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Catalan Sign Language as a Pedagogical Tool for Inclusion and Vocabulary Acquisition of a Foreign Language in an Ordinary Classroom:

Case Study in Catalonia

Author: Berta Soler Prats

Supervisor: Neus Lorenzo Galés

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To all people who still do not have enough tools to communicate with the world

Abstract

This dissertation explores the benefits of sign language in an ordinary classroom focusing on how it can work as a pedagogical tool for inclusion and vocabulary acquisition. The main aim was to test if the use of Catalan sign language in an ESO year 1 English class would help students learn and retain specific vocabulary. To achieve it, a study was conducted in three classrooms of a secondary school in Barcelona, creating a specific teaching unit where all students were able to participate in the activities. Ten words in English were chosen to be tested for recognition and understanding before, during, and after the teaching unit. A selection of students with different difficulties were the participants of this data collection. All pupils were given the opportunity to express their opinions on the different ways of communication and the use of sign language in the classroom. The findings of this dissertation will hopefully encourage more educators to discover the wonderful world of sign language and its multiple benefits for all students.

Keywords: sign language, LSC, inclusion, communication, English, vocabulary acquisition.

Abstracte

Aquest TFM explora els beneficis de la llengua de signes en una aula ordinària, centrant-se en la seva utilització com a eina pedagògica per a la inclusió i l'adquisició de vocabulari. L'objectiu principal era analitzar si l'ús de la llengua de signes catalana ajudaria els estudiants de 1r d'ESO a aprendre i retenir vocabulari específic en anglès. Per dur-lo a terme, es va crear una unitat didàctica que va permetre realitzar l'estudi a tres classes d'un institut a Barcelona. D'aquesta manera, tot l'alumnat va poder participar en totes les activitats plantejades. Es van escollir deu paraules en anglès per avaluar-ne el seu reconeixement i comprensió abans, durant i després de la unitat didàctica. Es va fer una selecció d'estudiants amb diferents dificultats per poder-ne fer la recollida de dades. Tot l'alumnat va tenir l'oportunitat d'expressar la seva opinió sobre els diversos mètodes de comunicació i l'ús de la llengua de signes dins de l'aula. S'espera que els resultats d'aquest treball puguin obrir les portes per tal que més docents

s’animin a descobrir l’increïble món de la llengua de signes i els beneficis que pot aportar a tot l’alumnat.

Paraules clau: llengua de signes, LSC, inclusió, comunicació, anglès, adquisició de vocabulari.

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I must give my honest thanks to my parents and my sister, who have never stopped believing in me and my abilities. Finally, I would like to show my deep appreciation for my grandmother who, despite not being able to read this paper because of the language barrier, has been an incredible support since the very beginning. This one is for you.

TABLE OF CONTENTS

1. INTRODUCTION

This dissertation is part of the Official Master's degree in Teaching in Secondary Schools, Vocational Training and Language Centres. It is written by Berta Soler Prats under the supportive guidance of Neus Lorenzo Galés at UAB (Universitat Autònoma de Barcelona).

The study explores the topic of classroom inclusivity following the UDL guidelines (Universal Design for Learning). It focuses on how sign language can be used in an ordinary classroom in order to help students—especially those who struggle more—learn and remember certain words and concepts in English, therefore addressing sign language as a powerful inclusive tool for educators to improve communication in the classroom. In addition, it introduces an innovative multimodal strategy for teaching a foreign oral language using a local sign language (Llengua de Signes Catalana, hereinafter referred to as LSC). This dissertation also focuses on providing awareness to students about the different possible ways of expression, communication, and interaction while improving their acceptance of deafness and other disabilities that benefit from the use of sign language.

1.1. JUSTIFICATION

Albeit some studies have been conducted with preschool and primary school-aged children about the introduction of sign language as learning support (Daniels, 2001a; Daniels, 2001b; Sherman, 2011), there is a lack of information regarding its benefits for high school students with no previous knowledge of it. In addition, there are no studies known by the author that test local sign language as a tool for foreign language learning.

Sign language is an overlooked resource for both learning and classroom inclusivity. It presented a good opportunity to use it with ESO year 1 pupils, especially after observing the academic and social diversity found in the classrooms of the school where the study was conducted, and after seeing how some students seemed to struggle with English. The answers of this study can hopefully invite experts to delve into this innovative topic and conduct more extensive studies about its benefits.

1.2. SOCIOCULTURAL AND EDUCATIONAL CONTEXT

This study was developed in a secondary school located in a working-class neighbourhood of Barcelona. This particular area has gone through many socioeconomic changes in the last decades; coming from an industrial past it has evolved into a mix of different architectural landscapes.

Due to the rapid changes of the neighbourhood and the fact that some pupils came from a different district with a generally higher income, the type of students that could be found in this school was quite heterogenic. As seen during the first practicum, some families came from a poorer area where immigration was frequent while other students lived more comfortable lives (Príncep & Soler, 2020). Such difference was easily recognisable in the school and therefore the preparation of activities in which this contrast was not shown was advised. In addition, the cultural capital of the school's neighbourhood was lower than the average of Barcelona, and its inhabitants also had less studies than some of the bordering neighbourhoods (Ajuntament de Barcelona, 2020). Once more, this distinction too was patent in the school.

This dissertation is based on an educational centre founded in the '90s following the need for a secondary school in the area. During the first years, students had to attend classes in prefabricated modules and then moved to a newly constructed building. Ever since its creation, this school gave a lot of importance to two topics—the first one is, without a doubt, the use of technology in the classroom, hence, students used laptops from ESO year 1 to ESO year 4. The second is the fact that they were considered pioneers as a result of their linguistic programme, which was key in order to establish a CLIL programme in 2007. English was therefore considered of great importance, and efforts were aimed at helping students gain a higher linguistic competence. According to the school's staff, in the beginning, the CLIL programme was not available for all students, yet those who benefited from it managed to reach quite a high level of English, which, as it was observed, declined during the past few years. Among other reasons, this was due to the fact that, when this study was conducted, all students participated in CLIL classes and the arrival of new students that lacked the necessary linguistic knowledge made it more difficult. Low motivation also played a part.

Considering the topic of this dissertation and the age of the students, the study was conducted in three ESO year 1 classes with no prior LSC knowledge. It is necessary to highlight the fact that these pupils finished their year 6 of primary education amidst a pandemic, which means that some of them were not able to reach the basic competencies to pass. However, all of them commenced high school in 2020. The effects of online learning took a toll on those who did not receive as much support as their peers, either because of the low cultural and educational level of the families or because their tutors were not able to spend much time helping them. As a result, they not only performed academically worse, but they were also unmotivated and needed to make an extra effort to keep up with the class.

1.3. OBJECTIVES AND RESEARCH QUESTIONS

As mentioned in 1.1, most studies about the use of sign language in ordinary classrooms focus on preschool and primary school students, so there is a lack of information regarding the introduction of sign language in higher courses as well as its benefits. The first objective, therefore, is to check if it can bring similar benefits to high school pupils who had no previous knowledge of it, which leads to the first research question:

Research question 1: Will the introduction of sign language to high school students provide benefits similar to such introduction in younger pupils?

One of the main objectives of this dissertation is to explore sign language as an innovative and ethical tool for vocabulary acquisition of a foreign language, especially directed to those students who present some sort of difficulty in the English subject. The second research question, then, is the following:

Research question 2: Can sign language improve the acquisition of vocabulary?

Sign language is one of the many valid forms of communication, yet many students do not realise that reading, writing, and speaking are not the only options. Another very important objective of this study is to introduce a special teaching unit developed by the author that delves into the topic of different valid ways of expression and communication to allow students to gain more acceptance and awareness of this topic. This presents the third research question:

Research question 3: Will students be more aware of the different types of communication?

The other main objective presented here is to treat sign language not only as a tool for vocabulary acquisition but also as an option to improve motivation, interaction and engagement of the students while making the classroom a more inclusive environment for all pupils. Although testing the following research question can present difficulties due to its subjective nature, it should not be underestimated:

Research question 4: Can sign language motivate students to engage more in the classroom?

In the next section, the focus will turn to the theoretical framework of this dissertation.

2. LITERATURE REVIEW

2.1. THEORETICAL FRAMEWORK

To learn more about the topic of this dissertation, numerous articles and other types of writings have been read. Some of them have been mentioned previously, while others will be talked about later. The following are three articles that prove to be quite important and relevant to the dissertation's concerns because of what they focus on, especially considering the little amount of literature connecting sign language and vocabulary acquisition in ordinary classrooms.

First and foremost, it is important to mention Susan Barteaux's article "Universal Design for Learning" because the study explained in this dissertation is based on inclusivity and the engagement of the students. This article describes what the UDL is as well as its main aims and goals. It is key to understand what needs to be done to improve the quality of the teaching, learning, understanding, and engagement in the classroom. Barteaux explains that the UDL was inspired by accessible architecture—teachers started implementing changes in the classroom so that it would fit all students. It was originally intended to include students with special needs, though it has been generalised since then. What the UDL indicates, therefore, is that the curriculum must be flexible enough to make it accessible, physically and academically, for all learners who need to have all their needs met regardless of their age or subject of study.

Furthermore, Barteaux writes about the three core principles of the UDL and how they relate to the multiple means of representation, expression, and engagement the students have. The approach of the UDL is based on three brain networks: the strategic networks (the "how" of learning), the recognition networks (the "what" of learning), and the affective networks (the "why" of learning). Understanding how differently brains work allows teachers to prepare and plan different ways for students to access and showcase what they know regarding a topic.

There are many benefits to following the UDL guidelines, according to Barteaux, for both students and teachers. Learning becomes much more—it is more enjoyable, challenging and especially engaging, that last one being one of the aims of the UDL. It gives a lot of importance to the successful engagement of students and what must be continuous student-teacher discussions with feedback, which promotes respect and

allows students to feel listened to. One of the main objectives is, to summarise, to create a respectful positive classroom environment where diversity is celebrated, as well as academic, social and emotional inclusivity.

The second relevant article related to the topic of this dissertation is Judy Sherman's "Signing for Success: Using American Sign Language to Learn Sight Vocabulary", which was chosen due to its similarities to this dissertation since it focuses on vocabulary acquisition using sign language. The project carried out aims to facilitate the learning of sight vocabulary using American Sign Language (hereinafter referred to as ASL), as having a larger vocabulary bank at a young age derives in a better comprehension process. Thus, reading success is positively influenced by having a larger vocabulary bank, since children need less time to decode the text.

The project explained in this article was carried out in an elementary school in the US, where classrooms were diverse and culturally mixed, and a need to improve vocabulary was found. The project lasted for 5 weeks and 11 children in 1st grade participated. The aim was for the children, who were separated in two groups, to learn 5 specific words. Group A only used flashcards and written texts, while group B also used ASL. The results showed a clear improvement and a higher accuracy of the students regarding the words they had to learn. In addition, those in group B demonstrated a high enthusiasm on the matter, which helped shier students to participate more actively. Sherman also mentions some of the reasons why ASL impacts vocabulary acquisition: it is repetitive, easy to incorporate, highly interactive, and does not require extra material. In the study, students could follow a multisensory strategy—seeing, saying, and signing the words simultaneously. Moreover, as mentioned before, students were motivated because of the high interest they showed in the matter, which influenced their learning process.

The third article is "Sign Language: Meeting Diverse Needs in the Classroom", by Cynthia G. Simpson and Sharon A. Lynch, which discusses the benefits of sign language from a communicative point of view without focusing solely on deafness, which makes it relevant for this dissertation. The authors explain who has historically benefited from using ASL: in the past, sign language was typically used as communication support for people with disabilities such as autism and language disorders, apart from hearing loss.

