



UNIVERSITAT DE VIC
UNIVERSITAT CENTRAL
DE CATALUNYA

LEARNING ENGLISH THROUGH MUSIC BOXES IN EARLY CHILDHOOD EDUCATION

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4th year. Final Year Project (MEI)

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Vic, May 12th 2023

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Acknowledgements

I would like to express my gratitude to the people who have made this final-year project possible.

Firstly, to my tutor, Dr. Anna Vallbona González, whose guidance, support, and encouragement helped me from the beginning. Her commitment and advice have motivated me to push through this challenging task.

Moreover, to my fourth-year placement tutor, who provided me with time and space to do the didactic intervention and helped me collect data, as well as to the children who actively participated in this research and fundamentally made it possible.

Lastly, I would also like to thank my family and friends, who listened and emotionally supported me during the whole process.

Abstract

The purpose of this study is to analyze the acquisition of receptive and productive vocabulary in English among a group of very young learners. Children were tested through a pre-test, post-test, and a delayed post-test, before and after a didactic intervention where vocabulary was introduced through music boxes, a strategy that combined music and storytelling. Results showed that receptive knowledge benefited more than productive knowledge, and that there are several influential factors to learning words in a second language.

Keywords: English vocabulary acquisition, receptive and productive vocabulary, very young learners, music boxes.

Resum

L'objectiu d'aquest estudi és analitzar l'adquisició de vocabulari receptiu i productiu en anglès entre un grup d'Educació Infantil. Els infants es van sotmetre a un pretest, un posttest i un posttest diferit abans i després d'una intervenció didàctica on el vocabulari es va introduir a través de capsetes de música, una estratègia que va combinar música i narració. Els resultats van mostrar que el coneixement receptiu va beneficiar-se'n més que el productiu i que hi ha diversos factors que influeixen en l'aprenentatge de paraules en una segona llengua.

Paraules clau: adquisició de vocabulari en anglès, vocabulari receptiu i productiu, Educació Infantil, capsetes de música.

1. Introduction

Millions of people worldwide speak English. Thus, English is, without a doubt, a global language of communication. It has become a lingua franca, making it easier for people of different backgrounds and cultures to communicate and understand each other. It is evident that in the future English will continue to be an essential communication and collaboration tool.

Therefore, schools have begun incorporating English lessons into their Early Childhood Education programs due to the high social pressure to learn the lingua franca. Although in Catalonia English is present in the Primary and Secondary Curriculum but not mentioned in the Early Years', some schools begin teaching the foreign language in the latter stage. Very young learners (children between 3 and 6 years old) can benefit from learning English as a foreign language from such a young age.

That is why, in this study, research was carried out to investigate the vocabulary acquisition in English among a group of 3 and 4-year-olds. Vocabulary is a fundamental part of a language as it allows people to exactly convey and explain their thoughts. Moreover, having a large vocabulary is especially important for young children because it can help them succeed academically and develop their language skills in the future.

The research focused on 3 and 4-year-olds because there are not many studies regarding vocabulary acquisition between children these ages. Therefore, the study focused on verifying whether kids could learn vocabulary with a specific strategy and in a typical classroom setting while they were at school. This specific strategy was music boxes, that combined music and storytelling, making learning fun and enjoyable.

This paper is divided into several parts: a theoretical framework that provides information on learning a second language, learning English as a foreign language, vocabulary acquisition, and how music and storytelling can help it; the study, where the main objective and the research questions of the project are defined, plus the strategy and research instruments used; the results, that show how vocabulary was acquired; a discussion of the results, and lastly, some conclusions on the project that gather its main findings.

2. Theoretical framework

2.1. Learning a Second Language

Children in Early Childhood Education who may also be learning a second language (L2), such as English, are still in the process of learning their mother tongue. By the time they are four or five years old, and if they have received the necessary input and opportunities for interaction, most of them will be able to communicate well in their first language when in familiar contexts (Pinter, 2006).

In recent years, there has been a debate about the best time to begin to learn a second language. According to Pinter (2006), depending on the starting age, the learning process of the first and second languages can be closer to each other - the younger the child is, the more similar the two processes can be. When young children are learning a foreign language, they try to construct meaning actively, making sense of the significance of words with their knowledge of the world, which at this young age, is limited. Their language learning depends on their experience of the world: they are more likely to learn if provided with extensive and rich language experiences.

Furthermore, they need space for language growth. The term Zones of Proximal Development (ZPD) refers to the spaces where children can reach their maximum potential with some help, and in English as a Foreign Language (EFL) lessons, it can be in form of scaffolding or class routines. Thus, these zones are significant for effective learning and have to do with social interaction, which is also beneficial for the learning process (Cameron, 2001). Overall, children can learn a new language at a young age, and if help is provided, they can achieve their full potential.

As Bland (2015) remarks, language learning makes children have the urge to construct meaning and interact with it orally, apart from having the ability to learn while playing and doing so holistically. Moreover, learning a second language can provide interest and respect for the world surrounding them, so they can acquire intercultural understanding and become world citizens. In conclusion, an early start on foreign language learning can have a positive educational outcome as it can help the child's overall personal and academic development.

2.2. Learning English as a Foreign Language

Very young children, between 0 and 7 years, can effectively learn English. Young learners can understand the foreign language well, copy new sounds, and naturally reproduce the speech that is part of daily routines and activities (Lobo, 2012).

According to Shin & Crandall (2013), one of the main reasons to start learning English at a young age is the time children will have to learn the language. Starting in Early Childhood Education can give more hours of practice and experience to them, leading to better pronunciation and fluency and increasing their chances of mastering the language. Moreover, young learners are more likely to accomplish native-like pronunciation, have broader confidence in speaking the language, and have greater oral proficiency. However, to start at younger ages, the learning process needs to be natural, contextualized, active, experiential and should be offered in a relaxed and warm atmosphere (Shin & Crandall, 2013). Offering English daily is a crucial aspect which includes providing them with a good amount of comprehensible input and not limiting their vocabulary (Lobo, 2012). In brief, an early start can have many benefits for young learners if optimal conditions and quality language are given.

Consequently, lessons for young learners need to be thoroughly planned, well-supported, and resourced (Shin & Crandall, 2013). In addition, it is essential that teachers attractively introduce the language because if not, students might feel disconnected from it all through their school years. This is important, but it is often overlooked because children who only study English and are not surrounded by an English context can be less motivated to learn and use the language, as is the case in Spain. Therefore, when learning a foreign language like English, motivation is crucial. Young students are motivated because they enjoy the activities that are carried out and feel comfortable in the classroom, so they develop positive attitudes toward the language (Pinter, 2006).

