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Exploratory Action Research: Teaching EFL Vocabulary to Deaf Students through the Use of Visual Aids¹

Investigación acción exploratoria: la enseñanza de vocabulario de inglés como lengua extranjera a estudiantes sordos mediante el uso de material visual

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Abstract


In Chile, the 2015 Decree 83 from the Ministry of Education demands curriculum adaptations to ensure that students with special learning needs fully develop their skills by being included into the mainstream classroom. However, little information can be found regarding deaf and hard of hearing (D/HH) students in English as a Foreign Language (EFL) classrooms. Therefore, this qualitative Exploratory Action Research (EAR) aims to explore the contribution of using visual aids in the EFL classroom for teaching written vocabulary to five D/HH students from a public school in Chile. Two multitask tests were conducted before and after the intervention to assess the performance of the students on recalling vocabulary, and a semi structured interview was carried out to identify the students' perspectives regarding visual aids and EFL learning. While the performance test showed inconclusive results, the students' perspectives on the use of visual aids were positive. These findings are relevant to provide insights into the challenges these students face and the importance of Sign Language and visual aids to create an effective environment for inclusive teaching practices.


Keywords: Chilean Sign Language, deaf, hard of hearing, EFL, visual aids


Resumen


En Chile, el Decreto 83 de 2015 del Ministerio de Educación exige adaptaciones curriculares para garantizar que los estudiantes con necesidades especiales de aprendizaje desarrollen completamente sus habilidades y sean incluidos dentro del aula general. Sin embargo, es poca la información que se puede encontrar respecto a estudiantes sordos y con dificultades auditivas (D/HH) en las aulas de inglés como lengua extranjera (EFL). Por lo tanto, esta Investigación

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Acción Exploratoria (EAR) cualitativa tiene como objetivo explorar la contribución del uso de apoyos visuales en el aula de EFL para la enseñanza de vocabulario escrito a cinco estudiantes D/HH de una escuela pública en Chile. Se realizaron dos pruebas multitarea antes y después de la intervención para evaluar el rendimiento de los estudiantes en el recuerdo de vocabulario. Además, se realizó una entrevista semiestructurada para identificar las perspectivas de los estudiantes en relación con las ayudas visuales y el aprendizaje de inglés. Mientras que la prueba de rendimiento mostró resultados no concluyentes, la perspectiva de los estudiantes respecto al uso de ayudas visuales fue positiva. Estos resultados son relevantes para proporcionar información sobre los retos a los que se enfrentan estos estudiantes y la importancia de la lengua de señas y las herramientas visuales para crear un entorno eficaz para las prácticas de enseñanza inclusiva.

Palabras clave: lengua de señas chilena, sordo, dificultades auditivas, EFL, apoyos visuales

Introduction

Worldwide, there has been a gradual transition from a clinical to a social perspective in special needs education. That is to say, the perspective has shifted from viewing special needs as a lack of capabilities, towards one in which those with special learning needs are seen as people with different skills, who can enrich educational settings (Warnock & Terzi, 2005). In this article, inclusion will be understood as the sharing of experiences and opportunities to fully develop all students' skills.

Chile has followed the trend of international educational changes by implementing inclusive legislation. An example of this change is Decree 83, which was passed by the Chilean Ministry of Education in 2015 and addressed the issue of the inclusion of special needs students within primary schools. Before this time, Deaf or Hard of Hearing (D/HH) students were removed from English lessons, but, with the changes in the law, they must now remain in the classroom and be included through appropriate adjustments in the curriculum, as needed, according to the new Inclusive Legislation of Chile. ("Ley 20485", 2015).

The present exploratory action research was developed as part of an undergraduate teaching program by two pre-service teachers who were working as volunteers in an EFL workshop for a group of five D/HH students enrolled in 5th Grade (age 10+) at a school in Concepción, Chile. In the process of planning their lessons, the pre-service teachers realized that there are no official curricular adaptations or suggestions for working with D/HH students for local English teachers implementing the National Curriculum Guidelines for primary education. Therefore, they decided to explore, intervene, and reflect in order to improve their teaching practice. Through the exploratory phase of the process, they observed that the development of their students' recalling skills in English needed support. Therefore, they decided to focus on the use of visual aids, such as cartoons and emojis, and their contribution to D/HH students' learning process. This project could provide insights into an area that is still underexplored and concerns appropriate pedagogies to support the learning of English of D/HH students in Chile.

Theoretical Framework

Deafness and first language acquisition

Deafness is defined as the condition of not being capable to detect or hear some sound frequencies (WHO, 2018). Deaf students, whose hearing loss is profound, cannot benefit from the use of hearing aids. As shown in Figure 1, linguistic development depends on the time at which the hearing loss occurred. If it took place before the acquisition of a first language (L1), in this case, Spanish, it is called Prelingual Deafness. When hearing loss occurred after the acquisition of an L1, it is called Postlingual Deafness. In this case, the postlingual deaf person can undergo a linguistic development similar to that of hearing individuals (Birinci, 2014).

Regarding the understanding of Deafness, there has been a transition worldwide in relation to special needs education towards a more sociocultural model. Currently, D/HH people are seen from a cultural perspective in which they belong to a community, have a particular identity, and a

shared language. Thus, they are considered to be a linguistic and cultural minority within educational settings (Ladd, 2003).

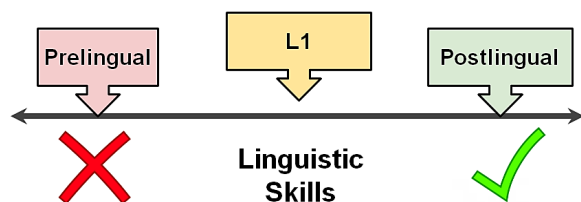


Figure 1. Linguistic development
Source: Adapted from González and Ibáñez (2018, p. 21)

In terms of the language acquisition development by D/HH children, it is important to note that their L1 is Sign Language. According to Edwards (2012), it is as natural for the hearing body to speak, as it is for the deaf body to sign. Therefore, the acquisition of sign language is similar to acquiring any other L1 and includes similar language development stages as those of hearing children (Birinci, 2014; Meier, 1991). However, D/HH children tend to lack exposure to sign language in early stages of their development (Edwards *et al.*, 2010) which, according to Gallion (2016), may lead to a delay in the acquisition of language skills and, therefore, vocabulary comprehension and learning in the spoken language (Burger & Hoefnagel, 2005 as cited in Gallion, 2016). For that reason, the use of sign language in early stages is necessary, as the brain needs to acquire visual and spoken language so as to fully develop linguistic skills, including, for the purpose of this research, vocabulary learning (Nussbaum *et al.*, 2012; Pikulski & Templeton, 2004).