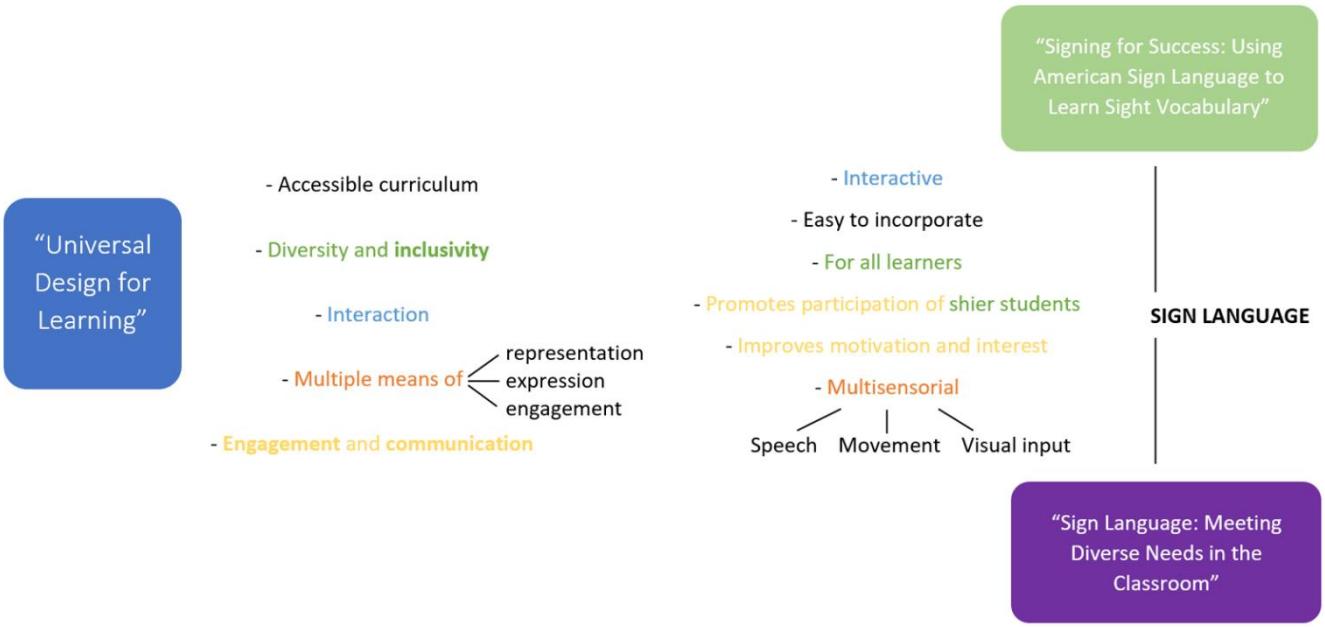
Currently, sign language has started being used for all types of students, not just those with special education needs.

As explained by Simpson and Lynch, young children benefit from combining "speech, movement and visual enhancement of communication" because it helps their language development; they find it easier to remember new words. Using sign language is also useful when giving out instructions or commands, it does not require a lot of effort to integrate it into the curriculum, it improves literacy as well as coordination, and it aids students with lower self-esteem to boost their confidence while also communicating. Additionally, and as mentioned before, sign language can be very beneficial for disabilities and learning difficulties.

These three articles have provided insight into the topic of the dissertation. Even though the second and third articles are quite similar, the first one relates to the general idea of classroom inclusivity (Barteaux, 2014). The following is a diagram of how the main keywords of the articles relate to each other:

Figure 1[1]

Connection between the three articles



[1] All figures in this dissertation are made by the author, 2021.

2.2. REVISION OF CONCEPTS

It would be difficult to understand the rationale of this work without taking into consideration the importance of the concepts that will be discussed here. First of all, it is necessary to talk about Vygotsky's zone of proximal development, which is defined as "the distance between the actual developmental level as determined by independent problem-solving and the level of potential development as determined through problem solving under adult guidance or in collaboration with more capable peers" (Vygotsky & Cole, 1978, p. 86). Vygotsky also defended that "learning always involves more than one human" (Davidson, 1994).

The collaborative learning method (Bosworth & Hamilton, 1994; Ibrahim, et al., 2015) is used in the study of this dissertation through collaborative group work since it offers students support not only from the teacher, but also from their peers. This provides a number of benefits such as motivation, social cohesion, and an increase in student achievement (cognitive perspective) and group interaction (Slavin et al., 2003).

Another concept that is crucial to mention is the competency-based learning model used. Competencies are understood as the necessary skills, abilities, and knowledge to do a specific task (Voorhees, 2001); therefore, the aim of competency-based learning is for students to not only learn, but also be able to use the knowledge they have acquired to produce an outcome.

The study presented in this dissertation uses the idea of sensorial learning, which shares several characteristics with the total physical response (TPR) method, developed by James Asher and first introduced in 1964 in a study to check if students could understand and perform a physical response to the utterances heard in Japanese. The test subjects, who had no prior knowledge of the language, proved successful to associate complex utterances with their physical responses during the four weeks that the study lasted (Asher, 1964). Retention tests were given just after they had trained, 24 hours later, and then every other week—silent periods—which showed that those who used TPR had higher retention than the subjects who did not. Results of the study suggested that "dramatic facilitation in learning listening skill for a second language is related to acting out during retention tests" (Asher, 1966). Considering that sign language is a type of communication that requires more than one sense, including the use of the body and facial expressions (Alarcia, 2018), it would fall under the umbrella of the total physical response method. However, it is important to note that the subjects of this

dissertation would also have to be able to speak and write the word in English associated with its sign in LSC, not just associate an utterance to a physical response.

In the history of humanity, there have always been people, such as deaf individuals, who have had the need to communicate when speech was not an option, and thus have developed a system using their own body (Llengua catalana, 2017). Sign language is a natural language, meaning it changes and adapts throughout time like oral and written languages do. Because of the lack of written information about sign languages, it is difficult to pinpoint when and where it started developing. However, it is known that "Native Americans used hand gestures to communicate with other tribes" and "Benedictine monks had used them to convey messages during their daily periods of silence" (Antón Dayas, 2019). Ponce de León is credited as the first known person to create a formal sign language for people with hearing impairments, who were widely marginalised due to not having been taught a way to communicate with the hearing.

Sign language has historically been used as a communicative tool for deaf and hard of hearing people, yet in the last decades, studies in multiple countries have shown that it can be beneficial for hearing students with other special education needs (Daniels, 2001a; Simpson & Lynch, 2007). Using and teaching sign language to children with Down syndrome, aphasia, autism, cognitive disabilities, and language disorders has been proven to better their communicative competence and academic ability. In addition, other studies (Daniels, 2001b; Heller et al., 1998) also suggest that all students can benefit from adding the use of sign language in a natural setting since it combines speech and movement, which enhances visual communication. Once students are able to understand, remember and produce words more easily, their language development is improved. Moreover, students who are more reluctant to speak and participate in groups can benefit from using signs until they are more confident to use their voice. These studies have also shown to improve the students' enthusiasm and interest in learning. Even though this topic of concern has been studied in the past, this has been usually done in other countries. There are few studies conducted in Catalonia, and they mostly focus on pre-school students (Muñoz, 2014; Prat i Fontseca, 2014).

In Catalonia, the first school for deaf children was created in 1800 using the oral method, which was the predominant method, especially after the Second International Congress on Education of the Deaf which was held in Milan in 1880 (Frigola & Álvarez, 2018).

Even though it is currently possible to receive a bilingual education (oral and signed), it was not until the 1960's that sign language started to be taught formally (Aliaga et al., 2018). Nowadays, Catalan sign language is mostly taught as L2 because the lack of resources makes teaching it as L1 more challenging. It is important to note that, because signs do not have a written form, video is preferred when teaching this language, which limits the possibility of learning it formally. Despite a law being passed in 2010 (Llei 17/2021) and the efforts made to extend the use of LSC, most deaf children in Catalonia study in ordinary schools using the oral modality (Sánchez, 2015).

2.3. STATE-OF-THE-ART

Despite the abundance of literature about the different ways of teaching and learning, such as the Universal Design for Learning framework (Barteaux, 2014), collaborative learning (Bosworth & Hamilton, 1994; Ibrahim, et al., 2015), competency-based systems (Voorhees, 2001) and the total physical response method (Asher, 1964), there is a lack of research about the use of sign language in ordinary classrooms as support for learning. Sign language should be taken into consideration as a valid mean of expression for all students, regardless of whether they have a disability or not. Because of the absence of studies that test sign language as a tool for vocabulary acquisition of a foreign language, this dissertation can be considered an experiential and innovative view of the many uses of sign language. Its use can be key during the period of foreign language learning since students can be offered sensorial alternatives to communicate and understand the new words and concepts introduced. The L1 of students—and even their proficiency of a second language—does not matter because they all start at the same level, which provides equity among all pupils.

Therefore, the current state-of-the-art in Catalonia shows a lack of quality references about the topic. This dissertation uncovers the need to conduct further research on it and urges professionals of the sector to investigate this very specific issue, which can prove to be a valid way of inclusion in the classroom. By raising awareness of the endless benefits of sign language, professionals can contribute to the creation and improvement of pedagogical methods for further inclusion, personalisation, and diversification during the students' learning process.

In addition, it is important to note that, currently, only two ordinary schools incorporate sign language in a bilingual way for all students (Pruna, 2017): Escola Municipal Tres Pins (2016, p. 12) and IES Consell de Cent (2019, pp. 7-8). In other ordinary and special education schools, LSC is used as a support tool for pupils with hearing disabilities and severe communication difficulties. Deaf students and their families, however, can choose whether they want a bilingual education or not. A CREDA centre (Centre de Recursos Educatius per a Deficients Auditius), a type of educative support system, intervenes in most cases, working both with minors with hearing disabilities and those with severe language and communication difficulties (Generalitat de Catalunya, 2021a web). CREDA works collaboratively with the schools that offer a specific hearing and language programme called SIAL (Generalitat de Catalunya, 2021d web) to those students that may or may not use LSC (Generalitat de Catalunya, 2021b web).

2.4. ON-GOING INNOVATION

When encountering people who do not sign, deaf and hard of hearing people usually have the need to the read lips of the person they are communicating with. Since the start of the Covid-19 pandemic, many countries in the world have mandated face masks to be worn in closed spaces and even in open spaces, such as in Spain (Ley 2/2021). This has created the need to produce transparent masks for hearing-impaired individuals. However, although these masks have "alleviated a significant amount of distress […], they are not universally available" (Crume, 2021) which limits the number of people deaf individuals can communicate with. But the use of transparent masks by medical personnel has also proven useful for a wide range of patients because "facial expressions are a key component of nonverbal communication" (Kratzke et al., 2021) and these types of masks allow patients to see the professional's face.

Technology has played a big role in the world of improved communication when lip-reading is not possible and there are no interpreters available. Much of the new information—and rapid changes in laws—since the start of the Covid-19 pandemic has been less accessible to deaf and hard of hearing individuals. Some of them have sought and created online communities to share information about the pandemic and provide comfort among them (Plumlee, 2020). Moreover, since most conferences are being

conducted online, it has been recommended to use Google Meet or Microsoft Teams, which include the possibility of turning on live captioning (Crume, 2021). Currently, Zoom and Instagram also offer live close captioning, and because a high number of TikTok users also included close captions in their videos, automatic captioning became available as well. Even though this feature is not 100% accurate, it is an improvement of communication in an effort to include as many people as possible. The widening use of videotelephony has also permitted sign language users to easily communicate among them without having to rely solely on texting.

Different innovative creations with the same objective of inclusion mentioned in this dissertation have also appeared around the world. Experts have been testing a way to include automatic 3D sign language captions for videos using a 3D avatar. To make it work, the video is first converted to text using subtitles and speech processing methods. Then "the generated text is understood through NLP algorithms and then mapped to avatar captions which are then rendered to form a cohesive video alongside the original content" (Mehta et al., 2019). Results showed beneficial outcomes in vocabulary acquisition from using sign language captions. This method could clearly provide benefits for sign language users in the classroom and in their everyday life.

