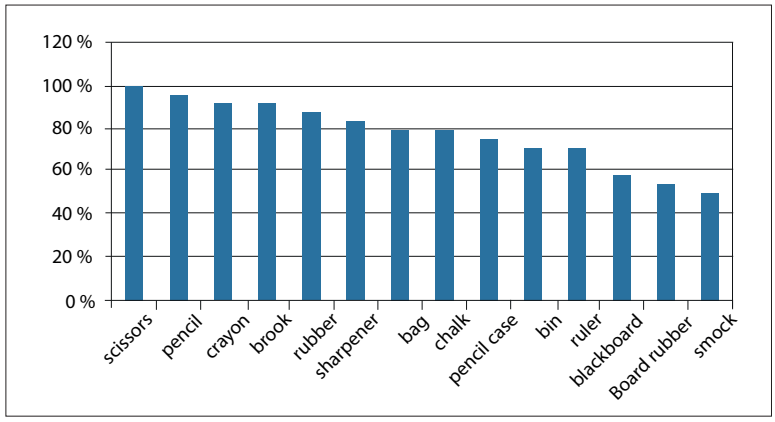

Figure 2. Results for Task 1

If we analysed the results by student, of the 14 items on the list, the mean number of correct answers was 10.88, indicating that the percentage of correct answers was quite high. However, if we go deeper into the data, we observe significant inter-subject variability, which is reflected in the maximum and minimum values reached by the students for 14 and five correct answers, respectively.

The standard deviation of 2.61 also indicates that the group is not homogeneous. The level of listening comprehension of the group of students can be assessed as high average, but some students are clearly below the average score of 10.88. The following table shows the percentages and number of correct answers for the students.

Table 2. Number of correct answers per learner for task 1

Number of students	% of hits per students	Number of hits
1	36%	5
1	43%	6
1	50%	7
2	57%	8
2	64%	9
2	71%	10
4	79%	11
5	86%	12
3	93%	13
4	100%	14

Task 2 provided information about the level of oral expression acquired by children. This also involves listening and comprehension skills because, to solve the test, students must correctly answer the questions they are asked verbally. The results of data collection are presented in the following table, the values representing the percentage of correct answers achieved by the pupils in each case.

Table 3. Comparison of percentages of correct answers in the verbal production task, pre- and post-intervention

Words	Pre-intervention results	Post-intervention results
Bag	75%	75%
Bin	50%	58%
Book	88%	83%

If we compare the results of the data obtained in this activity between the two data collection phases before and after the intervention, we observe no positive changes in production. If we analyse the first word "bag", the result is identical in both data collection phases. In the second word "bin", there is a slight improvement in the second interviews, carried out after the intervention. However, the number of correct pronunciations of the third word, "book" is slightly lower in the second data collection, with a percentage of correct pronunciations of 83 compared to 88 in the first test.

Phonemic analysis of the children's responses to pronouncing the target words revealed errors in the pronunciation of some phonemes, which the children resolved with substitutions and omissions, as shown in the following table. There seems to be no reasonable explanation for the errors made by the children, so it might be useful to repeat the experiment if we have the choice.

Table 4. Phonemic analysis of pre-intervention and post-intervention verbal production

Pre-intervention errors	Post-intervention errors
Phoneme /b/ is substituted by /d/ 8 times. Phoneme /n/ is substituted by /c/ 3 times. Phoneme /n/ is substituted by /p/ twice. Phoneme /n/ is substituted by /l/ once. Phoneme /n/ is omitted twice. Phoneme /g/ is substituted by /p/ once. Phoneme /g/ is substituted by /k/ 4 times. Phoneme /g/ is omitted 5 times.	Phoneme /b/ is substituted by /d/ 5 times. Phoneme /n/ is substituted by /c/ 3 times. Phoneme /g/ is substituted by /k/ 4 times. Phoneme /u/ is substituted by /o/ once. Phoneme /g/ is omitted 3 times.

Task 3 collected the phonemic recognition results. The following table shows the scores recorded during the two data-collection periods. The hits increased significantly in the second interview phase, after the intervention, and after explicit training in phonemic recognition using the Jolly Phonics method. There was a significant increase between the pre- and post- intervention.

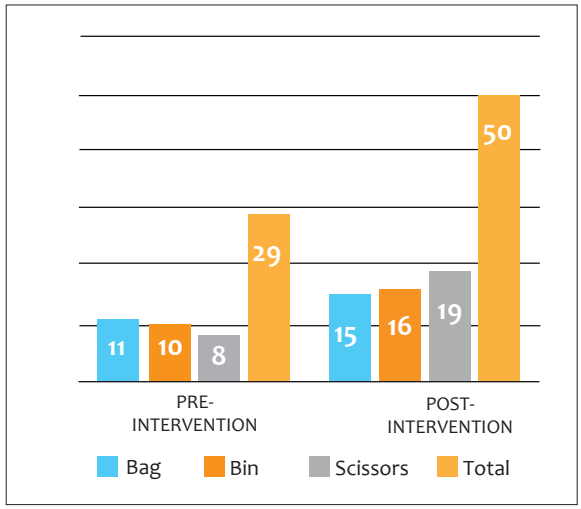

Figure 2. Comparison of average hits for task 3

The sum of the mean number of correct answers in the second phase of data collection was 50, compared with 29 correct answers in the first phase. The number of pupils who correctly solved all the items of the instrument after the intervention was 14, whereas six children did so before the training with the Jolly Phonics sessions.