Deafness and language learning of other languages

Given that the L1 of D/HH children is Sign Language, the second language (L2) would be the widely spoken language used in the national territory, which, in the case of Chile, is Spanish. In this way, D/HH children are in a remarkable learning situation, because, in addition to working with two languages, they are dealing with two different language modes: Sign Language, in a visual/spatial

mode; and Spanish, in a linear/spoken/written mode. Furthermore, in many cases, when D/HH children attend schools, they have to learn a foreign language as part of the school curriculum. This could be a challenge for this group of students if their needs are not considered. Gerner de García (1995), who has worked with Spanish-speaking deaf elementary school students from countries such as Mexico and Costa Rica, highlights the relevance of acknowledging the trilingual situation of Hispanic D/HH students in the US in order to improve their educational outcomes in their L1 (Sign Language), L2 (Spanish), and L3 (English).

According to Cummins' (1987) interdependence principle, when a person develops linguistic skills in L1, these skills may have an impact on latent development of skills in L2. As mentioned before, for deaf students, any additional language, such as English as a Foreign Language, would be their L3 (Di Bella *et al.*, 2016; Dotter, 2008; Gerner de García, 1995). Thus, following the same interdependence principle, skills developed in L2 may have an effect on the development of skills in L3. An example of these are literacy skills.

Development of literacy skills of D/HH children

During their childhood, hearing children learn that written and spoken words consist of smaller elements, namely letters and sounds, which heightens their phonological and orthographic awareness. However, since sign language does not have a written form, D/HH children are not able to acquire written literacy skills in their first language. Thus, literacy skills cannot be transferred to the written form in the same way as oral language. Given their struggle at developing their phonological awareness, they exhibit some difficulties in their literacy skills (Stanovich, 1986). Furthermore, due to the delay in their L1 acquisition, D/HH students have smaller lexicons and learn new vocabulary at a slower rate and, in most cases, are not at the age-appropriate levels defined for their peers (Lederberg & Spencer, 2001; Luckner & Cooke, 2010). This scenario hinders their vocabulary comprehension, literacy skills, and performance in classroom activities (Moats, 2010). Hence, it is

important for them to develop the manual alphabet, which emulates the sequential characteristics of written language, as they can transfer that ability when learning new vocabulary items (Birinci, 2014; Haptonstall-Nykaza & Schick, 2007).

D/HH children and vocabulary learning

Given that Sign Language is a visual language, it can be argued that D/HH students have a visual preference when learning (Birinci, 2014; Birinci & Sarıçoban, 2021). Therefore, their learning environments must be suitable for them (Andrews, 2012). Visual aids, sign language and finger spelling could facilitate D/HH students' learning processes and vocabulary learning in their L2 and L3 (Di Bella *et al.*; Gallion, 2016; van Staden, 2013).

When studying and learning vocabulary, we make use of memory. Furthermore, in order to understand the way D/HH students learn new vocabulary, it is necessary to be aware of the importance of information recall. In this regard, Hamilton (2011) has identified four distinct strengths of D/HH students related to memory, in which they are generally equal to or even superior to hearing students. These included *free recall*, or recalling a list in any order; *visuospatial recall*, which involves the recalling of objects in a grid such as blocks on a table or objects; *imagery*, which entails creating, maintaining, and manipulating a visual image in working memory; and, finally, *dual encoding*, which is related to the individual's use of both sign and speech codes when sign and speech are presented simultaneously. Hamilton argues that these strengths of D/HH students should be taken into account so as to improve the "design and delivery of instruction" (p. 408).

As for *visuospatial recall* and *imagery*, Petterson (2004) explains that memory for pictures is superior to memory for words, and that visual aids have proved to be more effective for long-term memory than verbal recall tools because they are more meaningful. This is called the Pictorial Superiority Effect (Petterson, 2004). Specifically, in the case of D/HH students, research has shown that the results are consistently better after the introduction of visual aids and sign language

and when learning vocabulary (Gallion, 2016; Prezbindowski & Lederberg, 2003).

Regarding the assessment of recalling new vocabulary in D/HH students, Mann and Marshall (2012) made a distinction between word recall and recognition; this means the mapping between form and meaning. "If a word can be recognized but not recalled, that suggests a weaker mapping than if the word can be both recognized and recalled" (p. 9). These scholars designed four tasks divided into two receptive tasks, which are passive and active recognition, with *passive recall* (meaning) and *active recognition* (form) in-between; and two productive tasks, which are passive and active recall, with *passive recognition* (*i.e.*, meaning) requiring the weakest degree of word knowledge and *active recall* (*i.e.*, form) the strongest. For EFL learning, it could be extremely helpful to consider this information when designing and assessing vocabulary recall.