Sensor gloves are not a new concept, but they have been improving in the last few years as well. These gloves, worn by a sign language user, recognise signs (Mehdi & Khan, 2002) that can later be converted into written text. This feature can be a resource for both deaf and hearing individuals, but also a key asset in situations where visual communication is not possible. Blind people can type sentences, which are translated into signs, and the information collected with the aid of these specific gloves is converted into speech (Gupta et al, 2015). However, the use of sensory gloves is far from perfect, as there is an "inability to obtain meaningful data complementary to gestures to give the full meaning of the conversation, such as facial expressions, eye movements, and lip-perusing" (Ahmed et al., 2018).

With no doubt, current efforts to make the world more inclusive are being made with the use of technology which has proven to be helpful in many contexts and for different disabilities. As seen before, however, improvements like closed captioning can and are being used by a larger percentage of individuals who understand the need for inclusion and are providing aid in making content available for everyone. Even though

the previously mentioned articles do not share all the characteristics of this dissertation, they do focus on inclusion, innovation, ethics and the different ways of communication, which are the pillars of this work.

3. METHODOLOGY

3.1. METHOD, STRATEGY AND TOOLS

The methods used throughout the research have been action research and reflection on action. First, students were observed during the first practicum, and information about the school and its surroundings was gathered. Then, research was done to further investigate the topic of this dissertation, and it was decided how to conduct action. After the teaching practice period, which was when the study was conducted, reflection on it was needed.

During the stay at the school, classes were taught following the competency-based learning model and using the collaborative learning method. That way, all students participated in one way or another and could share their knowledge with their peers. In addition, all students had a special role in the final task, which made their participation and engagement crucial for the success of the activity. Furthermore, sign language activities followed some of the characteristics of the total physical response method (Asher, 1964). This method plays an important part in the study, as the use of sign language to improve vocabulary acquisition is based on the idea that associating a specific movement of the body—not just the hands—with a word will help students remember it better.

Strategically speaking, the study focused on 6 students from three English classes of ESO year 1. The choice of students was done after initial observation of the classes during the first practicum and following the advice of the school mentor, who was also their teacher. These students had different types of social and learning difficulties that put them at a higher risk of social exclusion and school failure. The study was carried out with their explicit knowledge and compromise while also maintaining their anonymity. Even though permission had been granted by the school (see Appendix J.) and the parents, they were always given the option to deny the consent of being recorded in audio and video formats, and they all voluntarily participated in the study. The school mentor, who supervised the activities, was a key figure to make it possible.

The study was conducted during the second practicum with the support of a teaching unit (see Appendix B.) created for this sole purpose, which started on the 6th of

April and ended on the 21st of April. Three classes participated, and nine students were preselected to take part in the study, however, only five completed the study.

Even though the teaching unit was created considering the ongoing pandemic and the possibility of activities being conducted virtually, all were done in person. One of the main difficulties that all students and teachers faced was the fact that wearing a mask in class was compulsory, which reduced the ability to understand facial expressions which are key when using sign language. However, considering that none of the participants were proficient at LSC, it did not critically affect the results of the study.

For this project, students learned Catalan Sign Language, because it had been officially recognised since 1994 and it was the one used where they lived and studied. The Generalitat (2021c web) provides an online vocabulary bank with visual input (videos) with basic signs, which made it quite accessible for the students to further explore the topic. Moreover, there are other online resources they could visit, such as the webpage of Portal de la Llengua de Signes Catalana, and they only had to turn on the news on the Catalan television to witness an LSC interpreter. As specified by Barberà et al. (2018) there are other linguistic resources available. Using this specific sign language was also useful in the case they wanted to acquire a higher level of proficiency and use it to communicate with deaf and hard of hearing people or other people who can benefit from using this language, therefore incorporating it later on in their lives. The study conducted explored the possibility of students learning about deafness and hearing loss, which resulted in a higher awareness of the different valid ways of communication.

Different tools were used for the study; data was collected using audio recording for the students interviewed, video recording of the final task and grids to test improvement of vocabulary acquisition throughout the process. The students of one of the classrooms involved were also asked to write a personal reflection about the unit. Interviews and written compositions collected qualitative data about the students' motivation and engagement, as well as their interest, curiosity, and awareness of sign language and other valid ways of communication. The grids collected quantitative data about their recognition and knowledge of English vocabulary and their respective signs in LSC.

3.2. STEP-BY-STEP RESEARCH PROCESS

To better understand how the study was conducted, the chronological order of the research process strategy will be explained.

During the first practicum, the author attended the school as a student-teacher observer. These two and a half weeks were crucial to getting to know the students and the teaching methods of the school and the teachers. After that, research on the topic of the dissertation was conducted to prepare the study, which required the creation of a specific unit. Then, during the first few weeks of the second practicum, 9 students were selected with the help of the school mentor taking into consideration their potential willingness or unwillingness to participate in the study, the types of difficulties they had with English and their attendance liability, meaning students who missed quite a lot of classes were avoided.

Before the start of the teaching unit, the selected students were asked to do a short interview in Catalan, and they were tested on the recognition and knowledge of ten specific words in English using a grid (see Appendix D.). The interview was done orally, and it was audio recorded for the purpose of data collection. All six students were asked the same questions, yet some were reformulated when their meaning was not understood:

1. What ways of communication do you think there are?
2. Which ones do you think are the most important?
3. If 0 is never, and 5 is always, how often do you find it hard to communicate in the English class? What is your biggest difficulty?

During the second or third session of the teaching unit, depending on the class, students were asked to repeat the first assessment using the same grid (see Appendix D.) to check if they had improved their vocabulary without the help of sign language, considering that some of the objective words were included in the teaching unit, in both written texts and videos.

The final task was always conducted during a split class session, which meant that creating some extra sessions were needed. There were not more than 12 students in the classroom, and these were divided into three groups, each focusing on a different type of communication:

- Group 1 had to decode four words or sentences in Morse code (see Image 11).
- Group 2 had to decode four words or sentences in Braille (see Image 13).
- Group 3 learned 8 words in English and their corresponding sign in LSC: flour, oven, olive oil, freezer, (to) add, (to) wait, (to) stick, (to) mix.

After decoding the sentences and learning the words and their signs, 3-4 groups were created containing at least one student of group 1, one of group 2, and one of group 3. They were then given a piece of paper with an unfinished recipe (see Image 16) and they were asked to look at the author of this dissertation, who read the recipe signing the missing words instead of saying the words of the underlined spaces out loud. The students of the LSC group, some of which were part of the study, were asked to identify the signs and write down the words in English. They were given the necessary support when needed, and their peers could help them with spelling but could not write the words themselves since they could not identify the signs. Therefore, the students in the LSC group had a major role in the task. Once all the LSC words were written down in English, all the members of the group then had time to read the recipe again and, collaboratively, decide where the eight decoded sentences of the other members of the group could go. The final recipe (see Image 17) could only be written with all the members of the group performing their role.

After the final task, the students' recognition skills and understanding of ten words that appeared in the recipe were assessed using a grid (see Appendix E.). Some students were tested on the same day; others, following a silent period, were tested 2-3 days later. Of the 10 objective words, 8 were signed during the final task, and the other 2 appeared in the recipe, but the students did not learn the signs. With the support of the grid, different indicators of success were tested:

- 4 written words (olive oil, to add, to stick and to mix): to check their recognition and knowledge, and to see if they could produce their corresponding signs in LSC.
- 4 signed words (flour, oven, freezer and to wait): to check their recognition, to see if they could remember the words in Catalan and English, and to test if they could say them and write them correctly in English.
- 2 written words (dough and warm): to check their recognition and knowledge.

After this, an interview was conducted in Catalan with the five participants of the study. They were asked the following questions, which could be formulated in order to be understood easily:

1. What ways of communication do you know? Which ones do you think are the best/most valid?
2. What surprised you the most about this unit? What did you like the most?
3. What do you think about the recipe game?
4. Do you believe that sign language helped you remember the words? How?
5. Would you like to learn more sign language?

The last question of the interview was to check if the gathered data was accurate and showed the truth: "After analysing the results, I see that using sign language interested, motivated, and helped you remember vocabulary. Do you agree?"; they all agreed.

By the end of the study, the students of the class with no participants in it were asked to write a personal reflection about the teaching unit and the final task. The students of the other classes were also given the opportunity to express their opinions on the lessons and debate over the use of LSC in English class.

3.3. LIMITS AND LIMITATIONS

The main limitation was the number of participants in the study. The students' sample was not representative enough to draw general conclusions; the results and their interpretations are only valid regarding the participants' specific profiles within their social and educative context. Moreover, of the six subjects who did start the study, one of them could not attend the last session of the unit, which was crucial for the data collection. This student's data regarding the first and second assessment, as well as their initial interview, is included in this dissertation, but it cannot be contrasted with the final assessment data and the final interview.

The available time to do the study was limited to approximately two weeks with only 2-3 sessions about sign language—including the final task. In addition, the recipe game had to be done during a split session to have fewer students in the classroom, which led to differences in the number of sessions they had before the final task. Two groups did do the extra sessions after the final task. Because of the time limit, additional retention tests were not able to be conducted. Although students we encouraged to learn more signs than the

eight ones used during the final task, the linguistic inversion was not sufficient enough to prove the benefits of sign language with long-term use.

Due to the Covid-19 pandemic, masks were mandatory in the classroom. This reduced the ability to transmit additional information using facial expressions. However, as mentioned in 3.1, the fact that students did not have previous knowledge of the language and were not proficient in it did not invalidate the results of the study.

Even though the author of the study was a beginner in ASL, she did not know any LSC signs at the start of the school year and had to teach herself the alphabet and some basic sentences such as “Good morning”, “Thank you”, and “What is your name?”. If there had not been any cautionary measures or restrictions due to Covid-19, and if there had been more time available to conduct the teaching unit and the study, it would have been interesting to have invited an LSC user to give better explanations and teach more signs, even though the author of this dissertation was in contact with professional interpreters to ensure the accuracy of the signs used[2].

[2] The signs used were taken from the LSC online dictionary provided by the Generalitat (2021c web) and the book *Diccionari temàtic de llenguatge de signes català* (Martín & Alvarado, 2004).

4. INFORMATION GATHERING

4.1. PROCESS

The participants of the study were chosen with the help of their English teacher. They all presented language and/or social difficulties and, according to their marks in the English subject, they were falling behind compared to their peers. Some of the participants had special education needs, which put them in a good position to test if sign language could help them improve their overall results. Because of the nature of the final task, which was based on collaboration, the participants had to be willing to participate. Even though some of them did not seem to be overly enthusiastic, students who were reluctant to participate in most activities were automatically discarded despite taking part afterwards in the final task.

The main informants of this study were the students. However, it was the English teacher who was able to verify that there had been a change in the nature of their communication and engagement during the final task. She compared the results of previous activities and assessment with the results of the recipe game to agree with the fact that they had been able to remember more vocabulary with the support of sign language than without it. Additionally, she agreed that they showed more motivation and enthusiasm than usually because of the exciting topic and the challenge of having to decode the messages, among others. Some of the students who would usually not interact or engage as much were thrilled to be able to contribute to their group even though collaborative learning was one of the main methods used in the classroom. Improvement in their motivation and engagement was also possible by looking at the grids that were used to mark their homework completion.

The other student teacher who was present during the sessions was also able to corroborate qualitative findings by the author by comparing the previous observation of the students with the results from the study.