In Early Childhood Education, children do not know how to read or write or are just starting to do so in their native language, but they can listen and speak well in it. That is one of the main reasons why Pinter (2006) specifies teachers should introduce listening and speaking activities before anything else when starting EFL.

2.2.1. Learning vocabulary

Vocabulary is an essential component of language learning. It appears that every child goes through a three-step process to learn new words: separating word forms from the input, creating potential meanings, and mapping meanings onto forms (Rohde & Tiefenthal, 2000).

Children seem to be able to learn a new word receptively even if they only hear it once. Such process is known as *fast mapping*, and they can do so in their first language (L1), and in an L2, although Coyle & Gomez Gracia (2014) found out it is not as efficient in the latter. For this reason, if children do not fast-map, they partially map.

Partial mapping is also a common process. When this happens, children partially learn the meaning of a new word, making generalizations like “dog” for all four-legged animals, or they can partially remember the phonetic form of the word, for example, /gri:n/ for “green”. This usually happens because, on the one hand, new words are not always prominent in speech and children can find them more difficult to identify in the L2, and on the other hand, children pay less attention to an L2 (English, in this case) that is only used by their teachers in the school context for a limited amount of time (Coyle & Gomez Gracia, 2014).

However, for the word to become integrated into the children's productive vocabulary, additional exposure is required (Coyle & Gomez Gracia, 2014). There are two types of vocabulary: receptive and productive. Receptive vocabulary refers to the vocabulary of the language that children understand, in spoken or written form. In Early Childhood Education, children can recognize receptive vocabulary when they hear it, a relatively easy process for them. For productive vocabulary, they need to know the word well enough to be able to produce in their own speech, a more challenging situation (Schmitt, 2019). This type of vocabulary has to do with recalling, which depends on how frequently we hear a certain word.

Regarding the latter, there is a strong belief that the more a word usually appears in a language, the easier it is to learn it. Some lexemes are frequently repeated in a language. Those are grammar words, such as, in English, *how*, *we*, *for*, or *about*. Content words, such as *dog*, *happy*, *orange*, or *coffee*, are probably not said as much as the previous type. Laufer (2005) concludes that for learners to save a word into their long-term memory,

repetition is needed and several encounters with the lexeme are necessary. Even though word frequency is very influential, other factors may also affect vocabulary acquisition in L2.

As explained by Milton (2009), these factors are related to different difficulties a language learner encounters. The first one would be the form of the word. As we know, English has specific characteristics that might be an obstacle for non-native English speakers. Some combinations of letters or sounds, such as the cluster *gh*, can be hard to pronounce and remember. Consequently, the words with these combinations are not as easy to store in memory, and therefore, difficult to recall for usage. The second factor would be the similarity between the target word and the word in the speaker's native language. If lexemes are alike in both languages, it is more probable that non-English speakers can learn and recall the English word better. For example, *hotel* would be a lexeme that both Catalan and English speakers would recognize without a problem, although their pronunciations vary a little.

Moreover, it is better to teach vocabulary that can be visually represented or demonstrated and is within reach of learners' knowledge. It also seems that nouns are easier to learn than verbs, and adjectives would be the hardest (Milton, 2009). Therefore, teaching the words *cat* or *chair* might be easier than doing *embarrassed*. The last factor is word length. Longer words can be more difficult to learn than shorter ones, as recalling a longer lexeme can be a burden, especially for young learners.

Overall, there are many influential factors to vocabulary learning in L2, and several processes participate in it. Learning vocabulary is a basic element of communicative competence, plus it is important for both comprehension and production in the foreign language. Vocabulary knowledge can avoid posterior learning obstacles in all skills: listening, speaking, reading, and writing (Tsai, 2020).

There is little research on vocabulary acquisition in very young learners. However, a study conducted in Turkey with four-year-old children using an adapted version of the Teaching Proficiency through Reading and Storytelling (TPRS) approach, published in 2019 by Kara and Eveyik-Aydin, showed that this method had a positive impact on English vocabulary acquisition. Their research included a pre, post, and delayed post-test, which confirmed that learners acquired vocabulary both receptively and productively, although

receptive vocabulary benefited more than productive. Kara and Eveyik-Aydın (2019) concluded that children heard the target words repeated by their teacher during the interventions, but they did not produce them, meaning receptive learning was dominant over productive learning. This explained the fact that learners had a higher performance on receptive tests than productive ones. Lastly, the study found that some vocabulary items were more difficult to learn than others, which was attributed to the low frequency those words had in children's speech.

Therefore, the research confirms that preschoolers can take advantage of a didactic intervention similar to the one carried out with TPRS, as it proved that vocabulary acquisition among very young learners is possible, both receptively and productively. Naturally, teachers should look for resources and strategies that help the learning of L2 vocabulary.

2.3. Music for vocabulary acquisition

As humans, one of our most basic and enriching abilities is hearing, and children are innately receptive to music from a young age. That is why, in the EFL classroom, we should give greater recognition to auditory input.

Music can help second language learning. Both music and language originate from processing sounds, we learn them through exposure and most importantly, are forms of communication. Indeed, they share different specific features, such as pitch, volume, rhythm, stress, or tone. Speakers use them to communicate a message which can carry affective meanings, information, or ideas (Chen, 2020). However, there is a difference between them: language allows precise communication of messages, which can lead to disagreements, while music does not, and therefore, music promotes socialization and bonding (Kraus & Slater, 2015). Thus, we can state that music is a universal language that can cross all types of barriers, thanks to its mainly emotional effect (Mora, 2000).

Israel (2013) discussed the effective contribution of music to the student's academic achievement, motivation, and creative development. The use of this resource in the classroom can improve the students' vocabulary and fluency, and increase their communicative confidence. As a result, it has a positive impact on the four key language learning areas: listening, speaking, reading, and writing.

Furthermore, according to Camps-Casals, Canals & Medina (2020), music can be very motivating when working with children as it may foster their attention. The “affective filter hypothesis” (Krashen, 1982) discusses that learning is most beneficial when students are in a context of low anxiety, where they can feel self-confident and motivated. Music seems to lower their affective filter and helps learners to feel more relaxed and as a result, more open to language learning (Engh, 2013). In other words, music allows a more natural, relaxed way of speaking English in a less threatening context, which, according to Albaladejo, Coyle & de Larios (2018), makes it an “enjoyable, interactive, and pleasant way to learn” (p.4).