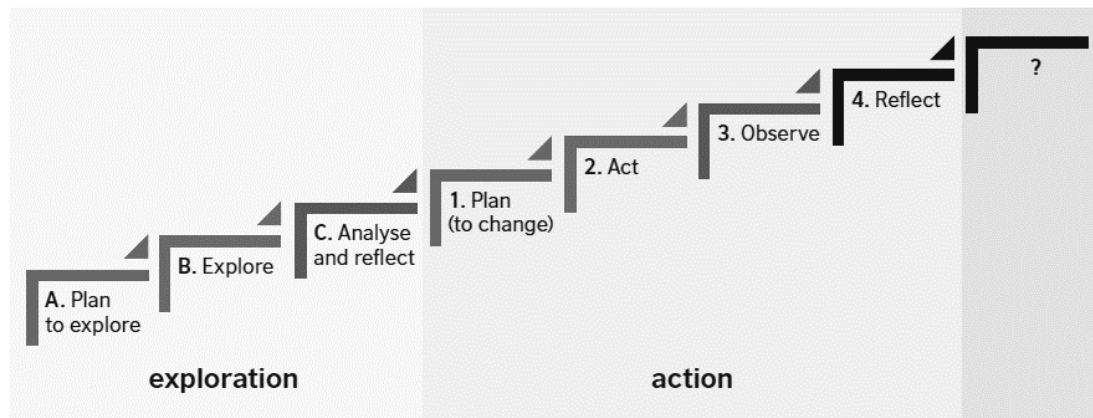
Method

This research was conducted under the qualitative approach, which "involves the discovery, understanding and generalization of new ideas, perceptions, or theories without seeking to generalize findings to other contexts" (Heigham & Croker, 2009, p. 9). This study was developed based on Exploratory Action Research (EAR), which is defined as "a way to explore, understand and improve our practice as teachers" (Smith & Rebolledo, 2018, p. 21). In this type of research, the teacher first creates the plan of exploration and later explores, analyzes, and reflects upon the problems detected, as it can be seen in Figure 2. Then, in the action stage, the teacher plans the intervention, acts, observes what happens, and collects data through different instruments. Finally, in the reflection stage, the teacher reflects and interprets what has occurred (Smith & Rebolledo, 2018).

Research problem and exploration, action, and reflection stage

In the first stage, the pre-service teachers (PSTs) explored the educational context, taking the opportunity to get to know the students, review the

We can also picture Exploratory Action Research like this ...



Steps of Exploratory Action Research

Figure 2. Steps of Exploratory Action Research

Source: Smith and Rebolledo (2018, p. 25)

Table 1: Exploratory Stage Summary

Unit	Lesson N°	Learning Objective	Day	Month
Personal Information	1	Identify new vocabulary about personal information	27	March
	2	Match vocabulary and pictures about personal information	29	
	3	Express personal information	3	April
Action Verbs	4	Trace and copy new vocabulary about action verbs	10	April
	5	Identify at least 10 verbs	24	
	6	Classify at least 10 verbs	8	May
	7	Recall at least 10 action verbs	15	
	8		22	
	9	Multitask Test 1	29	May

Source: González and Ibáñez (2019, p. 37)

literature and define the objectives and the strategies needed to work with them while considering the way they access Spanish as an L2, the use of visual aids, and Chilean Sign Language as a means of communication.

According to the Chilean Curriculum Guidelines, EFL is part of the compulsory curriculum from 5th grade (10+). Decree 83, passed by the Ministry of Education in 2015, addressed the inclusion of special needs students within primary schools by instructing schools to apply appropriate adjustments

in the curriculum and keep students in the same classroom. Before this law was passed, D/HH students were removed from English lessons. Thus, this was the first time that these students would be receiving EFL lessons. In this context, two topics from the National Curriculum Guidelines for EFL provided by the Ministry of Education for their grade were adapted: personal information and action verbs, focusing on vocabulary items in isolation. As shown in Table 1, the exploration stage lasted nine lessons and covered the topics of personal information and action verbs.

After six lessons reviewing vocabulary about action verbs, the students took the first multitask test to assess their performance on recalling action verbs vocabulary. A detailed description of this test can be found later in the article when referring to data collection instruments. In the Analysis and Reflection stage, based on the students' performance, the PSTs analyzed, reflected, and came to the realization that they had poor overall literacy skills, which was affecting their learning process regarding written English. Therefore, in the Plan and Act stage, it was decided to implement specific strategies that could support the students' EFL learning process in the future, such as those involving the recall of lexical items. As part of the Observation stage, the students' performance on a second multitask test was evaluated. Finally, The results of both instruments were analyzed as part of the Reflection stage.

The reported study focuses on exploring the contribution of using visual aids (cartoons and emojis) in the EFL classroom for teaching written vocabulary to Deaf and Hard of Hearing students, who are learning English as part of the compulsory primary curriculum in a public school in Chile. It addresses the following objectives: a) to identify D/HH students' performance regarding their ability to recall vocabulary items in the English lesson through the use of visual aids; b) to identify D/HH students' perspectives regarding learning English as a Foreign Language; and c) to identify D/HH students' perspectives regarding the use of visual aids in learning vocabulary of English as a Foreign Language.

Participants

The participants are five deaf signers enrolled in 5th grade in a public school in Concepción, Chile. Some of the learners' characteristics are that two of them have cochlear implants, and that 3 out of the 5 students started school in 1st grade (6+). A detailed summary of their characteristics can be seen in Table 2.

Since they started attending this school, these students have been taught Spanish in the written form and Chilean Sign Language (ChSL). However, there is no formal record of their literacy level and proficiency in ChSL.

Research Procedure

During a five-week period, this study looked at how the use of visual aids (cartoons and emojis) helped to support the group of D/HH students' strategies to recall vocabulary in English. Table 3 shows that students worked four lessons on the topic of emotions (adapted from the National Curriculum Guidelines for EFL for their grade). In those sessions, they were exposed to different activities designed according to the strategies identified by Hamilton (2011), namely *free recall* (recalling a list in any order), *visuospatial recall* (recalling of objects in a grid), *imagery* (creating, maintaining, and manipulating a visual image in working memory), and *dual encoding* (an individual's use of both sign and speech codes when they are presented simultaneously). After the fourth lesson, the students took a second multitask test.

Table 2. Student information

Student N°	Age	Grade they started at the school the study took place	Diagnostic	Hearing aid	Years of Literacy
1	11	2nd Grade	Deaf	Auricular	3 years
2	10	1st Grade	Deaf	Auricular	4 years
3	10	1st Grade	Deaf	Implanted	4 years
4	11	1st Grade	Deaf	Auricular	4 years
5	10	Kinder	Deaf	Implanted	4 years

Source: Adapted from González and Ibáñez (2018, p. 37)

Table 3. Intervention stage summary of activities

Unit	Lesson N°	Learning Objective	Day	Month
Emotions	1	Identify emotions	3	June
	2	Classify emotions	12	
	3	Express emotions	19	
	4	Recall emotions	26	
	5	Multitask Test 2	10	July

Source: González and Ibáñez (2018, p. 41)

Table 4. Strategies and activities used in the intervention stage

Strategies	Activities & Materials
Free Recall	Flashcards
Visuospatial Recall	Memory game
Imagery	Worksheet Draw
Dual Encoding	Unscramble Worksheet

Source: González and Ibáñez (2018, p.40)

In this stage, some strategies to recall vocabulary for D/HH students were used. As can be seen in Table 4, different activities were designed according to each strategy, which were identified before by Hamilton (2011) as strengths for D/HH students.