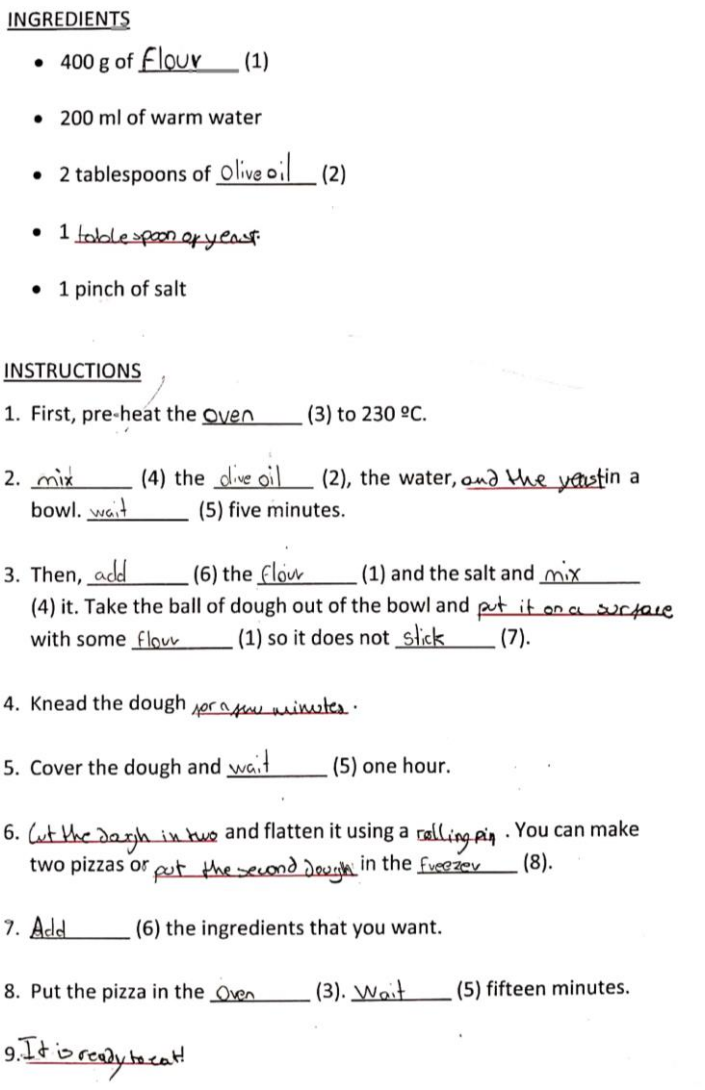
4.2. PRODUCT

The final task was conducted in groups of three or four, all containing at least one member of each of the previous groups (Morse code, Braille and LSC). They were given a piece of paper with a pizza recipe (see Image 16) with some words and sentences missing. Two groups had to decode some sentences and a third group had to learn 8 signs which they later had to identify and write down while the author read and signed the recipe. After that, they collaboratively had to guess by the context where the decoded sentences from groups 1 and 2 had to go in the recipe.

Here is an example of what the students' final product was:

Figure 2

Example of finished recipe



INGREDIENTS

- 400 g of Flour (1)
- 200 ml of warm water
- 2 tablespoons of olive oil (2)
- 1 ~~table spoon of yeast~~
- 1 pinch of salt

INSTRUCTIONS

1. First, pre-heat the oven (3) to 230 ºC.
2. mix (4) the olive oil (2), the water, ~~and the yeast~~ in a bowl. wait (5) five minutes.
3. Then, add (6) the flour (1) and the salt and mix (4) it. Take the ball of dough out of the bowl and ~~put it on a surface~~ with some flour (1) so it does not stick (7).
4. Knead the dough ~~for a few minutes~~.
5. Cover the dough and wait (5) one hour.
6. ~~Cut the dough in two~~ and flatten it using a ~~rolling pin~~. You can make two pizzas or ~~put the second dough~~ in the freezer (8).
7. Add (6) the ingredients that you want.
8. Put the pizza in the oven (3). Wait (5) fifteen minutes.
9. ~~It is ready to eat!~~

5. DATA ANALYSIS

5.1. RESULTS

5.1.1. Interviews

The six students who started the study were given the option to choose a nickname or assign themselves a colour in order to maintain anonymity:

- Student 1: Dodom
- Student 2: Blue
- Student 3: Redak
- Student 4: Red
- Student 5: Yellow
- Student 6: Orange (did not attend the final task)

As mentioned previously, the first interview included only three questions (see Appendix C. a.). When asked about the types of communication they knew, all students mentioned signs or hand movements even though it had not been mentioned in English class before, which indicates previous knowledge of the subject. However, they had not learned the language itself. It must be mentioned that, as far as the author is concerned, they had not been formally explained what a "way of communication" meant nor had they been explicitly told some examples, so it is understandable that some students such as Dodom or Blue did not mention the most commonly known ones such as writing. Some students like Redak and Yellow, however, did mention less considered ways of communication such as making noise or using a phone. This could mean that they had deeper awareness about the topic, but it could also be that the rest of test subjects simply did not think of mentioning other ways of communication.

For question number 2, although some students mentioned believing that speaking and/or reading were the most valid ones, two subjects mentioned that signing was as valid as the other two options. It is also necessary to remark that validity is quite an abstract concept, and some students did not fully understand the question at first, but later gave an answer after it had been reformulated.

When asked about their communicative difficulties in the classroom, two students answered with number 2, while the rest chose number 5, meaning they always struggled to communicate in the classroom. Therefore, the difficulties detected by the English teacher

were confirmed by most of the subjects when talking about this specific topic. While most students informed that their level of English was the reason for the struggle, Blue mentioned thinking that their opinion was not good or would not be liked by the rest, which could indicate low self-esteem and the reason for their limited interaction and engagement in the classroom. The other students' low language level self-awareness could also indicate the reason of their low engagement when compared to most of the pupils who did not take part in the study.

After completing the teaching unit and the final task, the five students were interviewed again (see Appendix C. b.). When asked about the ways of communication they knew they were all able to give more options, such as Morse code and Braille, and some of them expressed that speaking and writing were not the only valid forms of communications. Yellow, for example, stated that all forms of communication were equally valid. This indicates that the subjects were more aware of the topic and could understand its main concepts more easily than during the first interview.

For question number 2, answers varied depending on the subject. In general, students showed that they were able to recall the activities done and expressed what they liked the most. Dodom, per instance, explicitly told they liked the cooperation needed in order to complete the final task which indicates that collaborative work was inclusive and beneficial for some pupils like Student 1. These results are comparable to those given in question number 3; when asked about the recipe game, all students agreed that they liked it. Redak mentioned the fact that they learned new words; Blue and Red agreed that being able to participate in class was positive.

For question number 4, all students agreed that sign language had helped them remember the new words despite not being sure why. Students 2 and 4 expressed that the reason behind this could be that signing was not reading, listening, or writing, which is what they usually do in class.

Moreover, the three students who were asked if they would like to continue learning sign language gave an affirmative answer. Finally, all subjects agreed with the following statement: "After analysing the results, I see that using sign language interested, motivated and helped you remember vocabulary." It is necessary to mention that, when given the opportunity to add anything else, Dodom expressed that "we all need to help each other more instead of not caring". The answers given during the interviews can be

considered positive and can be used to validate the author's initial impression of awareness improvement and the general success of the whole teaching unit.

5.1.2. Grids

The results of data collection from the first (see Appendix F.) and the second assessment (see Appendix G.) regarding the recognition and knowledge of specific vocabulary show that there is little change between them. However, there is a significant difference when comparing the first two results to the final assessment.

Table 1[3]

Evolution of the two non-signed words

NON-SIGNED WORDS			
	1st assessment	2nd assessment	Final assessment
Dough	0/6	0/6	1/5
Warm	0/6	0/6	0/5
Average:	**0%**	**0%**	**10%**

Table 2

Evolution of the 8 signed words

SIGNED WORDS			
	1st assessment	2nd assessment	Final assessment
Flour	0/6	0/6	5/5
Oven	0/6	0/6	5/5
Olive oil	2/6	2/6	4/5
Freezer	2/6	2/6	4/5
Add	1/6	1/6	4/5
Wait	2/6	2/6	5/5
Stick	0/6	0/6	5/5
Mix	1/6	1/6	5/5
Average:	**16.7%**	**16.7%**	**92.5%**

Note. Success was considered differently depending on how they were tested. During the 1st and 2nd assessment, the 10 objective words were shown written and then they were spoken

[3] All tables in this dissertation are made by the author, 2021.

by the author; success was accomplished if the students knew the words in their L1. However, during the last assessment, 6 words were shown in written form and the other 4 were signed; success was accomplished in the first case if the students knew the words in their L1, and if they knew the word in English in the second case.

FLOUR: 0 students out of 6 students knew its meaning on the first and second assessment. On the final assessment, however, all students (5) could recognise its sign, knew the meaning, and could say it in English. 3 students could write it correctly.

OVEN: 0 students knew its meaning on the first and second assessment. On the final assessment, however, all students (5) could recognise its sign, knew the meaning, and could say it in English. 4 students could write it correctly.

OLIVE OIL: 2 out of 6 students knew its meaning on the first and second assessment. On the final assessment, all students (5) could recognise the word by reading it and hearing it, and 4 students knew the meaning and could produce its sign.

DOUGH: 0 students knew its meaning on the first and second assessment. On the final assessment, 2 students could recognise the word by reading it and hearing it, and 1 student knew its meaning.

FREEZER: 2 out of 6 students knew its meaning on the first and second assessment. On the final assessment, all students (5) could recognise its sign, and knew the meaning. 4 students knew the word in English and could say it, and 3 students could write it correctly.

WARM: 0 students knew its meaning on the first and second assessment. On the final assessment, 2 students could recognise the word by reading it and hearing it. 0 students knew its meaning.

ADD: 1 of 6 students knew its meaning on the first and second assessment. On the final assessment, all students (5) could recognise the word by reading it and hearing it, and 4 students knew the meaning and could produce its sign.

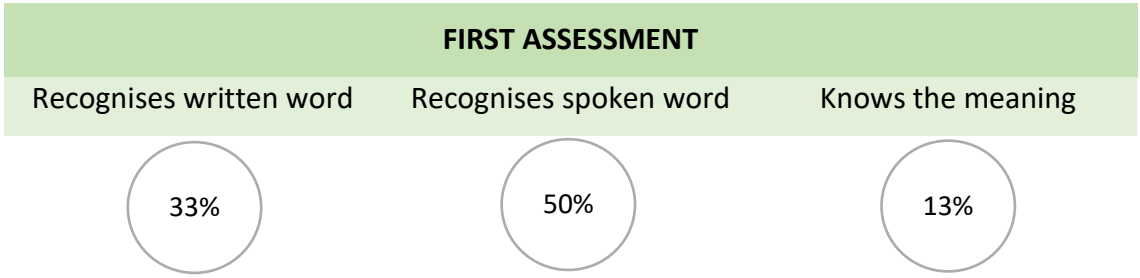
WAIT: 2 of 6 students knew its meaning on the first and second assessment. On the final assessment, however, all students (5) could recognise its sign, knew the meaning, and could say it in English. 4 students could write it correctly.

STICK: 0 students knew i0074s meaning on the first and second assessment. On the final assessment, all students (5) could recognise the word by reading it and hearing it and knew its meaning. 4 students could produce its sign.

MIX: 0 students knew its meaning on the first and second assessment. On the final assessment, all students (5) could recognise the word by reading it and hearing it, knew its meaning, and could produce its sign.

Figure 3

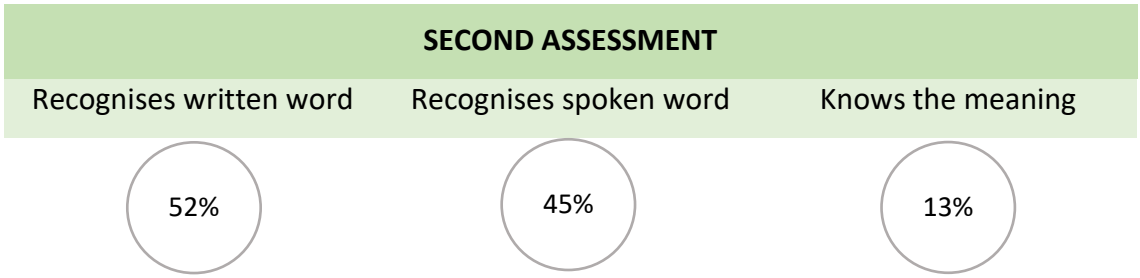
Average of success of the first assessment



Note. It includes all students (6) and the 10 objective words.