The most frequent way of using music in the classroom is by playing songs. They introduce repetition of words and phrases, which helps acquire and recall vocabulary (Camps-Casals et al., 2020). In addition, Mora (2000) also mentions that they have a positive impact on learners’ language acquisition as lexical patterns stored in their long-term musical memory can be easily retrieved for mental rehearsal, memorization, or oral interaction later. Lastly, Engh (2013) argues that songs can help introduce suprasegmental features such as rhythm and intonation, which can help develop pronunciation skills.

Songs include nursery rhymes and lullabies, which are simple traditional songs or poems that have great grammar structures and rich vocabulary that allow children to learn. They are some of the first language inputs that occur with enough repetition to encourage memorization, and consequently, acquisition - as Engh (2013) points out. Children who periodically hear nursery rhymes from a young age significantly improve their language skills and phonetical awareness (Mello, Ibrahim, Arumugam, Husin, Omar & Sathiyaseran, 2022). Additionally, rhythm patterns can also be a helpful resource for language acquisition. Kraus & Slater (2015) suggest that timing regularities presented in speech might help listeners detect and identify words.

In conclusion, music and songs have several benefits, such as being motivational, fostering word repetition and recalling, improving fluency and pronunciation, and all in all, promoting vocabulary acquisition. Teachers should consider that children in Early Childhood Education typically have short attention spans, so they need strategies like songs that can keep them engaged and focused.

2.4. Storytelling for vocabulary acquisition

Stories are an extremely valuable resource with very young learners. Telling stories has been considered a powerful teaching resource in EFL classes, as it can help teachers to make their students learn more attractively and enjoyably.

Storytelling fosters interaction between the storyteller and listener or listeners who actively participate. Its goal is educating, inspiring, conveying values, and increasing awareness of other cultures (Camps Casals et al., 2020). Children enjoy listening to stories - they ignite their imagination and creativity; they can be great for young learners, who mostly learn through play and entertainment. However, they need to be carefully selected; Cameron (2001) states they should: “be highly predictable, be familiar to the home culture, have a high percentage of known vocabulary, include repetitive and predictable patterns, and lend themselves well to use of visuals and realia to make input comprehensible” (p.213).

Moreover, Huang (2006) discusses that stories provide another type of language, different than the language we use in conversation. Written and oral languages have differences: the way we speak differs from the way we write. Written pieces are more refined and polished than spontaneous speech, so stories make a great example for children, who do not usually read in English. Furthermore, these narratives allow to introduce new language structures and vocabulary in a contextualized and authentic manner, promoting meaningful learning. Cameron (2001) suggests that when storytelling is effectively carried out, children might learn the language unconsciously.

The way teachers present the story is essential especially when dealing with very young children. Using objects or pictures can make learners engage in it and aid in following the storyline. Most importantly, it can help them concentrate on the vocabulary by visualizing, listening to it, and making a semantic association with the new words. The dual-code hypothesis by Paivio (1971), cited by Huang (2006), states that people remember something better if they have verbal memory and image memory of something. Therefore, supporting the story with pictures or objects can promote comprehension and recall.

Thus, storytelling can play an important part when aiming to learn vocabulary enjoyably while also challenging children to learn a new language.

3. Study

3.1. Objective and research questions

The present study aims to analyze the acquisition of English vocabulary among a group of three and four-year-old children. To accomplish this, several questions were posed:

RQ1. Are there differences in **receptive vocabulary** when comparing children's vocabulary knowledge before and after a didactic intervention?

RQ1.1. Are there differences in receptive vocabulary when comparing the results of the pre-test with the results of the post-test?

RQ1.2. Are there differences in receptive vocabulary when comparing the results of the post-test and the delayed post-test?

RQ1.3. Are there differences in receptive vocabulary when comparing the results of the pre-test and the delayed post-test?

RQ2. Are there differences in **productive vocabulary** when comparing children's vocabulary knowledge before and after a didactic intervention?

RQ2.1. Are there differences in productive vocabulary when comparing the results of the pre-test with the results of the post-test?

RQ2.2. Are there differences in productive vocabulary when comparing the results of the post-test and the delayed post-test?

RQ2.3. Are there differences in productive vocabulary when comparing the results of the pre-test and the delayed post-test?

3.2. Participants

The research was carried out in a state school in a small town in Catalonia. With two groups per year, its educational offer includes Early Childhood and Primary Education (children aged 3 to 12). English is the first foreign language taught in the school, and a specialist English teacher carries out the lessons. Moreover, the language is introduced orally in Early Childhood Education, and each group gets 45 minutes of instruction per week.

The intervention was carried out with a group of 17 children aged 3 and 4. Their first languages were Catalan (47%), Spanish (35%), and Arabic (18%). The learners were first introduced to the foreign language in September 2022, at the start of the school year. None of them took extracurricular English classes, which meant they got 45 minutes of exposure to the language per week and only knew what the teacher had taught them up until that point (February 2023) – mainly vocabulary from their usual class routine, which included the weather, colors, some actions, and feelings.

3.3. Strategy and instruments

Music boxes – “Capsetes de música” in Catalan – were used as the intervention strategy. These consist of several boxes containing an object, and a song is sung when each of the objects are shown. Therefore, they can create appealing situations for children and make them want to say something in English (Lobo, 2012).

The subjects of the study were 3- and 4-year-olds who had never been in contact with English, so the strategy was adapted to them. Storytelling was used to contextualize and connect the boxes with a storyline, meanwhile rhythms with short and affordable lyrics were thought for each object (Fig.1). The story that inspired the intervention was “What pet should I get?” by Dr. Seuss, published by Random House Children’s Books. It has lots of repetition, rhymes, and a predictable structure. Thus, the chosen vocabulary was domestic animals, to be more specific: dog, rabbit, fish, and cat. Hermida (2019) points out that we should choose specific items that learners can identify and easily understand, and this is why the animals were represented with cuddly toys that were hidden inside four different boxes.





DOG	RABBIT
 The dog goes woof woof	 The rabbit hops hops
FISH	CAT
 The fish swims swims	 The cat goes meow meow

Table 1. Rhythms and lyrics used for each animal.