Data collection instruments

In order to collect data in the school, it was necessary to have the authorization of the headmistress. Additionally, a consent form was filled out by the participants' parents or guardians.

One important data collection instrument was the multitask test (Appendices A, B, C, and D for the various parts of the test). This instrument was adapted from a multitask test designed by Mann and Marshall (2012) to address the first objective involving the students' performance in terms of their ability to recall vocabulary items in the English lesson through visual aids. The multitask test was applied twice during this study: multitask test 1 was applied at the end of the exploratory stage and focused on actions verbs; and multitask test 2, which considers the topic on emotion, at the end of action, before the observation and reflection stage. Both tests had

four parts: first, the passive recognition stage, in which the students were shown a multiple-choice activity. The students had to identify the image and select the correct word in English that corresponded to each image, as shown in Figure 3.

Second, the active recognition stage, in which the students were given a worksheet where they had to read the word in English and then select the correct image, as it can be seen in Figure 4.

Third, the passive recall stage, in which the students were shown the word in English and had to sign it in ChSL. Finally, the fourth stage was active recall, where the students were shown the image and had to fingerspell the word in English.

An additional data collection tool was a semi-structured interview (Appendix E), which addressed the second and the third objectives, regarding student perspectives, which was validated by a committee of three university professors. The first three questions were focused on their views on learning English at school, and the following three focused on children's opinions on the English lesson.






Multitask Test N°1		
		
WALK	SING	DANCE
2. 		
COOK	DRINK	PAINT
3. 		
DANCE	RUN	WALK
Multitask Test N°2		
		
SILLY	BORED	HAPPY
2. 		
ANGRY	SURPRISED	SAD

Figure 3. Sample of passive recognition task
Source: Adapted from González and Ibáñez (2018)

Data analysis techniques

The analysis techniques were chosen according to the instruments used to collect the data. Firstly, for the multitask tests, the data collected were organized into scores according to the type of task from tests 1 and 2. In both tests, each alternative had one point. Therefore, the students' scores were compared according to each task. Then, the overall test score accomplished by each student was compared to assess their performance at the beginning and the end of the intervention.











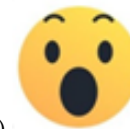

Multitask Test N°1		
LEARN		
		
2. WATCH		
a) 	b) 	c) 
Multitask Test N°2		
SILLY		
a) 	b) 	c) 
2. SAD		
a) 	b) 	c) 

Figure 4: Sample of active recognition activity
Source: Adapted from González and Ibáñez (2018)

In the case of the interview, it was firstly video recorded, as the participants were signers, to then be transcribed into Spanish and assessed through thematic analysis. This process considered the analytical steps by Marshall and Rossman (1990): organize the data, generate categories or themes, code the data, test emergent understandings of the data, search for alternative explanations of the data, and write-up the data.

Findings and discussion

In terms of D/HH students' performance regarding their ability to recall vocabulary items in the English lesson through the use of visual aids

(objective 1), the results showed diversity in their level of performance according to the type of task. Firstly, on recall productive tasks, two of the five students performed better in the second test involving *active*

recall, while only one student recalled more vocabulary in the second test (*passive* recall). Moreover, one student maintained the same performance on both tests, as shown in Figure 5a and 5b.

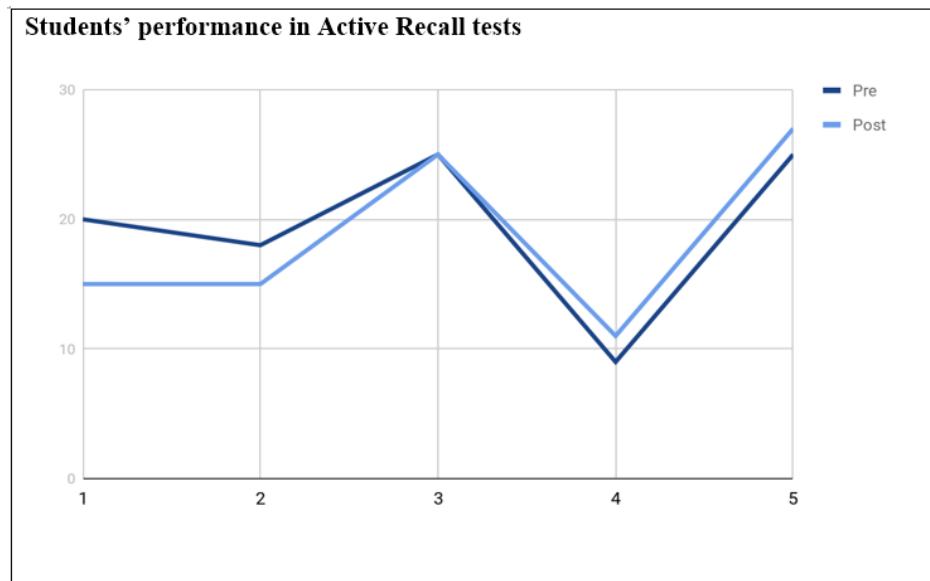


Figure 5a. Students' performance in active recall tasks
Source: Adapted from González and Ibáñez (2018)