Figure 4

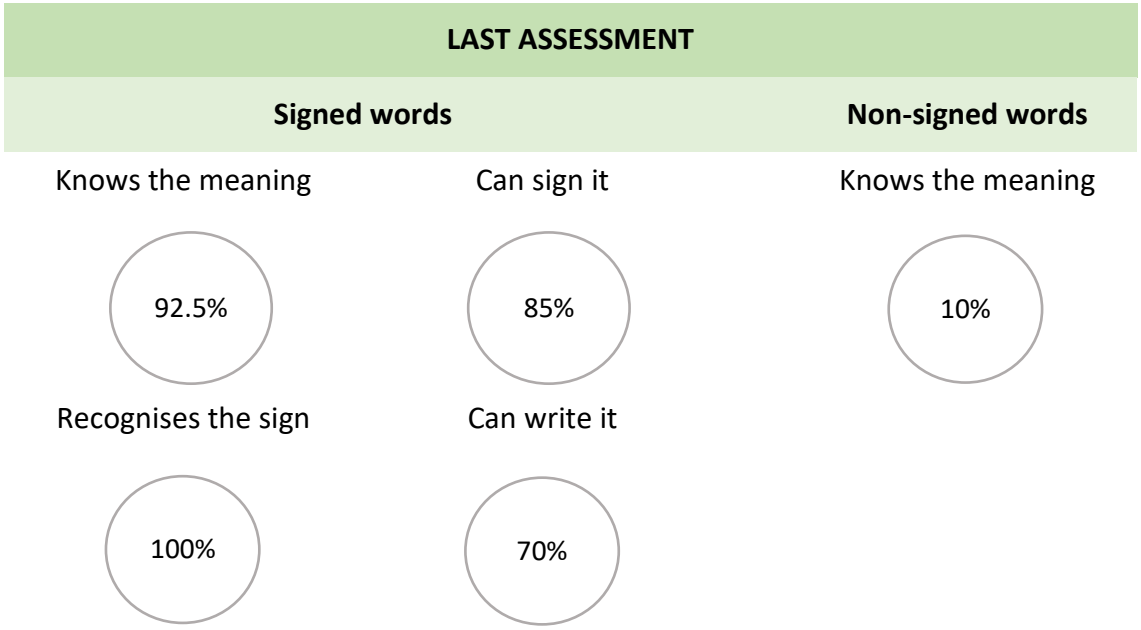
Average of success of the second assessment



Note. It includes all students (6) and the 10 objective words.

Figure 5

Average of success of the last assessment



Note. It includes all students (5) and the 10 objective words (8 signed, 2 non-signed). The "Knows the meaning" percentage on the left includes the 8 signed words, however, the other three in the same category only include 4 signed words as a consequence of the data gathering method. The "Knows the meaning" percentage on the right includes only 2 words, which appeared in the final task, but were not signed.

5.1.3. Personal reflection compositions

These personal reflection compositions (see Appendix I.) were written by the students of the classroom that did not have any study subjects. Nonetheless, they followed the same teaching unit as their peers, so they were given the opportunity to express their opinion about it. The writings show students enjoyed the unit and gained awareness about different types of communication, as well as sensory impairments such as blindness and deafness. They also wrote about being interested in the topics included in the teaching unit and their willingness to keep learning about them.

5.2. INTERPRETATIONS

5.2.1. Interviews

All students showed an understanding of the different types of communication. Considering that most of them thought they had a high level of difficulty communicating in the English classroom, they eagerly participated in the final task using sign language, as it was a collaborative task and signing helped them remember the new words.

Subjects like Dodom, Redak and Yellow showed a higher awareness of the need and validity of sign language and Braille to favour the inclusion of a higher number of people.

In general, according to the school mentor and their English teacher, students were motivated and were more engaged than usual during the final task. Having personalised attention—learning the signs with the author of this dissertation in groups of four—was also beneficial. They also felt more included because they all started from the same level of sign language knowledge. The school mentor also highlighted a big improvement in one of the students who did not participate in the study but showed a significant change in self-esteem. Just like other students who were in the LSC group, they had an important role in the task and the fact that their peers depended on them made a positive impact.

5.2.2. Final task

The session consisting of the final task was recorded in the three classes. Recordings show that the students of the LSC group looked generally interested in the subject and eager to learn the signs and their corresponding words in English. All groups were able to fill in the underlined blanks with the corresponding LSC words, and most of them were able to complete the whole recipe. The video recordings of the final task also show how the students from the braille and Morse code groups picked up the signs just by watching the student-teacher sign the words of the recipe, which made them recognise them when they appeared later.

The first and second assessments do not show significant differences. A higher percentage of students recognised more written words in the second assessment, but the percentage of known words did not change. This indicates that the words introduced in the teaching unit before the final task were not understood and learned just by reading them or listening to them.

Quantitative data shows an improvement in vocabulary acquisition with the use of sign language. It is important to note that students 3 and 5 did the final assessment after a silent period of 1-2 days. Data shows better results when the assessment was performed on the same day of the final task instead of after a few days. However, results are still positive despite not having a 100% of success rate. Therefore, if all the final assessments were conducted on the same day of the task, the percentage of known words would be higher. It would be necessary to determine the retention of these words in further assessments.

Regarding the 10-word list, students had to read 4 of them, say if they knew what they meant and produce the sign. Despite not having perfect results, which can be attributed to the fact that some students did not perform the test on the same day of the task, the success rate of signing the written words is significantly high (85%), which indicates that students can not only recognise and understand a sign, but also produce it when they see the written word.

Students were asked to write down the word in English associated with the sign shown to them. The average percentage of success (70%) can be attributed to different factors. First of all, students 3 and 5 were only able to write down one word 100% correctly—as mentioned before, these students were tested days after the final task. While all the test studies presented some form of special needs or additional support needs, one of them also had great difficulty in writing and reading regardless of the specific language. Results would likely vary if students with different profiles were also tested.

Finally, it would be important to point out the fact that all the subjects successfully recognised all signs. Additionally, it is necessary to note that all students knew the meaning of the words in their L1. Despite Catalan being the language used in the school, it was important to have in mind that not all students had this language as their L1—if they were able to show that they knew the meaning in their L1, this data was considered positive.

When comparing the results of the signed words with the two words that appeared in the recipe but were not signed (“dough” and “warm”) it is clear that the percentage of success is higher when the new concepts are introduced with the aid of sign language.

5.2.3. Personal reflection compositions

The compositions show motivation and engagement by the students, who were interested in the subject and were able to recall past activities as well as other things that surprised them.

As it was mentioned before, their English teacher agrees with the fact that they were engaged with the topic and the different tasks such as the warming up activities and videos were received positively.

According to the students' science teacher, the pupils were able to connect the new concepts introduced in his subject with the communicative aspects talked about during the teaching unit of this study. This shows interest among students and an ability to relate transversally what they had been discussing to concepts introduced in a different subject in a transversal way.

5.3. ANSWERING RESEARCH QUESTIONS

Quantitative and qualitative data collected by this study suggests that the use of sign language in a high school environment can provide different benefits for students. Therefore, the first research question has proven to be true—the introduction of sign language to high school students does provide benefits similar to such introduction in younger pupils.

Qualitative data, organised in grids, has shown a clear improvement of vocabulary acquisition of a foreign language when using LSC as sensorial support, thus the second research question also has a positive answer: sign language could improve the acquisition of vocabulary when used as learning support.

Interviews conducted with the subjects of the study and compositions written by students of one of the classrooms suggest that introducing topics such as Braille, Morse code and sign language makes them more aware of the different types of communication, some of the pupils being even able to connect the teaching unit of this study with a topic taught in a different subject. This proves the third research question to be true as well—students were more aware of the different types of communication.

Video recordings, interviews and writing compositions indicate a higher level of motivation and engagement on the part of the students during the activities about sign language compared to their general behaviour observed by the author and the students' English teacher, who also agreed that some of the academically weaker students showed a significant improvement in self-esteem and engagement. This proves the fourth and final research question to be true: sign language can motivate students to engage more in the classroom.

6. DISCUSSION

6.1. DEBATE AND CHALLENGE

Despite the lack of literature about this very specific topic, it is possible to establish a connection between some of the results obtained in this study and well-established educative methods such as TPR or total physical response (Asher, 1964). Students responded positively to the use of sign language and showed retention when tested after a short silent period, even though the percentage of success of these students was slightly lower than those tested on the same day of the final task.

Focusing on competency-based teaching and learning (Voorhees, 2001) also proved to be a good choice. Students were able to apply what they had learned to later tasks and successfully produce the final product with the help of their counterparts. This can be related to the collaborative learning method (Bosworth & Hamilton, 1994; Ibrahim, et al., 2015), which proves to be helpful to all students given they were all necessary to ensure the success of the activity. Furthermore, the results agree with the basis of the collaborative learning method regarding a higher social cohesion and group interaction, as well as improved motivation and a higher success rate. It is important to note that some of the pupils who did not learn the signs of objective words were able to pick up some of the signs after they had been repeated more than once during the game and ended up responding to the signs with the correct words in English. Again, this can be connected with the ZPD (Vygotsky & Cole, 1978) since students were able to achieve success with the help of their peers in the beginning and later showed the ability to do it by themselves.

The results also agree with the articles cited in the theoretical framework “Signing for Success: Using American Sign Language to Learn Sight Vocabulary” by Judy Sherman (2011) and “Sign Language: Meeting Diverse Needs in the Classroom” by Cynthia G. Simpson and Sharon A. Lynch (2007). Sign language can therefore provide benefits for all students and not only those with disabilities, being easy to incorporate while improving the participation of all students as well as their motivation and interest.

While two students performed the retention tests, the time limit of the study did not allow an exhaustive examination of the subjects’ retention rates. In this sense, further investigation would be needed to examine their ability to recall the meaning of the signs in

Catalan (or their respective L1) and English and to produce the corresponding sign of a written word.

It is also important to notice that all students who participated in the study had some sort of additional support or special needs, which can and most likely influenced the results. However, an increased learning difficulty did not prevent these students from enjoying the activity and acknowledging their role in the final task.

Even though investigation using sign language for all type of students—and not only those with communicative difficulties or hearing impairments—focused mostly on younger pupils, the study presented in this dissertation broadens the age range of success for using sign language as support for vocabulary acquisition. Moreover, while no studies read by the author have approached sign language as a tool for foreign language learning, it opens the door to future research on the topic.

Although all students presented different profiles, weaknesses and strengths, future studies should aim to also include students with more difficulties, both social and linguistic, as well as students with no apparent additional struggle when learning a foreign language. New studies should be conducted when the mandatory mask use due to the Covid-19 pandemic is no longer necessary in schools in order to see if being able to see facial expressions more clearly improves the results presented in this dissertation. In conclusion, results show promise but require further research given the study's limitations.

6.2. PROSPECTIVE

Using and learning about sign language during the study has provided students with multiple means of representation (using one's body to communicate), expression (students were given the opportunity to communicate using sign language instead of just writing or speaking), and engagement (introducing a new topic, different to what they were used to doing, and a game-like final task) following the Universal Design for Learning framework (Barteaux, 2014). Extending its knowledge and acceptance in classrooms presents an encouraging future for the use of sign language as a valid pedagogical tool in ordinary classrooms. The rapid rise of technology use around the world also provides new opportunities for classroom innovation and inclusivity through the use of automatic close captioning and 3D sign language captioning. The growing awareness of the different accommodations needed to make online content

accessible has permitted companies to include close captioning and other features in their websites or programmes.

In a world that strives to become more inclusive and diverse in all settings, more innovative educative methods are needed in classrooms. Technology is here to stay, so making a good use of it can improve teaching in numerous ways. In this sense, the future looks promising when talking about the different changes made on everyday aspects in order to make life as inclusive as possible for everyone.