To check children’s vocabulary acquisition three different tests were run. A pre-test before the three intervention sessions, a post-test two days after the third intervention, and lastly, a delayed post-test three weeks after the last session (Fig.1).

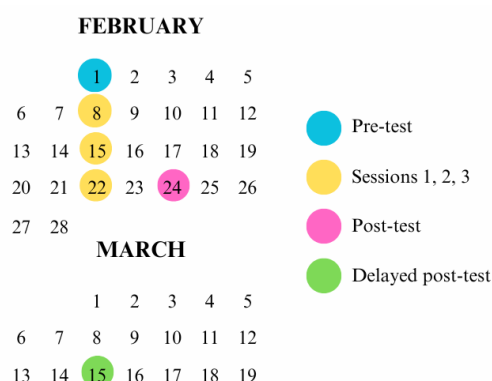


Figure 1. Calendar of the sessions.

3.3.1. Pre-test

To test the children’s previous knowledge about the selected vocabulary, a pre-test was run. To keep track of the knowledge of the children, a grid was created (see appendix 1). For each animal (dog, rabbit, fish, cat) their productive and receptive vocabulary were evaluated. To be able to check each child’s individual knowledge of the target vocabulary, the four cuddly toys were placed in a corner of the classroom, separate from where the teacher was carrying out the session. Each child was called individually and asked to respond to some questions posed in Catalan, as it was the tuition language of the school.

Firstly, we needed to verify that children recognized and had knowledge of the animals on display, in other words, to check if they knew that they were a dog, a rabbit, a fish, and a cat. To do so, the researcher pointed at each toy and the following question was asked:

- Do you know the name of this animal?

To check their productive vocabulary knowledge, this was the posed question:

- Do you know the name of these animals in English?

To check their receptive vocabulary knowledge, the names of each animal were said in a different order than they were put on the table, and children were asked to point at the animal they believed that name corresponded to.

Once the questions were done, the learner was thanked and congratulated and could go back to the lesson.

3.3.2. Interventions and observation grids

The three sessions were carried out in the same manner. The boxes were presented, and the story would start with “I want a pet, what pet should I get?”. Every animal was discovered, and when it got out of the box its name was said, plus the rhythms shown in Table 1 were sung twice. The story was accumulative, so the names of the animals were repeated many times. To give the story an end, children actively participated voting the pet they thought I should get. To finish, they got to hug and say “bye” to the chosen animal.

An observation grid was created to monitor children’s interventions during the session (see appendix 4). These were filled in by the teacher to avoid any biases. She would record who talked and what they said, even if the message was in Catalan or Spanish.

Lastly, each session was voice-recorded to keep track of the times I repeated the keywords to later be able to count them.

The recording and data collection were authorized by the school, plus the anonymity of the school and the children were guaranteed during all the research.

3.3.3. Post-test

The post-test done to check if children had acquired the vocabulary presented through the music boxes. The same process as the pre-test was carried out during the next session, except for the question *Do you know the name of these animals?* that was only asked to verify if children recognized the stuffed toys.

The same pre-test grid was used to record children’s knowledge, except it did not have an “Animal recognition” section (see appendix 2).

3.3.4. Delayed post-test

The delayed post-test allowed to confirm whether children had acquired the words in their long-term memory or not. The exact process of the post-test was carried out during the 15/03/2023 session, and the same grid was also used to record children’s knowledge (appendix 3).

4. Results

In this section, the results of the tests carried out with young learners in this study will be presented. In the first place, the number of times the words were repeated orally during the sessions will be presented as well as the observation grids filled in by the teacher. Afterwards, the results obtained from the three tests will also be presented and compared. They will be divided into two types of vocabulary: receptive and productive. It must be pointed out that, although initially there were 17 learners in the study, only 14 were taken into account as three children (Children 5, 9, and 10) were missing during some of the tests. The outcomes will be consistent and reliable in this manner.

4.1. Word repetition during sessions

One of the variables that needs to be considered is the number of times the keywords *dog*, *rabbit*, *fish*, and *cat* were repeated for further analysis. Table 2 below shows the data collected.

Sessions	Repetition of keywords			
	Dog	Rabbit	Fish	Cat
1	25	14	14	16
2	22	12	19	27
3	39	8	17	35

Table 2. Repetition of key words in each session.

As seen in the table, the most repeated words in each session were usually *dog* and *cat*, as children chose them as pets.

4.2. Observation grids

Regarding the observation grids that the teacher filled in, some children repeated the words that were said during each didactic intervention. The tables below show the collected data.

SESSION1	DOG		RABBIT		FISH		CAT	
Children	Talks	Message	Talks	Message	Talks	Message	Talks	Message
Child 1	X	- DOG			X	- FISH	X	- CAT
Child 2							X	- GATO
Child 3								

Child 4								
Child 5							X	- CAT
Child 6								
Child 7	X	- DOG	X	- RABBIT	X	- FISH	X	- CAT
Child 8								
Child 9	X	- DOG	X	- RABBIT				
Child 10	X	- DOG	X	- RABBIT	X	- FISH	X	- CAT
Child 11	X	- DOG	X	- RABBIT	X	- FISH	X	- CAT
Child 12								
Child 13								
Child 14							X	- CAT
Child 15	X	- DOG	X	- RABBIT	X	- FISH	X	- CAT
Child 16								
Child 17								

Table 3. Repetition of key words during session one.

As seen in table 3, in the first session, 6 children participated and repeated some of the keywords. 4 learners repeated *dog*, 3 said *rabbit*, and 2, *fish*. Lastly, 5 repeated *cat*, plus one said *gato* – *cat* in Spanish.

SESSION 2	DOG		RABBIT		FISH		CAT	
	Talks	Message	Talks	Message	Talks	Message	Talks	Message
Child 1	X	- Says DOG before I do - HOLA DOG	X	- RABBIT	X	- PEIX - FISH	X	- CAT
Child 2	X	- DOG	X	- CONILL - RABBIT	X	- PEIX - FISH	X	- CAT
Child 3	X	- DOG	X	- RABBIT	X	- FISH	X	- CAT
Child 4								
Child 5	X	- DOG					X	- CAT
Child 6								
Child 7	X	- DOG	X	- RABBIT	X	- FISH	X	- CAT
Child 8								

Child 9	X	- Says DOG before I do	X	- RABBIT	X	- PEIX - FISH	X	- CAT
Child 10								
Child 11	X	- DOG	X	- RABBIT	X	- Says PEIX before I open the box - FISH	X	- CAT
Child 12								
Child 13								
Child 14	X	- DOG			X	- FISH		
Child 15	X	- DOG	X	- RABBIT	X	- FISH	X	- CAT
Child 16								
Child 17	X	- DOG	X	- RABBIT	X	- FISH	X	- CAT

Table 4. Repetition of key words during session two.