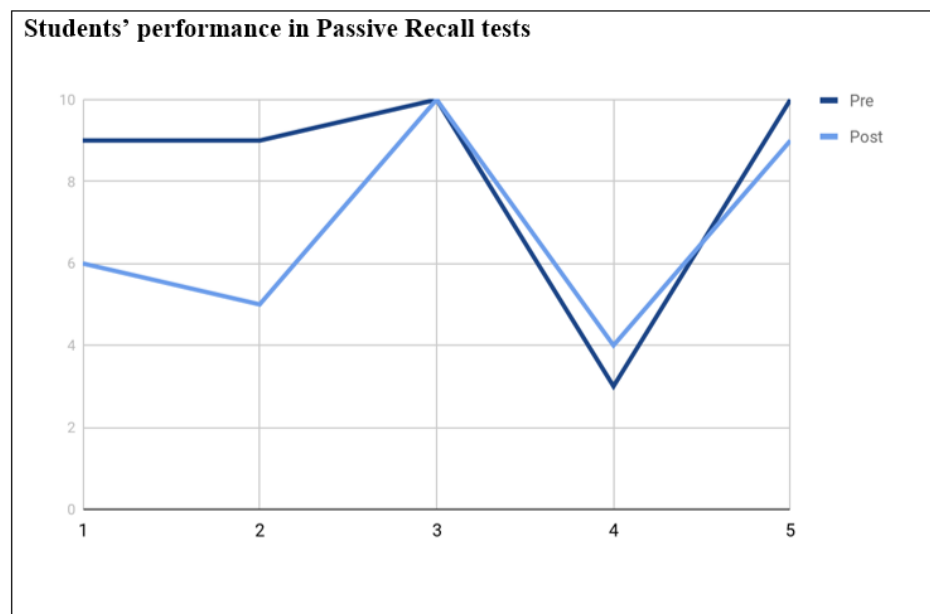


Figure 5b. Students' performance in passive recall tasks
Source: Adapted from González and Ibáñez (2018)

Regarding recognition tasks, Figure 6a and 6b show the two receptive tasks regarding recognition of words. In the active recognition tasks, three students lowered their scores on test 2, whereas,

in passive recognition, one student improved their performance on the second test. Moreover, two students maintained the same results, with a perfect score on both tests.

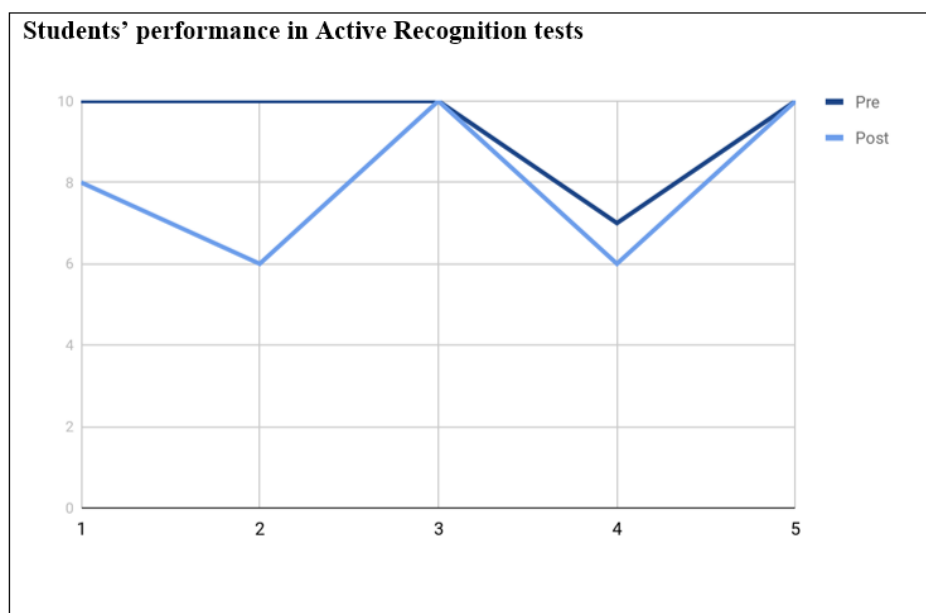


Figure 6a. Students' performance in the active recognition tasks
Source: Adapted from González and Ibáñez (2018)

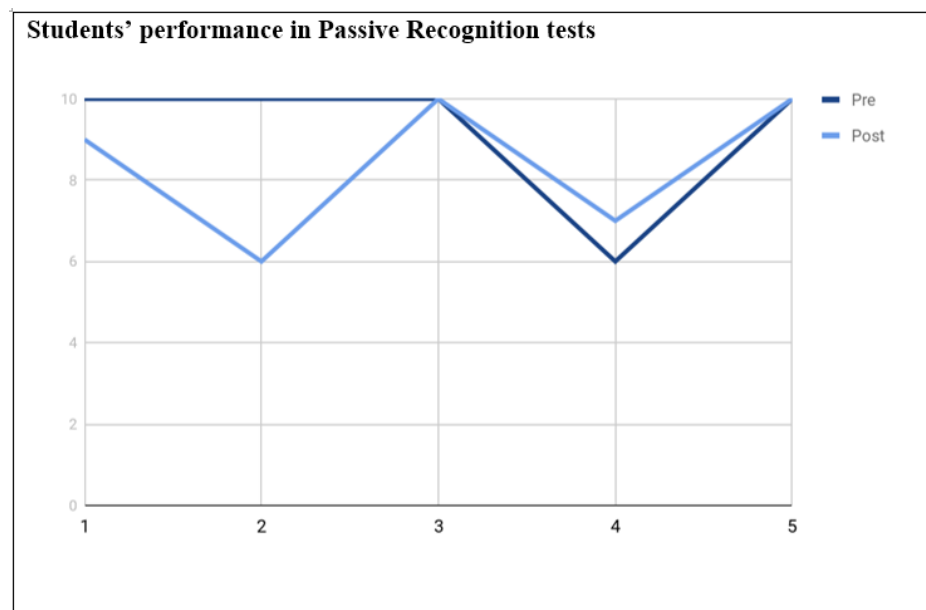


Figure 6b. Students' performance in the passive recognition tasks
Source: Adapted from González and Ibáñez (2018)

In terms of the support that visual aids give to the process of recalling lexical items, visual aids seemed to help these students to some extent. In the first test, the students were able to achieve unexpectedly high scores, especially considering that they had never had English instruction before. On the second test, the results were inconclusive, as some students obtained higher scores, others showed lower scores, and others maintained their results from the first test. These findings provide interesting insights into the benefits identified in the literature concerning the introduction of visual aids and sign language when learning vocabulary (Gallion, 2016; Prezbindowski & Lederberg, 2003). However, there are some procedural factors related to the time spent working on the topics, which may help to understand this inconsistency. The number of lessons devoted to the action stage (emotions) was shorter than those devoted to the exploration stage (action verbs). The reasons behind this difference were related to the schedule and the end of the school semester. Regardless of the inconclusive results on the contribution of visual aids for vocabulary recall, these outcomes are consistent with the role of rehearsal to support D/HH students' learning process by increasing sequential working memory skills and facilitating information storage in long-term memory (Hamilton, 2011).