7. CONCLUSIONS

The subject of this dissertation can be considered quite innovative because of the little amount of investigation done in regard to using a local sing language as a tool to improve vocabulary acquisition of a foreign language while also taking into consideration other benefits such as inclusivity, acceptance, and improved engagement in the classroom. The first practicum in the school made clear the distinct differences between the students, both linguistically and socially, which presented a good opportunity for the study to take place using this multimodal strategy.

The first objective of this dissertation was to check if sign language introduction to high school pupils would have similar benefits to the ones presented in previous studies (Daniels, 2001a; Daniels, 2001b; Sherman, 2011; Simpson & Lynch, 2007; Muñoz, 2014; Prat i Fontseca, 2014). If the results had been negative, the other three research questions would probably not have had any positive answers either.

The results of this study showed that, in the context in which it was conducted, the subjects were able to acquire a higher percentage of vocabulary when using signs compared to when not using LSC. In addition, students manifested interest in the topic and excitement to have participated in a collaborative task where their role was key to group success, which meant improved engagement in the English classroom. Results clearly suggest that there are ways of communication that are not only just as valid as speaking and writing, but they can also provide benefits to all students and not only to those with disabilities. In short, sign language has been a successful tool of inclusion. Moreover, the main aim of this dissertation was met with success—sign language can be a valid pedagogical tool to improve vocabulary acquisition of a foreign language.

This dissertation can provide teachers, pedagogues, and researchers with more extensive knowledge about sign language and its uses, as well as diversity and inclusion, and the endless benefits that technology can provide inside and outside of the classroom. Hopefully, the results of this study will encourage more professionals of the sector to continue working on the use of sign language and multiple benefits in ordinary classrooms.

Making schools as inclusive as possible is in our hands—sometimes literally.

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APPENDIXES

The appendixes include (1) a list of figures, tables & images, (2) the teaching unit created to encompass the case study, (3) the questions of the interviews and their transcribed answers, (4) the grids used to gather quantitative data, (5) the data collected using the grids, (6) some of the personal reflection compositions written by the students, and (7) a permission to record sample that had to be signed by the author and the school.

A. LIST OF FIGURES, TABLES & IMAGES

a. List of figures

b. List of tables

c. List of images

B. TEACHING UNIT

Exploring our senses

Discovering different ways of communication

a. Session 1. Morse code

Activity 1. Grounding exercise

Focus on your body and think of:

- 5 things you can **see**
- 4 things you can **touch**
- 3 things you can **hear**
- 2 things you can **smell**
- 1 thing you can **taste**

Image 1.

A4 posters shown in class

Activity 2. A coded message

Can you understand this message?

Translation: *Hello, good morning! Today we will learn about Morse code.*

Activity 3. What do you know?

Before watching the video, discuss these questions in teams:

1. Who was Samuel Morse?
2. Before the telegraph, how did people send messages from one place to another?
3. How did the telegraph work?
4. When was the telegraph invented?
5. What were the basic signs of the Morse code?
6. Is the Morse code used today? In which cases?

Activity 4. Listening, Invention of Morse code

Watch this video and check your answers from the previous exercise. Can you add some information?

Now, try to explain the answers to these questions with the help of your team:

1. Why did Samuel Morse invent the telegraph? What happened to him?
2. What was Alfred Vail's contribution to Samuel Morse's invention?
3. Why did they assign the letter "e" to a dot?

Activity 5. Introduction to the Morse code alphabet

Morse code is a way of transmitting text through a series of unique sounds or lights represented by dots (.) and dashes (–).

Activity 6. Let's practice the Morse code

Listen to the audio in the slide presentation and write down using dots and dashes what you hear:

- Word 1 (Flour): **..-. .-.. --- ..- .-.**
- Word 2 (Oil): **--- .. .-..**
- Word 3 (Salt): **... .- .-.. -**

Translate the dots and dashes using the Morse code alphabet.

b. Session 2. Blindness

Vocabulary[4]. What are the 5 senses? And their corresponding verbs?

Write them down.

- Sight → To see 
- Taste → To taste 
- Touch → To touch 
- Smell → To smell 
- Hearing → To hear 

[4] All icons are form https://www.flaticon.com/

Activity 1. Being blind –No sight!

Close your eyes and follow the instructions.

Close your eyes and put a jersey on your eyes (Blindfolded)
Listen and follow my instructions.
Focus on your body. Feel the air in your lungs coming in and out.
Answer the following questions silently in your head.
Can you feel the student on your right? Can you hear her/his breath?
Can you feel the student on your left? Is he/she making any noise?
Can you feel the fresh air on your face? Where does it come from?
Are the windows open?
Can you hear noises coming from the outside?
Turn your head to the right. Where is the door now? And the wall glass?
Turn your head to the left. Where is the blackboard now? And the door?
Pick up your pen and write your name on your activity page.
Now write today's date under your name.
Now you can open your eyes again. How did you feel?

Image 2.

Screenshot of the Google Slides presentation

Activity 2. A coded message

Can you understand it?

Image 3.

Samples of the A4 papers given during class

Activity 3. Who is Christine Ha?

You have 3 minutes to read and try to memorise as much information as you can about Christine Ha. After that, in teams, you will have 5 minutes to write as many sentences as possible using the past simple.

> Christine Ha was the first **blind** contestant of MasterChef, a cooking programme, in the USA. She was the winner of the **contest** and won $250.000 as a **prize**. After the contest, she published her first cookbook in 2013, it is called "Recipes from My Home Kitchen" and became a **bestseller**. She appeared on television many times to do **interviews**, TEDx Talks, and in cooking programmes.

Activity 4. A blind cook

Watch this video about Christine Ha and answer the following questions in teams:

- How does a blind person measure water?
- How does a blind person turn on and off the stove to cook?
- How does a blind person use the knife?
- How does a blind person know the water is boiling?
- Can you think of any other problem in the kitchen?

Activity 5. What is Braille?

Braille is not a language. It is a code (raised dots) used by people who are **blind** or **visually impaired** (have low vision) to read with their fingers.

What do they use?

- Slate + stylus
- Special typewriter
- Technology: voice activation devices, screen-reading programmes, phone apps…

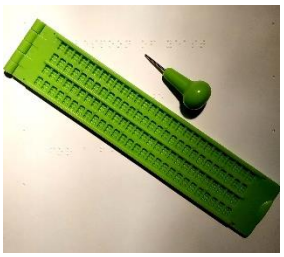


Image 4.

Slate and stylus

Activity 6. Class discussion

- Why is Braille important?
- Do we have Braille in this school?
- Do you know anybody who has any kind of visual impairment?

Activity 7. This is important!

- Do not touch guide dogs, they are working!
- Do not touch a blind person. Ask them first.
- Announce yourself to a blind person, say who you are if they do not remember.

Homework: Using dots, write down numbers 1 to 10 in English.

c. Session 3. Deafness

Vocabulary. Our senses

1. What are two senses that are affected by the Covid-19?
2. Have you tried watching TV with the volume completely off? Which sense is missing?
3. Which vocabulary is related to hearing?
    - Deaf
    - Deafness
    - Hearing impairment
    - Hard of hearing
    - Hearing aids

Warming up. A muted message. Can't you hear me?

Watch this video. It does not have any sound. In teams try to read the lips and understand the message.

> Hello! Good morning! How are you? Can you read my lips?

Activity 1. Can you read my lips?

Watch this video and answer the questions in teams. Write down the answers.

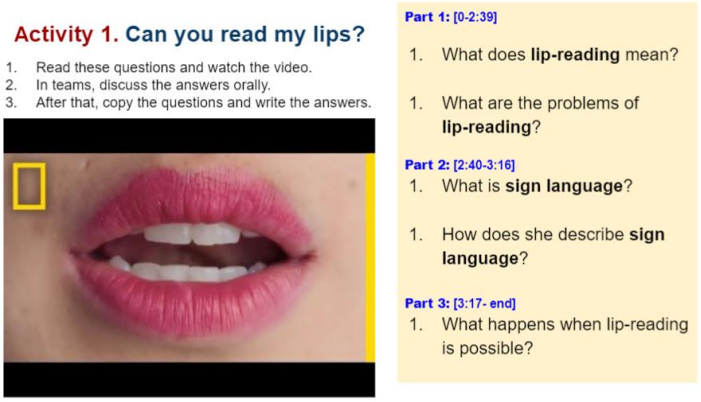


Image 5.

Screenshot of the Google Slides presentation

Activity 2. Reading, how can we communicate?

In pairs, one student reads text A and the other student read text B. Try to understand and remember as much as possible. Then, take turns to explain your text to your partner. Take notes of what they say.

WHAT IS SIGN LANGUAGE?

Sign language is not a code, it is a natural language. Its main users are **deaf** people, so the **visual** communication is more necessary, not the **auditory**. It is not a universal language, so there are many different sign languages all over the world. International Sign exists, but it's not natural, it's **artificial**, like Esperanto.

Read the text aloud in pairs, and explain 3 characteristics of sign language.

Image 6.

Text A. What is sign language?

WHAT IS *LSC*?

Llengua de Signes Catalana (LSC) is the language used in Catalonia. There are more than **25,000 users**, but not all of them are **deaf**. Its grammar is very different! For example, it doesn't have verb **tenses**. You have to use words like "next week", "yesterday", "usually", "now"... It was officially **recognised** by the Generalitat in **1994**. In **2010**, the Parlament passed the LSC **law**! This was very necessary, because now it's easier to teach it and learn it.

Read the text aloud in pairs, and explain 3 characteristics of LSC.

Image 7.

Text B. What is LSC?

Activity 3. Do you agree or disagree?

Use your hand! What do you think of the following sentences? Explain your answer.

1. All deaf people must learn how to speak.
2. Sign language is not necessary.
3. Schools should teach basic sign language.
4. Oral communication is more important than visual communication.
5. You can communicate better if you know sign language.

Image 8.

Example of the activity in action

Activity 4. Let's learn our name in LSC!

How do you spell your name in LSC[5]?

Image 9.

LSC alphabet A4 laminated copy provided for the activity

Activity 5. Class discussion

In teams, discuss these questions and write down some keywords or short answers:

1. When do you think we could use **sign language**?
2. What would you do if you had to talk with a **deaf** person?
3. Do you think it is **fair** that a lot of deaf children don't learn sign language?
4. What **signs** do you think we should all know?

[5] LSC alphabet image retrieved from: http://agilscomunicacio.com/ca/formacio/alfabet-lsc

Homework: Find the **signs** of 3 words related to **food** and the **kitchen**. Use Catalan Sign Language and learn them! You can use this digital dictionary.

d. Session 4. Game!

This game is preferred to be conducted with a split session group, which means that the total of students does not surpass 12.

Activity 1. Can you decode this?