In the second session (Table 5), 8 children produced some type of speech. Some of them, like Child 1 and Child 11 anticipated and said the words *dog* and *peix* (*fish* in Catalan) before the cuddly toys were shown. In total, 8 children repeated *dog*, and 7 produced *rabbit*, one of them also saying *conill* – *rabbit* in Catalan. 8 said *fish* and 3 of them also said *peix*. Then, 7 repeated *cat*.

SESSION 3	DOG		RABBIT		FISH		CAT	
	Talks	Message	Talks	Message	Talks	Message	Talks	Message
Child 1	X	- DOG			X	- FISH	X	- CAT
Child 2	X	- DOG			X	- FISH	X	- CAT
Child 3								
Child 4								
Child 5							X	- CAT
Child 6								
Child 7							X	- CAT
Child 8								
Child 9								
Child 10								
Child 11			X	- Says “CONILL” before the box opens				

Child 12								
Child 13								
Child 14	X	- DOG	X	- RABBIT	X	- FISH	X	- CAT
Child 15			X	- RABBIT	X	- FISH		
Child 16								
Child 17	X	- Says "GOS" before the box opens. - DOG			X	- Says "PEIX" before the box opens	X	- Says "GAT" before the box opens. - CAT

Table 5. Repetition of key words during session three.

In the third and last session, 7 children participated. As children recognized the boxes and remembered the toys inside each one, Children 11 and 17 anticipated and said the names of all animals before opening the containers, but they did so in Catalan. 4 learners repeated *dog*, 2 repeated *rabbit*, 4 produced *fish*, and 5 said *cat*.

As a result, in total children repeated *cat* the most (17 times), followed by *dog* (16 times), then *fish* (14 times), and finally, *rabbit* (12 times).

4.3. Vocabulary acquisition

4.3.1. Receptive vocabulary

Figure 3 below shows noticeable changes in children's receptive vocabulary knowledge when comparing the different tests: pre, post and delayed tests.

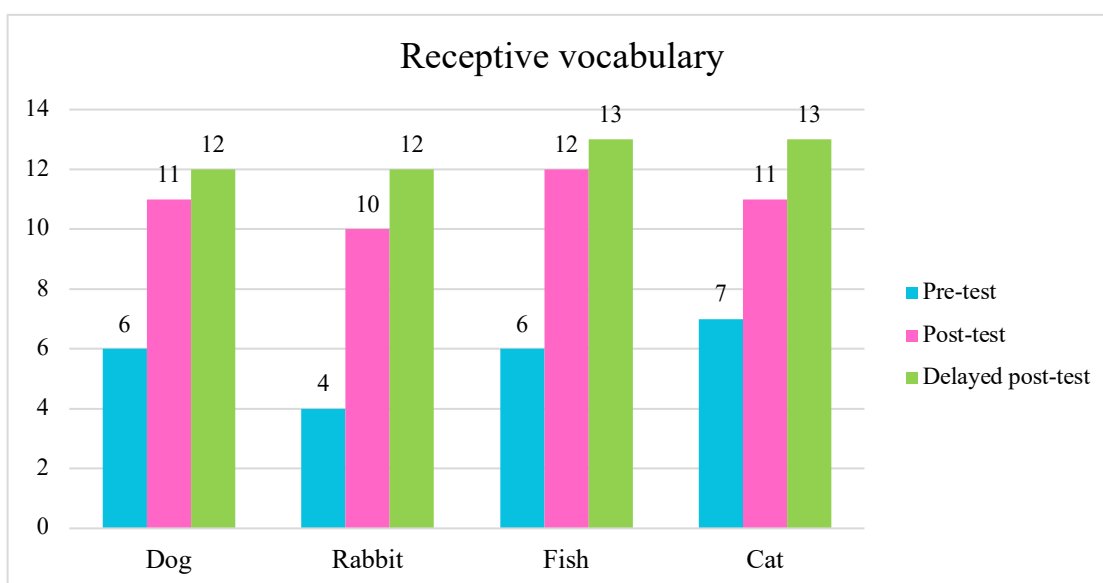


Figure 2. Comparison between receptive vocabulary knowledge in the pre-test, post-test, and delayed post-test.

In the pre-test, the most recognized word was *cat* (7 learners) followed by *dog* and *fish* (6 learners). The least identified lexeme was *rabbit*, with only 4 children being able to point at it correctly. Children 1 and 14 recognized the four presented words, and Children 3, 4, 11, 12, and 15 correctly pointed out two or three animals. Therefore, 7 children could not recognize any of the animals. Comparing these results to the post-test, the learner's receptive knowledge greatly improved. *Fish* was the most identified word (12 children), increasing its knowledge compared to the pre-test, as 6 more learners recognized it. *Dog* and *cat* were identified by 11 children (5 more children identified dog and 4 more children identified cat), while *rabbit* was the least recognized word, with 10 learners correctly pointing at it, although 6 more children identified it in comparison to the pre-test.

Children that could recognize all or some of the animals in the pre-test maintained that knowledge in the post-test, except for two learners. Looking at the pre-test (appendix 1) and post-test (appendix 2) grids, we can observe two particular cases with Children 12 and 15. In the pre-test, Child 12 correctly pointed at three of the animals (dog, fish, and cat), whereas in the post-test, it pointed at one (dog). Similarly, Child 15 accurately recognized three toys in the pre-test (dog, rabbit, and cat), but on the post-test, it identified two (fish and cat).

When comparing the post-test to the delayed post-test, receptive knowledge increased even more. *Dog* and *rabbit* were recognized by 12 children, whereas *fish* and *cat* were identified by 13. *Dog* and *fish* were accurately pointed at by one more child each in comparison to the post-test. *Cat* and *rabbit* were both identified by 2 more learners.