Regarding D/HH students' perspective on learning EFL (objective 2), the findings from the thematic analysis showed two main categories emerging from the students' responses, namely EFL learning and EFL classes. Table 5 shows a summary of the categories and codes emerged from the thematic analysis.

Table 5. Summary of the thematic categories on students' perspectives regarding learning English as a Foreign Language

Categories	Codes
EFL learning	Enjoyment
	Challenging
	Future value
EFL classes	Entertainment

Source: Adapted from González and Ibáñez (2018)

In the first category, EFL learning, three codes emerged, namely enjoyment, challenging, and future value.

First, enjoyment refers to the positive feelings and attitudes students have towards the EFL learning process. These children said they felt happy and entertained, as it can be seen in the following extracts:

Student N° 1: "Yo quiero aprender Inglés y es entretenido..."⁶

Student N° 5: "Sí, me gustaría mucho aprender y porque me gusta aprender y entender todo..."⁷

Challenging as a code refers to how these students perceived EFL learning as interesting, but difficult at the same time, as it tested their abilities. This was expressed in quotes such as the following:

Student N°4: "Sí es importante y un poco complicado de aprender..."⁸

Student N°2: "Sí, muy entretenido y un poco difícil..."⁹

Thirdly, future value refers to the importance of EFL learning noticed by the students in terms of its usefulness in the future which can be seen in the following answers:

Student N°1: "Sí me gustan, porque me gusta aprender, leer y sirve para mi futuro trabajo..."¹⁰

Student N°3: "Es importante para el futuro, para cuando sea grande si viajo a Estados Unidos, por ejemplo..."¹¹

The second category is related to students' perspectives regarding EFL classes or lessons.

6 **Student N°1:** "I want to learn English, and it is so fun..."

7 **Student N°5:** "Yes, I'd like to learn a lot because I like to learn and understand everything"

8 **Student N°4:** "It is important and a little complicated to learn..."

9 **Student N°2:** "Yes, it's fun and a bit difficult."

10 **Student N°1:** "Yes, I like them, because I love to learn, read, and it is useful for my future job".

11 **Student N°3:** "Yes, it is very important for the future, for when I grow up or if I travel to the United States, for example".

The code identified in the students' answers was *entertainment*, which refers to feelings of amusement related to the EFL context. The following quote represents this point:

Student N°2: "Me siento feliz porque es divertido. Me gusta aprender las palabras diferentes de Inglés"¹²

Student N°1: "Me siento bien y me gusta aprender"¹³

Based on these findings, it seems that the students' perspective is positive regarding the EFL learning experience in general, although they also refer to it as challenging. On the one hand, these results suggest that students seem aware of the importance of EFL learning for their future. In this regard, the students perceived the value of EFL learning by relating their interests to the future and the positive outcomes they may experience. On the other hand, they are consistent with the literature regarding the challenges D/HH students may experience in learning a spoken language (Burger & Hoefnagel, 2005; Dotter, 2008; Gallion, 2016). Their struggle may be explained by their lack of proficiency in Sign Language, which is a key factor to develop linguistic skills that may be transferred in the learning of a spoken/written language (Cummins, 1987; Edwards *et al.*, 2010; Gallion 2016). According to Birinci (2014), this lack of input in early ages negatively influences the learning process of a spoken language. Moreover, as Sign Language does not have a written form, D/HH students may struggle when developing literacy skills (Lederberg & Spencer 2001; Luckner & Cooke, 2010; Moats, 2010). However, these difficulties can be overcome if specific learning strategies, such as those to recall lexical items, are applied. Therefore, it is crucial that teachers understand the different strengths of D/HH students to create an effective environment for their learning processes (Andrews, 2012; Gallion, 2016; Staden, 2013; Di Bella *et al.*, 2016).

Finally, as for the students' perspectives on the use of visual aids in learning EFL vocabulary (objective 3), as it can be seen in Table 6, these addressed two main categories: feelings and learning.

¹² **Student N°2:** "I feel happy, because it is fun. I like to learn the new and different words in English".

¹³ **Student N°1:** "I feel good. I like to learn".

Table 6. Thematic analysis summary about students' perspectives on the use of visual aids in the English lesson

Categories	Codes
Feelings	Fun
Learning	Helpful
	Chilean Sign Language

From feelings, one code emerged: *fun*, which refers to the feeling of being pleased when using visual aids. This can be identified in the following quotes:

Student N°3: "...Me siento bien; ponen las imágenes y las palabras..."¹⁴

Student N°4: "Sí me gusta; aprendí las palabras con imágenes"¹⁵

From the learning category, two codes emerged, namely *helpful* and *ChSL*. *Helpful* refers to the help provided by visual aids to learning vocabulary. The following quote provides an example of this:

Student N°3: "Con imágenes o expresiones es mucho más fácil. Por ejemplo, si hay una oración, yo no entiendo qué son las palabras..."¹⁶

Student N°1: "Las dos profesoras me enseñaron las palabras de inglés con imágenes visuales y pude aprender."¹⁷

And, finally, Chilean Sign Language, which refers to the value perceived of ChSL as their means of communication. For example:

Student N°1: "Sí, me ayudaron mucho porque las profesoras saben Lengua de Señas"¹⁸

¹⁴ Student N°3: "...I feel good. They showed us the images and the words..."

¹⁵ **Student N°4:** "Yes, I like it. I learned words with images".

¹⁶ **Student N°3:** "Using images and expressions is much easier. For example, if there is a sentence, I don't understand what the words are..."

¹⁷ **Student N°1:** "The two teachers taught me words in English with visual images and I could learn".

¹⁸ **Student N°1:** "It did help me a lot, because the teachers know Sign Language".