The class is divided into three groups:

- Group 1 (Morse code): decode the following sentences[6]:

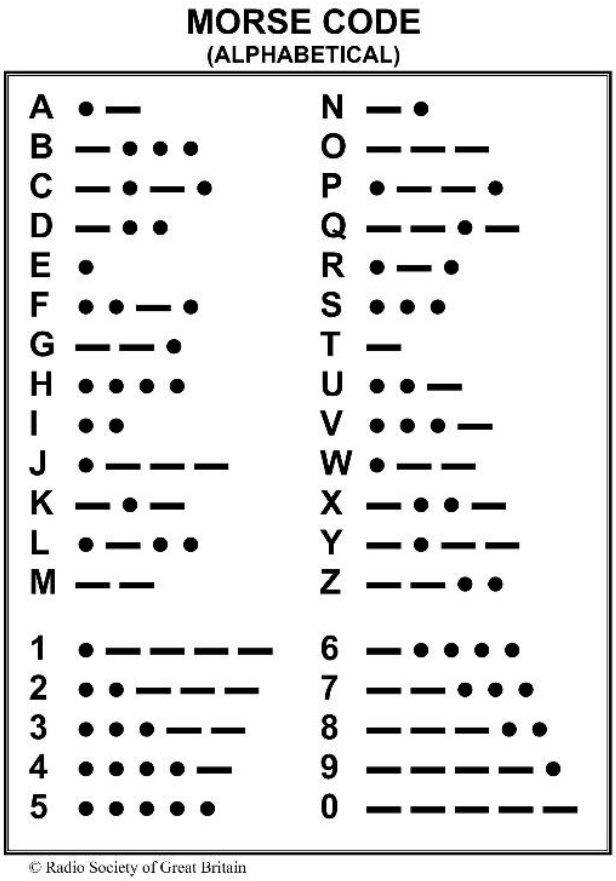
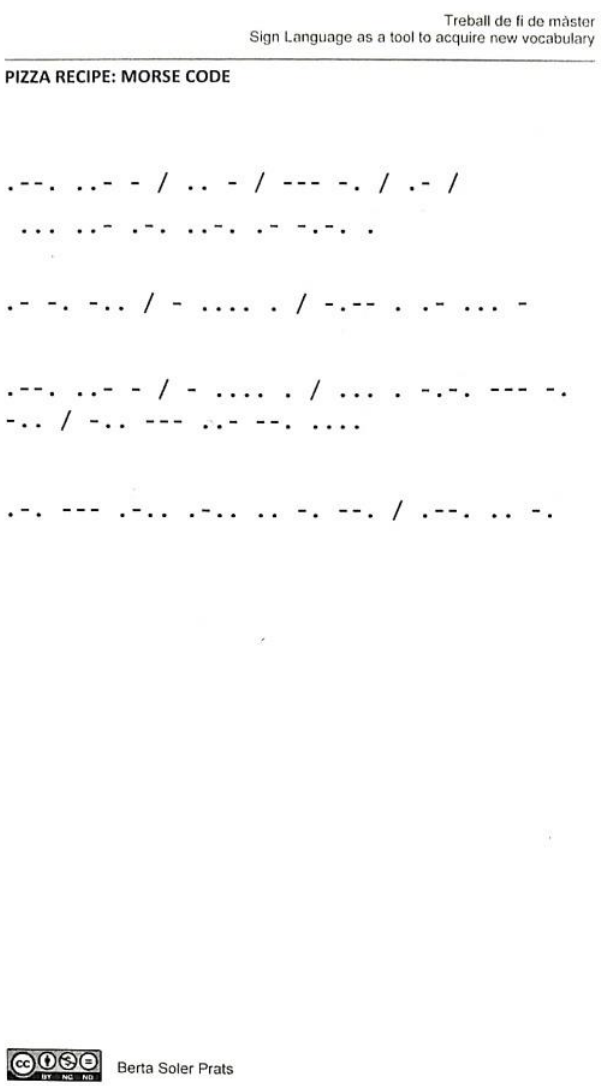


Image 10.

Morse code alphabet A4 laminated copy provided for the activity

[6] Morse code alphabet image retrieved from http://rsgb.org/main/files/2012/10/Morse_Code_Sheet_01.pdf



Treball de fi de màster
Sign Language as a tool to acquire new vocabulary

PIZZA RECIPE: MORSE CODE

.--. ..- - / .. - / --- -. / .- /
... ..- .-. ..-. .- -.-. .

.- -. -.. / - .... . / -.-- . .- ... -

.--. ..- - / - .... . / ... . -.-. --- -.
-.. / -.. --- ..- --. ....

.-. --- .-.. .-.. .. -. --. / .--. .. -.

Berta Soler Prats

Image 11.

A4 copy of the Morse code sentences provided for the activity

Translations:

put it on a surface: .--. ..- - / .. - / --- -. / .- / ... ..- .-. ..-. .- -.-. .

and the yeast: .- -. -.. / - .... . / -.-- . .- ... -

put the second though .--. ..- - / - .... . / ... . -.-. --- -. -.. / -.. --- ..- --. ....

rolling pin: .-. --- .-.. .-.. .. -. --. / .--. .. -.

- Group 2 (Braille): decode the following sentences[7]:

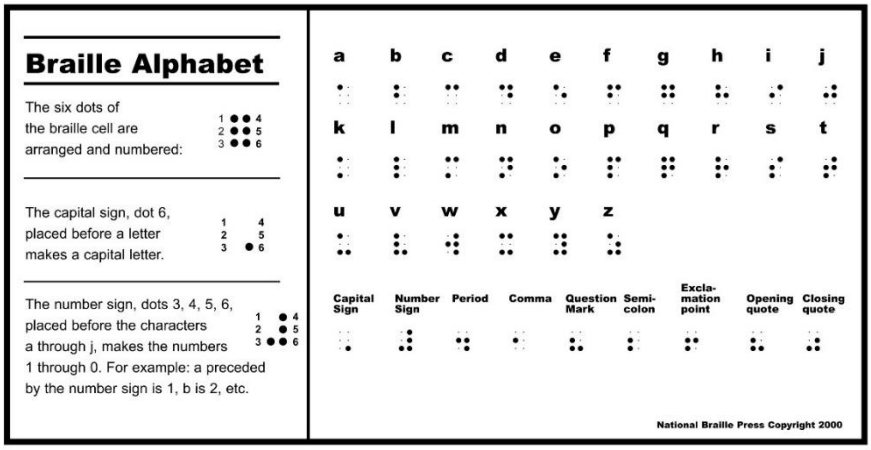


Image 12.

Braille alphabet A4 laminated copy provided for the activity

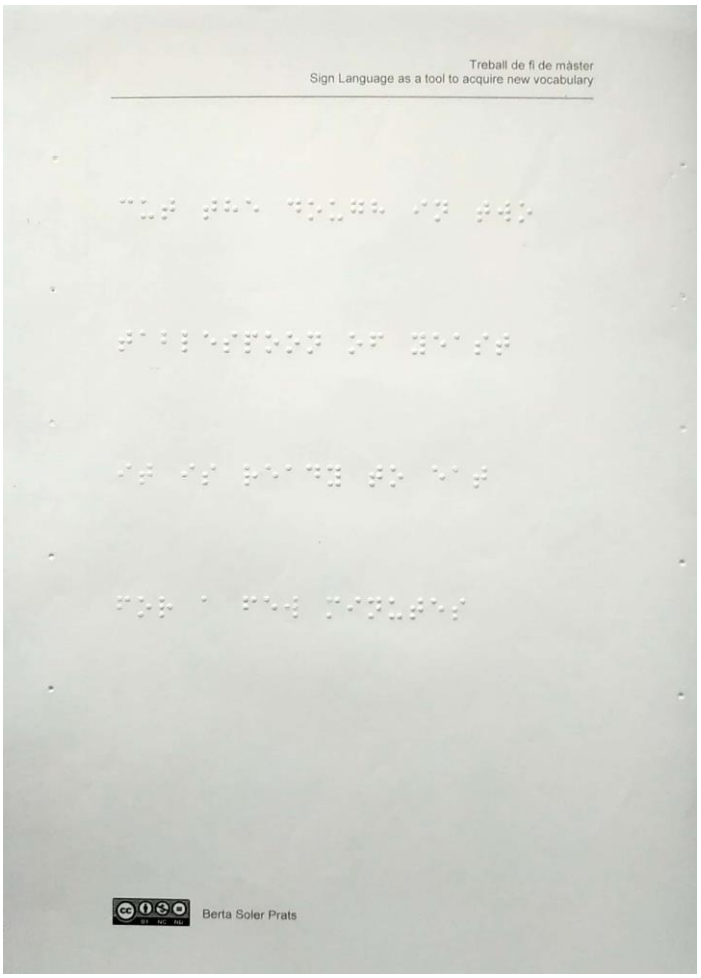


Image 13.

A4 copy of the Braille sentences provided for the activity

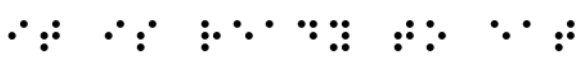
[7] Braille alphabet image retrieved from https://www.nbp.org/

Translations:

cut the dough in two:

tablespoon of yeast:

It is ready to eat:



for a few minutes:

- Group 3 (LSC): learn the signs of the following words (the teacher will help you):

Image 14.

Cards with the objective words used for the activity

Image 15.

Examples of the activity in action—LSC group

Activity 2. Fill in the gaps. LSC

Create new groups containing at least one person of group 1 (Morse code), group 2 (Braille), and group 3 (LSC). The student who learned the words in LSC will be the one writing, but the rest can help with spelling. Pay attention to the teacher! She will read the recipe and sign the words that are missing (the ones followed by a number in brackets).

Empty recipe:

INGREDIENTS

- 400 g of _____ (1)
- 200 ml of warm water
- 2 tablespoons of _____ (2)
- 1 _____.
- 1 pinch of salt

INSTRUCTIONS

1. First, pre-heat the _____ (3) to 230 ºC.
2. _____ (4) the _____ (2), the water, _____ in a bowl. _____ (5) five minutes.
3. Then, _____ (6) the _____ (1) and the salt and _____ (4) it. Take the ball of dough out of the bowl and _____ with some _____ (1) so it does not _____ (7).
4. Knead the dough_____ .
5. Cover the dough and _____ (5) one hour.
6. _____ and flatten it using a_____ . You can make two pizzas or _____ in the _____ (8).
7. _____ (6) the ingredients that you want.
8. Put the pizza in the _____ (3). _____ (5) fifteen minutes.
9. _____ !

Image 16.

Empty recipe A4 copy provided for the activity

Activity 3. Complete the recipe.

In groups, read the recipe again. There are still eight blank spaces (underlined in red). Discuss where you should put the words that you decoded earlier. Write them down.

Solution:

PIZZA RECIPE

INGREDIENTS

- 400 g of flour.
- 200 ml of warm water.
- 2 tablespoons of olive oil.
- 1 tablespoon of yeast.
- 1 pinch of salt.

INSTRUCTIONS

1. First, pre-heat the oven to 230 ºC.
2. Mix the olive oil, the water, and the yeast in a bowl. Wait five minutes.
3. Then, add the flour and the salt and mix it. Take the ball of dough out of the bowl and put it on a surface with some flour so it does not stick.
4. Knead the dough for a few minutes.
5. Cover the dough and wait one hour.
6. Cut the dough in two and flatten it using a rolling pin. You can make two pizzas or put the second dough in the freezer.
7. Add the ingredients that you want.
8. Put the pizza in the oven. Wait fifteen minutes.
9. It is ready to eat!

Image 17.

Finished recipe

e. Extra sessions

Note: Due to the fact that Session 4 needed to be conducted in a split-group session, extra activities were needed. Some students did them after sessions 3, while other did them after the recipe game.

Activity 1. The silent child

Watch this short film. Here are the main characters:

- **Joanne** is a social worker who can sign
- **Libby** is the deaf 6-year-old girl
- **Suzanne** is Libby's mother
- **Paul** is Libby's stepfather
- **Seb** is Libby's half brother
- **Pit** is Libby's half sister

Activity 2. Summary

Write a summary of the film. Talk about:

- The family and Libby
- Joanne's Job
- Libby goes to school

Activity 3. An ordinary school day

Watch this video and write down a list of the activities you can see the students doing.

Activity 4. Film analysis and conclusion

In groups, discuss the following questions:

- What is the message of the film?
- Can deaf children learn all the subjects?
- How can they communicate?
- What do deaf children need?
- Should all students learn sign language?

C. INTERVIEWS ANSWERS

Interviews with the students were conducted in Catalan to ensure the best communication possible. They are grouped by question numbers to simplify the transcription and connect the different answers more easily. **S1** = Student 1, **S2** = Student 2 and so on.

a. Initial interview

Question 1. What ways of communications do you think there are?

S1: A través de sorolls, signes, els puntents que hi ha als números dels ascensors pels cecs, que es poden identificar amb el dit. També llenguatges, paraules.