When looking at the post-test (appendix 2) and delayed post-test (appendix 3) grids, we can confirm that most children (up to 10) maintained their receptive knowledge. On the one hand, some learners increased their receptive vocabulary. Children 12, 15, and 16 could not recognize all the toys in the post-test, but on the delayed post-test, there was a great improvement. Child 12 went from identifying one word (dog) to all four. Child 15 correctly pointed at the fish and cat in the post-test and later confidently identified all four animals in the delayed post-test. Lastly, Child 16 made a slight progress as it went from recognizing none of the animals to accurately pointing at two of them (fish and cat). On the other hand, one learner decreased its knowledge on the delayed post-test – on the post-test, Child 17 identified the fish, however, in the last test, it did not recognize any animal toys.

Word-wise, comparing the pre-test and the delayed post-test, we can affirm that *rabbit* had the greatest increase of all the words, going from 4 children recognizing it to 12, which would represent 57% (8 more children) of knowledge increase among learners. *Fish* had the second-best increase, with a 50% (7 more children) difference from the pre-test (4 children) to the delayed post-test (13 children). Lastly, *dog* and *cat* had a 43% (6 more children) increase, going from 6 and 7 learners identifying them to 12 and 13, respectively.

Although many children (Children 2, 6, 7, 8, and 13) went from zero receptive knowledge to 100%, other learners had a different starting point. Children 1 and 14 knew or could have guessed the four presented words since the beginning and maintained their knowledge throughout the rest of the tests. Children 3, 4, 11, 12, and 15 correctly pointed out two or three animals in the pre-test and ended up recognizing all of them in the delayed post-test. There are two particular cases – Children 16 and 17. When comparing the first and last tests, Child 16 goes from 0 recognized animals to 2, whereas Child 17 does not identify any of them in either test.

Considering the general tendency of the results, we can affirm that there is a great increase in receptive vocabulary among learners.

4.3.2. Productive vocabulary

As seen in the graph, there is a slight increase in children’s productive vocabulary knowledge when comparing the three different tests: pre, post and delayed tests.

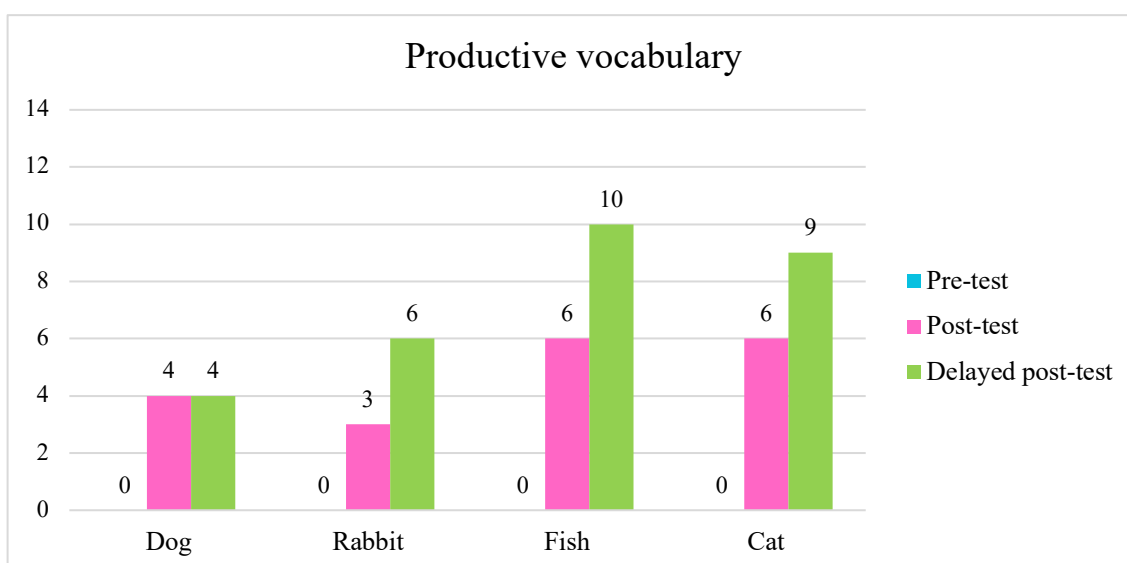


Figure 3. Comparison between productive vocabulary knowledge in the pre-test, post-test, and delayed post-test.

In the pre-test, learners could not produce any of the words in English, which situates their knowledge at zero. In the post-test, after the three sessions were carried out, their productive vocabulary increased. *Fish* and *cat* were the most produced words, with 6 children saying them when the toys were pointed at. *Dog* was produced by 4 learners, and *rabbit* by 3.

In the delayed post-test, productive knowledge increased over 20% for the words *rabbit* (6 children), *cat* (9 children), and *fish* (10 children), but stayed the same for *dog* (4 children). Checking the post-test (appendix 2) and delayed post-test (appendix 3) grids, we can observe that some children increased their vocabulary by correctly saying more words in the delayed post-test than in the post-test, which was the case of Children 1, 2, 4, 8, 11, and 13. Contrarily, Children 7 and 14 presented a decrease in vocabulary, both not remembering the word *dog* in the delayed post-test. Children 3 and 15 showed the same amount of production when saying the same words in both tests; Child 3 said *fish*, and Child 15 *fish* and *cat*. Lastly, Children 6, 12, 16, and 17 did not show any production in either of the tests.

When comparing the pre-test with the delayed post-test, we can confirm that the best-known-word was *fish*, which went from 0 children being able to produce it to 10. The second-best known lexeme was *cat*, going from 0 to 9, and then *rabbit*, which went from 0 to 6. The word children produced less was *dog*, although it increased from 0 to 4 learners being able to say it.

To conclude, we can notice an improvement regarding productive knowledge, even though the results are very different from receptive knowledge, which had a greater increase pattern.

5. Discussion

The following part of the dissertation moves on to describe in greater detail the results obtained in this study and to analyze the factors that influenced vocabulary acquisition. When comparing children's vocabulary knowledge before and after the didactic intervention, we can affirm that there are differences both in receptive and productive vocabulary. Generally, learners increased their knowledge, although there were some exceptional cases.