Student N°2: “Sí me ayudaron las imágenes a aprender palabras. Mis profesoras me ayudaron y aprendí mucho.”¹⁹

Based on these results, it seems that the students had positive perspectives regarding the use of visual aids in the EFL context. These students considered that the use of visual aids in the lessons was pleasant and enjoyable, which contributed to their learning process. Furthermore, students agreed that the use of visual material helped them to identify and understand the concepts, as well as to remember the vocabulary. Moreover, this group of children agreed on the role of Chilean Sign Language as a facilitator in the classroom that complements the use of visual materials. According to Hamilton (2011), a sign related to a visual image has been successfully used for many years to improve recalling and learning vocabulary. In this regard, visual aid plays a metalinguistic role by relating signs and vocabulary to real world references (Mann & Marshall, 2012; Gallion, 2016; Di Bella *et al.*, 2016). Hence, teachers who know and use Sign Language are better suited to support D/HH students' language learning process (Andrews, 2012; Gallion, 2016; van Staden, 2013; Di Bella *et al.*, 2016).

Additionally, these findings are consistent with the literature regarding the effectiveness of using visual aids in the classroom with D/HH students (Birinci, 2014; Prezbindowski & Lederberg, 2003; Gallion, 2016; van Staden, 2013; Di Bella *et al.*, 2016), as they aid the teacher in clarifying, in a more concrete and meaningful way, the concepts presented to these students (Bagulia, 2005; Gallion, 2016; Di Bella *et al.*, 2016). The current results also reassure the idea that when the created material is unique and fun, students are engaged and have better possibilities to reach the expected outcomes in their learning process and memory skills (Hamilton, 2011; van Staden, 2013; Gallion, 2016). Furthermore, this intervention considered visual aids and ChSL to teach vocabulary together with fingerspelling, which seemed to help the students' sequential memory (Haptonstall-Nykaza & Schick, 2007; Gallion, 2016; van Staden, 2013; Di Bella *et al.*, 2016). Consequently, it could be

¹⁹ **Student N°2:** “Yes, the images helped me to learn new words. My teachers helped me, and I learned a lot”.

argued that visual aids and sign language supported the clarification of concepts and enabled effective language learning (Bagulia, 2005; Gallion, 2016; Di Bella *et al.*, 2016; van Staden, 2013).

Conclusions

There is scarce research about teaching English as a Foreign Language to D/HH students, particularly in Chile. Therefore, this article presented an attempt to teach EFL to D/HH students, specifically vocabulary by means of visual aids. The research project showed that this group of children enjoyed learning EFL and valued the use of images together with ChSL to support their learning process of the language. However, given the inconsistency in the multitask test results, it was not possible to determine the contribution of this type of aids to improving student performance on vocabulary item recall.

This study had some limitations. Firstly, the group of students had a limited proficiency level of ChSL, which hindered some of them from expressing more complex opinions in the interviews. Therefore, their views may appear concise. Secondly, time limitations prevented the implementation of the complete intervention plan.

Despite its limitations, this Exploratory Action Research provides initial insights regarding teaching English to D/HH students in Chile, as well as their challenges and preferences. It is expected that this article helps teachers to start thinking about ways to create inclusive language classrooms, to understand the different skills and possible struggles that D/HH students may face in mainstream classrooms, and to provide a safe, comfortable and meaningful learning environment. By identifying their D/HH students' strengths and implementing different strategies to the lesson, such as using visual aids and sign language to communicate with the students, teachers can begin the process of inclusion. Furthermore, it is expected that this study serves as a starting point for further research in the field of EFL practices that respond to the needs of inclusive classrooms. Finally, through this project, the pre-service teachers had the opportunity to

face a new challenging experience as professionals, which involved learning Chilean Sign Language in order to build a relationship with the students and teach them English.

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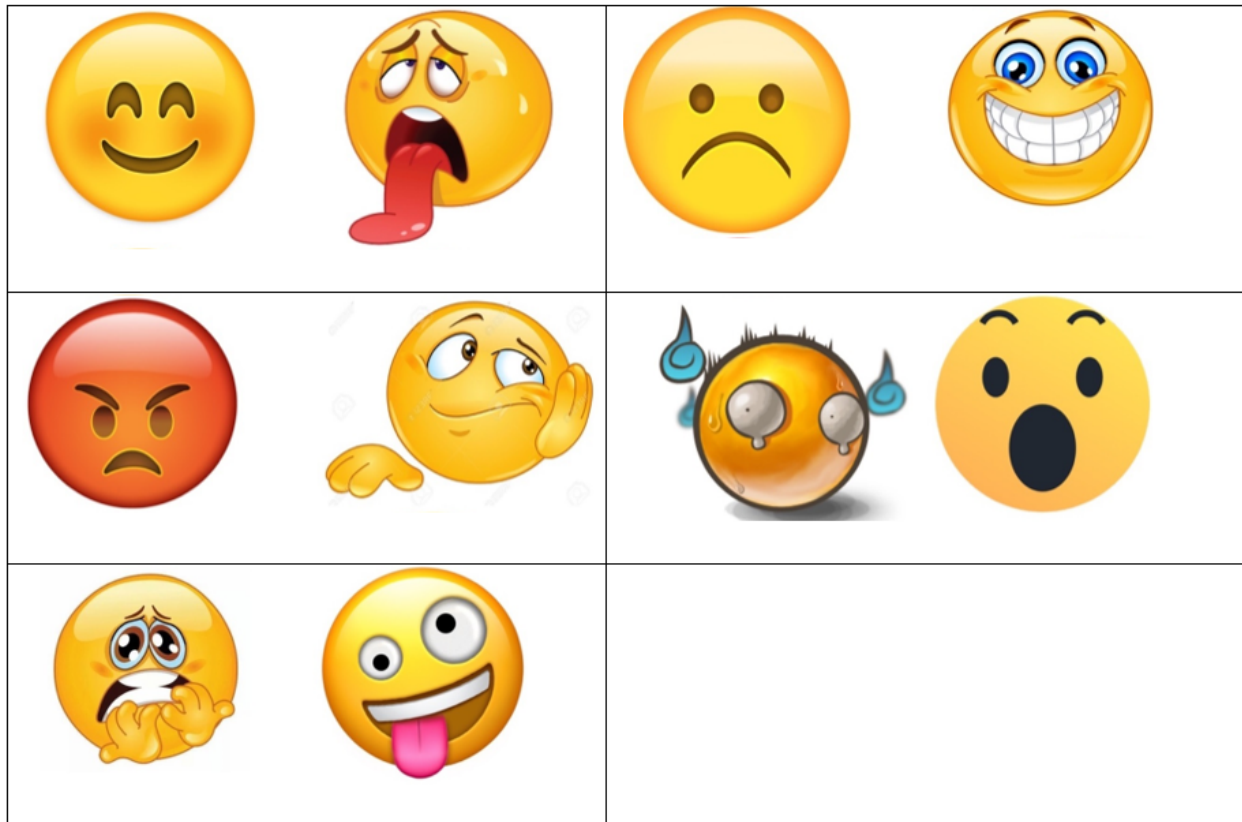
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Appendices