S2: La de signes, per la veu i crec que ja està.

S3: Parlar amb la boca, els signes i els cops, sorolls. I escriure també.

S4: Amb les mans, signes, amb la veu i escrivint.

S5: Parlar, escriure, amb el mòbil, jugar a jocs, videotrucades, amb les mans.

S6: Amb les mans, signes; amb la boca, parlar; llegir.

Question 2. Which ones do you think are the most important?

S1: El llenguatge en sentit de paraules, perquè crec que el codi Morse és enginyós per fer coses secretes, però també s'escolta, per això crec que és més enginyós el llenguatge de cada país.

S2: Parlar.

S3: [El mètode] de parlar, el de signes i el d'escriure.

S4: Amb la veu i escriure.

S5: Amb les mans, la veu, escriure. Els tres són igual d'importants.

S6: Parlar amb la boca.

Question 3. If 0 is never, and 5 is always, how often do you find it hard to communicate in the English class? What is your biggest difficulty?

S1: Un dos o un tres. Perquè a vegades com que no estàs acostumat a aquest idioma et quedes més restringit i vols passar desapercebut, ja que no se't dona bé o simplement… Crec que ajuda més a les persones, no només a mi, el mètode de sentir-ho, perquè en anglès,

quan sents una cosa no s'escriu com és. Llavors, com que hi ha moltes llengües, cadascuna té la seva manera, llavors penso que la manera d'escoltar és la millor manera.

S2: Un cinc, crec. Perquè a vegades penso que la meva opinió no és bona o que no agradarà als demés.

S3: Un dos. El que més costa és que encara em falta aprendre, però cada vegada sé parlar millor. Les paraules ja em sonen més.

S4: Cinc. [El més difícil és] parlar en anglès. Em costa més l'anglès escrit.

S5. Cinc. Em costa més parlar, escriure i llegir. Em costa per l'idioma.

S6: Un quatre o un cinc. Perquè no sé anglès. Em costa més escriure

b. Final interview

Question 1. What ways of communications do you know? Which ones do you think are the best/most valid?

S1: Braille, llengua parlada, signes, [codi] Morse i molts més. El més vàlid? Doncs, el Braille, perquè els cecs el poden utilitzar i els sords també, en comptes dels signes, perquè el poden veure i el poden identificar. [El mètode amb el qual] podem interactuar tots seria el Braille, perquè els cecs poden reconèixer els punts, els sords els poden veure, els muts també i molta gent que té també discapacitats també podria fer-ho.

S2: El de signes, el de parlar i el [codi] Morse. [El més vàlid?] El de parlar.

S3: La llengua de signes, el de parlar, com ho estem fent ara, moure's, escriure, el codi Morse i el Braille. Hi ha alguns que jo crec que són millors, com per exemple el de signes i el de parlar

S4: El codi Morse, els signes, per escrit… [El més vàlid?] Escriure.

S5: Signes, codi Morse, música, amb instruments, parlant. [El més vàlid?] Tots.

Question 2. What surprised you the most about this unit? What did you like the most?

S1: Doncs m'ha agradat més que hem fet grups i cadascú ha après una llengua en una classe i al final, quan ens ajuntàvem gents de diferents grups, un necessitava la llengua de signes de l'altre per poder descodificar la fotocòpia aquella. M'ha agradat doncs la cooperació que hi ha hagut, que ningú es quedés com "jo he fet alguna cosa, però la gent s'apanya amb els seus amics i s'ho diuen".

S2: Que algunes coses eren fàcils i ha estat divertit. [La recepta] és el que m'ha agradat més.

S3: El que m'ha agradat més ha estat la llengua de signes, perquè no fa soroll i pots parlar normal. M'agrada més l'abecedari que té. M'ha sorprès que jo pensava que la llengua de signes no tenia un abecedari.

S4: M'ha sorprès més el codi Morse i m'ha agradat més la llengua de signes.

S5: Tot.

Question 3. What do you think about the recipe game?

S1: Em va agradar, també.

S2: Tots estàvem participant, que a vegades no ho fem i va ser encara més divertit, quan participem tots.

S3: Em va semblar bé, perquè vaig aprendre paraules.

S4: Em vaig divertir molt. Em va agradar. Vam participar tots. Tot era amb signes i ho vam poder fer.

S5: Em va agradar tot.

Question 4. Do you believe that sign language helped you remember the words? How?

S1: Sí. I amb totes les explicacions.

S2: Crec que sí. Perquè no era llegir o escriure.

S3: Sí.

S4: Sí, perquè normalment les paraules les llegim o les escoltem.

S5: Sí. Perquè recordes com ho vas fer. És interessant i per això ho recordes.

Question 5. Would you like to learn more sign language?

S2: Sí. Jo vaig veure un anime i era una nena que era sorda i un nen molestava. Ell va aprendre llengua de signes i es van fer amics.

S4: Sí

S5: Sí. No molt, però una miqueta més, sí.

D. FIRST AND SECOND ASSESSMENT GRID

FIRST AND SECOND ASSESSMENT

Date:

Student's nickname:

Objective words	**Recognises written word**	**Recognises spoken word**	**Thinks it has another meaning**	**Knows the meaning**
1. Flour				
2. Oven				
3. Olive oil				
4. Dough				
5. Freezer				
6. Warm				
7. Add				
8. Wait				
9. Stick				
10. Mix				

E. FINAL ASSESSMENT GRID

FINAL ASSESSMENT

Date:

Student's nickname:

Objective word	Recognises written word	Recognises spoken word	Knows the meaning in Catalan/L1	Can produce sign	Other
3. Olive oil					
7. Add					
9. Stick					
10. Mix					

Objective word	Recognises sign	Knows the meaning in Catalan/L1	Knows the word in English	Can say the word	Can write the word	Other
1. Flour						
2. Oven						
5. Freezer						
8. Wait						

Objective word	Recognises written word	Recognises spoken word	Knows the meaning	Other
4. Dough				
6. Warm				

F. FIRST ASSESSMENT RESULTS

a. Participants

The results can be found here:

https://drive.google.com/file/d/1A-L5i00YmPsnSsXOD1oR8HJxyEIh8l7t/view?usp=sharing

b. Objective words

The results can be found here:

https://drive.google.com/file/d/1rS4FAcJalV1aJ3dyNohsSJcoE_KbJlXZ/view?usp=sharing

G. SECOND ASSESSMENT RESULTS

a. Participants

The results can be found here:

https://drive.google.com/file/d/1RnyhO-njP1qEHazYvgj9lkYWF4PRk3i3/view?usp=sharing

b. Objective words

The results can be found here:

https://drive.google.com/file/d/1nmXi9yDwzavpNI9AFK0572ta_LKEy648/view?usp=sharing

H. FINAL ASSESSMENT RESULTS

a. Participants

The results can be found here:

https://drive.google.com/file/d/1saDEKlHvqKFD-X-NphPAqM9TVKLCXu0K/view?usp=sharing

b. Objective words

The results can be found here:

https://drive.google.com/file/d/1i9NauWNIbH_fQzlLeSVkBbv6969jaxIS/view?usp=sharing

I. PERSONAL REFLECTION COMPOSITIONS

Here are some of the compositions submitted by the students about the teaching unit used for this study:

1. We have been working on the 5 senses, which these days I have seen is more important than we think, it is a topic that needs to be informed. I like to explore the different senses because I've seen that people who don't have the five senses don't have the same conditions as we and it's not that easy for them to live. I thought there were very few codes and I was surprised that there were so many. I would like to learn more and learn more about the different codes around the world.

2. For me it is very important what we have been doing and also very interesting. We did fun activities, for example, we learned our name in sign language. I was amazed at how difficult it is to understand in sign language because none of them are global. We also did a lot of interactive activities. It was a lot of fun. I would like to know more about how blind people can cook, clean and house things. It has been one of the topics that has interested me the most this quarter. The three teachers have explained the subject very well.

3. What I liked most was to discover the words we did in the braille system. It amazed me what the words in signs were like because they were awesome.

4. I really liked learning more about the ways of communicating, and also that by talking about these things we give visibility to the usual problems about functional diversity.
I was very surprised that there is only one braille for all languages, so if you know how to read braille you can understand any language even if you didn't studied it, and about sign language, I was surprised that many of the signs that are made to refer to something are similar to how it would normally done, for example: a spoon in sign language would be like you are eating something with a spoon, and I was surprised because I thought they were strange gestures.
I would like to learn sign language so that I can communicate with deaf people, or just to learn something new and useful.

5. Something that I liked about this unit is that we have practiced morse code, braille and sign language and learned how to use it. Something that surprised me was the video of a cook who was blind, she cooked very well. I want to learn more about sign language.

6. I liked learning morse code, blind language and sign language because I think it is very interesting to learn about other ways to communicate. […] I would like to know more about blind language, for example how they memorized all the letters, numbers and who invented the blind language.

7. I like sign language a lot because it is very fast to learn something. I learned my name in only one minute! […]
I am surprised about the different sign languages, for example LSC (Catalan sign language). I am surprised too why morse code was created.
I want to learn why braille and sign language were created. I want to learn too about people who don't have [all senses], how to communicate, if they have other means to communicate, which percentage of those people are in all the world, Europe, Spain, and more things.

8. One of the things that I have realized these weeks is that this topic has been one of the topics that I liked the most. It has been a lot of fun, with many activities to do such as deciphering something that is in Braille among others ... I was very surprised when they explained to us that there was a blind cook who won MasterChef, it was very interesting to know about that topic. I am very happy that I was able to study Braille and Morse because they are things that I am not used to learning. In short, it has been a very dynamic and interesting topic.

J. PERMISSION TO RECORD: SAMPLE

UAB FACULTAT DE CIÈNCIES DE L'EDUCACIÓ. PRÀCTICUM

SOL·LICITUD DE PERMÍS PER A L'ENREGISTRAMENT D'IMATGES I LA CAPTACIÓ DE FOTOGRAFIES AL CENTRE DE PRÀCTIQUES

Jo…….....alumne/a del pràcticum.....
del Grau d'Educació/Màster de Secundària .....
de la Facultat de Ciències de l'Educació de la UAB, amb D.N.I. o Passaport número .....

SOL·LICITO PERMÍS per a la **captació de fotografies i l'enregistrament d'imatges** en el centre de pràctiques *(nom del centre i població)*:

.....

Situacions que demano poder enregistrar i/o fotografiar:

Finalitat de l'enregistrament i les fotografies:

Assumint els següents compromisos:

Respectar el dret a la imatge de l'alumnat que no vulgui ser enregistrat.

- ✓ Les imatges fotografiades i/o enregistrades seran per a ús exclusivament educatiu i de recerca relacionat amb les pràctiques que realitzo.
- ✓ Respectar el dret del centre a què no s'utilitzin fora del seu àmbit els enregistraments realitzats, si el centre ho demana.
- ✓ No difondre les fotografies ni els enregistraments per cap mitjà electrònic o digital o de cap mena (DVD, CD, memòria USB, Internet, etc.). La seva utilització es limitarà estrictament al marc de les pràctiques i de les activitats formatives derivades, sota la supervisió de la Facultat.
- ✓ Lliurar una còpia de l'enregistrament per al centre, si aquest n'estigués interessat.
- ✓ Lliurar una còpia del treball final de pràctiques al centre, si aquest n'estigués interessat.
- ✓ L'alumne/a podrà cedir les imatges al centre per al seu ús en l'àmbit de comunicació del propi centre. En aquest cas, el centre sempre farà constar l'autoria de les imatges i del treball realitzat, així com la seva vinculació al Pràcticum del Grau / Màster Secundària corresponent, de la Facultat de Ciències de l'Educació de la UAB.
- ✓ .....[1]

Data: Signatura Nom de l'estudiant: DNI/Passaport:	Autorització del centre: Signatura i segell. Persona que autoritza: Data:

[1] Afegir altres compromisos suggerits pel centre, si escaigués.