Before starting to discuss the results, we should take some aspects into consideration. First of all, we need to consider the fact that some children could receptively recognize all or some of the words in the pre-test, even though their exposure to English was minimum, as they only heard it for 45 minutes per week at school. Those were 8 children: 1, 3, 4, 11, 12, 13, 14, and 15. However, there were differences among learners. When comparing the results of the pre and post-test, some did not maintain the receptive knowledge demonstrated at the beginning. Thus, having in mind that the most identified word was *cat*, then *dog*, *fish*, and lastly, *rabbit*, we can make hypotheses as to why some children had initial knowledge when it would not seem the case:

- Maybe children recognized some of the lexemes because of the similarity between the target words and the speaker's native language or in this case, the tuition language of the school: Catalan. Milton (2009) suggests that if the lexemes are alike in both languages, it is more probable that the English word will be learned and remembered successfully. This would explain the fact that *cat* and *fish* were the most recognized words, as some sounds are very similar to the Catalan pronunciation. *Cat*, pronounced /'kæt/ in English (usually pronounced as /'kat/ by Catalan and Spanish speakers), and *gat*, pronounced /gát/ in Catalan, share similarities in the last two sounds of the word. Moreover, *fish*, pronounced /'fɪʃ/ in English, and *peix* pronounced /péʃ/ in Catalan, share the /ʃ/ sound at the end of the word. The fact that these words share sounds in both languages probably facilitated recognition for some of the learners who realized the similarity in their pronunciations. This would be the case for Children 1, 3, 4, 11, 13, and 14.
- Maybe children recognized the animals by chance, something common among very young learners. Children 12 and 15 accurately pointed at fewer cuddly toys in the post-test than in the pre-test, which makes us think that they probably did not know.

Thus, their answers may have been incidental. This similarly happened in the study of Kara and Eveyik-Aydin (2019), where children were not expected to receptively recognize the words in the pre-test, but they did, and the conclusion was also that learners incidentally answered correctly.

Secondly, another aspect that should be emphasized is the difference between the results of the post-test and delayed post-test, run three weeks apart. There mainly was an increase in children's vocabulary, although this should not be the case. The reason behind the increase is that in the three weeks in between, the teacher did a curricular intervention where the words *dog*, *fish*, and *cat*, were reinforced. Consequently, children who had already learned the lexemes did not forget them, and children that had not learned them yet had enough exposure to acquire them.

With these considered, let us now focus on the target words. The aim is to analyze what made children learn the new lexemes and investigate why some were better retained than others both in receptive and productive knowledge. Therefore, the following paragraphs discuss the factors that influenced vocabulary acquisition.

Learning lexemes in the L2 depends on many factors. The words were carefully chosen so that they were affordable for such young children. *Dog*, *rabbit*, *fish*, and *cat* have many qualities that Milton (2009) explains make words easier to acquire – they are short nouns, without complex combinations of letters or sounds, and are all within reach of the learners' knowledge. Furthermore, the fact that the lexemes were visually represented with cuddly toys fostered children's comprehension and semantic association of the new words, apart from making learning motivational, attractive, and enjoyable. Regarding the presentation of the animals, there were two elements that were essential for vocabulary acquisition: music and storytelling.

On the one hand, according to Israel (2013) and Camps-Casals et al. (2020), music is a motivating resource when working with children, as it fosters their attention and can improve their vocabulary and fluency. In addition, Mora (2000) suggests that lexical patterns, like the lyrics that were sung when each animal was shown, can be easily retrieved for oral interaction. Kraus & Slatter (2015) point out that timing regularities presented in speech can help listeners detect and identify words, for this reason combining lyrics and rhythm patterns was key to impacting children's language learning.

Similarly to nursery rhymes and lullabies, the created musical patterns were inputs that occurred repeatedly and encouraged acquisition (Engh, 2013). Laufer (2005) explains that repetition and multiple encounters with the lexeme are required for students to retain a word in their long-term memory, and that is why, the lexemes and musical patterns were repeated many times during the intervention, as frequently repeating a word makes learning it easier. Moreover, Engh (2013) based on the “affective filter hypotheses” (Krashen, 1982) discusses that music an effective resource because it lowers the affective filter and makes children more open to language learning.

On the other hand, storytelling is a valuable resource when teaching very young learners. According to Cameron (2001) children enjoy listening to stories, and they are especially good for young learners, who mostly learn through play and entertainment. The story provided language structures and vocabulary in a contextualized manner. According to Huang (2006), the way teachers present the story is essential. As the animals were visually represented, children could concentrate on the vocabulary which – as previously mentioned – is better understood and associated. In fact, Paivio (1971), cited by Huang (2006), states that having both verbal and image memory of something helps people remember it better.

For all the reasons above, we believe music and storytelling may have had a positive impact on vocabulary acquisition. Music allowed the words to be repeated in a light way, in a relaxed English-speaking context while also being a motivational element for children, whereas storytelling contextualized the intervention and connected the animals in a same story, making the cuddly toys the main characters of it while also being a visual representation of the target words.

However, the keywords were not acquired equally. To properly examine what happened, we shall return to analyze the similarity of the target words to the words in the speaker’s language (Milton, 2009). We previously examined the words *fish* and *cat*, which have very similar pronunciations in English and Catalan. However, this is not the case for *dog* and *rabbit*. *Dog* is pronounced /'dɒg/ in English, and *gos* is pronounced /gós/ in Catalan. Since it is difficult for Catalan and Spanish speakers to pronounce voiced sounds at the end of words, they usually pronounce *dog* as /dɒk/. Therefore, taking this difficulty into account, the lexemes *dog* and *gos* do not have similar sounds. Moreover, *rabbit* is

pronounced /'ræbɪt/ in English and *conill* is pronounced /kóniɫ/ in Catalan – sound-wise they are very different lexemes.

The information above gives us a clue on why the words *fish* and *cat* were better retained than *rabbit* and *dog*, both productively and receptively, even though they were not the most repeated words by the researcher during the sessions. A probable explanation is that children retained the lexemes *fish* (with a total of 34 repetitions throughout the sessions) and *cat* (78 repetitions throughout the sessions) better because they did a phonetic association between the words in English and Catalan. A clear example of this was, during the post and delayed post-tests, when children were pointed at the fish and asked *Do you know the name of this animal in English?* they said “pix” (/pɪʃ/), which clearly shows a mix of the words *fish* and *peix*. By contrast, the words *dog* (regardless of being the most repeated word throughout all the sessions, with 86 repetitions) and *rabbit* (50 repetitions) could not be phonetically associated with the lexemes *gos* and *conill* in Catalan because of their different pronunciations. Thus, we can conclude that the similarity between the target words and the words in the speaker’s language is an essential factor in second language vocabulary acquisition, as the results of this study demonstrated.