Appendix A: Active Recall Task

This was the set of images used as flashcards for this task. Students had to recall the vocabulary by recognizing the image presented and fingerspelling the word in English.



Appendix B: Passive Recall Task

This was the set of words used as flashcards for this task. The teacher shows a set of words in English in which students have to recognize the word and produce the correct Chilean sign.

Run

Happy

Learn

Sad

Watch

Angry

Eat

Scared

Cook

Nervous

Walk

Tired

Dance

Excited

Paint

Bored













Sing


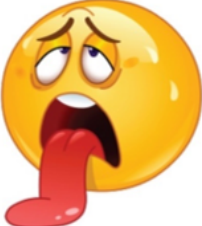
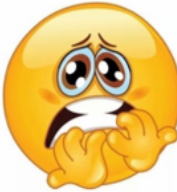


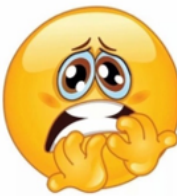



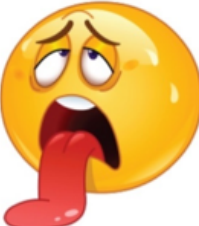


Surprised

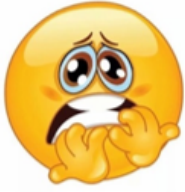





Drink

Silly

Appendix C: Active Recognition Task





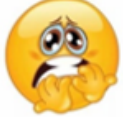

Multichoice “Emotions”		
1. SILLY		
a) 	b) 	c) 
2. SAD		
a) 	b) 	c) 
3. SCARED		
a) 	b) 	c) 
4. SURPRISED		
a) 	b) 	c) 



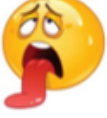


5. NERVOUS		
a) 	b) 	c) 
6. EXCITED		
a) 	b) 	c) 
7. BORED		
a) 	b) 	c) 
8. TIRED		
a) 	b) 	c) 
9. HAPPY		

9. HAPPY		
a) 	b) 	c) 
10. ANGRY		
a) 	b) 	c) 

Appendix D: Passive Recognition Task

This is the multichoice test implemented for this task. The teacher gives a worksheet with a multiple-choice activity in which students have to look at the images and choose the correct word.

Multichoice "Emotions"		
1.		
a) SILLY	b) BORED	c) HAPPY
2.		
a) ANGRY	b) SURPRISED	c) SAD
3.		
a) SCARED	b) EXCITED	c) NERVOUS
4.		
a) SILLY	b) SURPRISED	c) TIRED
5.		
a) NERVOUS	b) BORED	c) TIRED
6.		
a) EXCITED	b) BORED	c) NERVOUS

6.			
a) EXCITED	b) BORED	c) NERVOUS	
7.			
a) SILLY	b) SCARED	c) BORED	
8.			
a) NERVOUS	b) TIRED	c) ANGRY	
9.			
a) SURPRISED	b) SAD	c) HAPPY	
10.			
a) ANGRY	b) BORED	c) SAD	

Appendix E: Student interview

The interview was video recorded and interpreted into Chilean Sign Language by a special education teacher from the school.

Spanish

1. Preguntas introductorias: ¿Alguna vez has tenido clases de inglés? ¿Dónde?
2. Perspectiva de los estudiantes con respecto al aprendizaje del inglés como lengua extranjera.
 - ¿Cuál es tu opinión con respecto a aprender inglés? ¿Es importante, interesante o no es necesario? ¿Por qué?
 - ¿Qué opinas de las clases de inglés que has tenido hasta ahora? ¿Te gustan, no te gustan, es entretenido, aburrido, difícil o fácil? ¿Por qué?
 - ¿Cómo te sientes en la clase de inglés? ¿Por qué?
3. Preguntas con respecto al uso de material visual en el aprendizaje del vocabulario en inglés como lengua extranjera.
 - ¿Cuál es tu opinión con respecto al uso de imágenes para aprender palabras en inglés? ¿Es importante o no es importante? ¿Te gusta o no te gusta? ¿Es difícil o fácil? ¿Es entretenido o aburrido? ¿Por qué?
 - ¿Cómo te sientes cuando la profesora ocupa imágenes para enseñar palabras en clases? ¿Te gusta o no te gusta? ¿Es difícil o fácil? ¿Por qué?
 - ¿Crees que te sirve usar imágenes para aprender las palabras en inglés? ¿Te ayuda o no a aprender las palabras? ¿Por qué?

English version

1. Introductory questions: Have you ever had English classes? Where?
2. Students' perspective on learning English as a foreign language: What is your opinion about learning English?
 - What is your opinion about learning English? Is it important, interesting, or not necessary? Why?
 - What do you think of the English classes you have had so far? Do you like them, dislike them, is it fun, boring, difficult or easy? Why?
 - How do you feel in English class? Why?
3. Questions regarding the use of visual material in learning vocabulary in English as a foreign language.
 - What is your opinion regarding the use of visuals to learn English words? Is it important or not important? Do you like it or dislike it? Is it difficult or easy? Is it entertaining or boring? Why?
 - How do you feel when the teacher uses pictures to teach words in class? Do you like it or dislike it? Is it difficult or easy? Why?
 - Do you think it helps you to use pictures to learn English words? Does it help you learn the words or not? Why?