5. Discussion and Conclusion

The analysis of the data collected in our research regarding the level of oral expression acquired by the children from the pronunciation test revealed inconsistencies in the learning of the phonemes of the foreign language. Although the children have complete phonological development, they can articulate and pronounce the sounds that were analysed. They also made pronunciation errors by substituting phonemes with others and omitting some phonemes. These errors were not due to phonoarticulatory difficulties of a physical nature (since the phonemes worked on this occasion are also present and acquired in the phonological system of the mother tongue), but rather originated from the lack of correspondence and solidity in the learning of words.

When children learn the name of English terms solely from the auditory stimulation provided orally by the teacher, they do so based on their listening skills and abilities and may therefore interpret and memorise the words they hear incorrectly. As the children's exposure to the language and opportunities for corrective feedback are limited, they may learn incorrectly.

If this problem is identified as a limitation of the global auditory methodology, its solution can be oriented towards the methodological change advocated in this research proposal, based on the conscious learning of units smaller than words, such as phonemes, and the awakening of phonological awareness.

To conduct this research, we studied how the development of phonological awareness involves thinking and consciously contacting aspects of language related to its sound structure and its symbolic-graphic correspondence, which consequently provides a more solid and interconnected learning of the different oral, productive, and written levels of language.

The Jolly Phonics method emphasises teaching in a playful way the elements that form the structure of words, to promote the development of auditory skills that facilitate comprehensive learning, and greater precision and correctness in pronunciation. However, our intervention was a simplified and brief proposal of the method, in which only the phonemes of the first group /s, a, t, i, n, p/ were used for practical purposes.

For this reason, the results of the pronunciation test obtained from the sample were analysed descriptively, but we cannot attribute causal relationships between the effectiveness of the methodology applied in the intervention or the resources used, and the children's oral production.

However, we can confirm the convenience of teaching phoneme recognition and learning the structure and elements that make up the structure of words so that learning is more consistent, and therefore, contributes to minimising errors in pronunciation and achieving greater linguistic competence, coinciding with the hypothesis proposed in this study.

In the first activity, we assessed if the pupils were able to recognise the names of some objects on the sentence cards that we were showing. In the second activity, we recorded their oral competence in pronunciation using the Ansys acoustic analysis software. And in the third activity, they had to recognise the first and second phonemes of some written words and match them with the corresponding picture.

The results of the comparative analysis of the data collected in the pre- and post-intervention reflect a significant increase in the number of hits in the second phase of the data, which represents a clear improvement in the recognition of the phoneme-graphemes, and in the children's learning. Attributing causal relationships statistically is complex and beyond our knowledge and beyond the scope of this research. Nevertheless, the evident improvement in performance on this test allows us to affirm that significant learning has taken place in a very short period and is close to the methodological changes introduced in the classroom and the explicit teaching of phonemes through the resources used in the intervention.

If the causal connection is confirmed, we can affirm that the hypothesis initially proposed is fulfilled. The synthetic teaching of phonemes, as well as the learning of their correspondence with letters by means of the phonics method, is an effective learning procedure in 5-year-old children to develop phonological awareness of the language and acquire skills in both auditory comprehension and visual recognition of letters.

In conclusion, teaching a foreign language to children is challenging. On the one hand, the low psychological and maturational development of the pupils condition the methodologies and procedures for oral exposure since children of this age do not have access to written language nor to the grammatical teaching of the language. Children's methodologies have evolved to overcome these obstacles and achieve better results through a combination of play and multisensory

resources that motivate children and promote learning by combining resources and strategies.

It is also worth noting that there was no significant difference in the results obtained based on their gender. Boys and girls performed similarly on the tasks, allowing us to conclude that gender does not make a difference regarding phonological awareness.

The results of the experiment corroborate the difficulty that children in their third year of Early Childhood Education express themselves orally in English and acquire linguistic competence in foreign languages. The type of methodology based on the development of auditory skills with visual support favours the development of comprehension but shows its limitations and shortcomings in the development of other skills necessary to begin oral production. However, it does not foster the development of phonological awareness that metalinguistic language learning provides, and consequently provides more ethereal and imprecise learning, as is evident in children's oral production. Henceforth, difficulties in learning the correct pronunciation can be solved using synthetic methodologies with a variety of resources.

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