To finish, the differences between receptive and productive vocabulary will be commented on. As observed in the results, receptive vocabulary had a greater increase pattern than productive vocabulary. These findings are in line with the outcomes of the study of Kara and Eveyik-Aydin (2019). In the latter, a didactic intervention similar to the one carried out in this research was developed, and its results also showed that receptive vocabulary benefited more than productive. There are several possible explanations for these results.

We shall remind that Coyle & Gomez Gracia (2014) suggest that children seem to be able to learn a new word receptively even if they only hear it once. On the contrary, Schmitt (2019) describes that recalling vocabulary productively is more challenging than doing so receptively, since productive knowledge requires additional exposure to the target words. Moreover, just as in the study of Kara and Eveyik-Aydin (2019), it is more probable that children did more receptive than productive learning; in other words, children heard the words more than they said them, as the number of repetitions made by the researcher during the sessions is predominantly higher than the number of times

learners said the target words, which would explain the fact that children acquired vocabulary receptively and not so much, productively. Overall, acquiring vocabulary receptively seems to be an easier process than doing so productively.

6. Conclusions

A summary of the main findings is provided in this part of the dissertation. As mentioned earlier, the objective of this study consisted of analyzing the acquisition of English vocabulary among a group of three and four-year-old children. The results were divided into receptive and productive knowledge to explore which type benefited more from the didactic intervention.

On the one hand, research showed there were differences between receptive vocabulary when comparing children's vocabulary knowledge before and after the didactic intervention. The learners' vocabulary greatly increased from the pre-test to the post-test and from the post-test to the delayed post-test. When comparing the pre and delayed post-tests, we can affirm that almost all children could receptively recognize the target words *dog*, *rabbit*, *fish*, and *cat*.

On the other hand, there were also differences between productive vocabulary when comparing children's vocabulary knowledge before and after the didactic intervention. Almost five learners increased their productive vocabulary from the pre-test to the post-test, and nearly eight children did so from the post-test to the delayed post-test. When comparing the pre and delayed post-tests, results demonstrate that productive vocabulary raised by 52%, a great percentage considering the pre-test showed learners started with zero productive knowledge.

Overall, there was an increase in both productive and receptive vocabulary. However, receptive vocabulary results had a greater increase pattern than productive vocabulary. It seems possible that these results are due to the fact that acquiring vocabulary receptively would be an easier process than doing so productively, which requires additional exposure to the language.

Moreover, outcomes showed that an essential factor in vocabulary acquisition is the similarity between the target words and the words in the speaker's language – the more similar, the better learned and recalled. That is why *fish* and *cat* were the best-learned words, as they have resemblant pronunciations in English and Catalan, contrary to *dog* and *rabbit*, where phonetic association was not possible.

Furthermore, music boxes together with a storyline seem to be a great strategy for vocabulary teaching, as they allow word repetition in a contextualized manner. The objects that support them and their songs are motivational elements for children, who, at the same time, are enjoyably learning a second language. Therefore, music boxes could be valuable resources for teachers of very young learners, who mostly learn through play and entertainment.

All in all, vocabulary is essential to learn a language. Through this study, it has been demonstrated that very young learners can acquire vocabulary both receptively and productively, which would seem rather challenging for such young children.

Nonetheless, the project had some limitations. Firstly, the small sample size (14 learners) might make the results of the study not representative for all 3 and 4-year-olds. Moreover, only four words were tested because of the age of the participants, therefore the acquisition of vocabulary was very limited. In addition, the absence of a control group made it hard to recognize if the observed changes were only because of the intervention or were due to other factors. Lastly, the duration of the study (3 weeks) may not be sufficient to fully guarantee the effectiveness of the strategy (music boxes).

With this project I have not only learned about how children learn a second language or acquire vocabulary, but also how to organize and do research. From defining the research questions to selecting suitable methods, strategies, and instruments for data collection and analysis, every step required careful thought and planning. Overall, this experience has provided me with valuable knowledge, and I feel more confident to work on future research projects with more confidence and competence.

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8. Appendices

Appendix 1: Pre-test

Child	Recognizes	PRODUCTIVE VOCABULARY				RECEPTIVE VOCABULARY			
	animal	Dog	Rabbit	Fish	Cat	Dog	Rabbit	Fish	Cat
Child 1	Yes					X	X	X	X
Child 2	Yes								
Child 3	Yes					X			X
Child 4	Yes						X	X	
Child 5	Yes								
Child 6	Yes								
Child 7	Yes								
Child 8	Yes								
Child 9	Yes					X	X	X	X
Child 10	Yes					X			X
Child 11	Yes					X		X	X
Child 12	Yes					X		X	X
Child 13	Yes							X	X
Child 14	Yes					X	X	X	X
Child 15	Yes					X	X		X
Child 16	Yes								
Child 17	Yes								

Appendix 2: Post-test

Child	PRODUCTIVE VOCABULARY				RECEPTIVE VOCABULARY			
	Dog	Rabbit	Fish	Cat	Dog	Rabbit	Fish	Cat
Child 1		X	X	X	X	X	X	X
Child 2	X		X	X	X	X	X	X
Child 3			X		X	X	X	X
Child 4	X				X	X	X	X
Child 5				X	X		X	X
Child 6					X	X	X	X
Child 7	X		X	X	X	X	X	X
Child 8		X		X	X	X	X	X
Child 9								
Child 10			X	X			X	X
Child 11					X	X	X	X
Child 12					X			
Child 13					X	X	X	X
Child 14	X	X	X	X	X	X	X	X
Child 15			X	X			X	X
Child 16								
Child 17							X	

Appendix 3: Delayed post-test

Child	PRODUCTIVE VOCABULARY				RECEPTIVE VOCABULARY			
	Dog	Rabbit	Fish	Cat	Dog	Rabbit	Fish	Cat
Child 1	x	x	x	x	x	x	x	x
Child 2	x	x	x	x	x	x	x	x
Child 3			x		x	x	x	x
Child 4	x		x	x	x	x	x	x
Child 5								
Child 6					x	x	x	x
Child 7			x	x	x	x	x	x
Child 8	x	x	x	x	x	x	x	x
Child 9		x	x	x	x	x	x	x
Child 10								
Child 11		x	x	x	x	x	x	x
Child 12					x	x	x	x
Child 13		x	x	x	x	x	x	x
Child 14		x	x	x	x	x	x	x
Child 15			x	x	x	x	x	x
Child 16							x	x
Child 17								

