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Lehen Hezkuntzako Irakaslean Graduatua

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Gradu Bukaerako Lana

Analyzing primary students' receptive vocabulary in CLIL instruction in Navarra

Estudiante/Ikaslea: Silvia Fernández Sola

Enlace vídeo: https://youtu.be/aUNgylxiPx4

Tutor/Tutora: Olga Taga

Departamento/Saila: Ciencias Humanas y de la Educación

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Resumen

Hoy en día existe una creciente preocupación acerca de la adquisición y el aprendizaje de una segunda lengua en nuestra sociedad. Sin embargo, hay una carencia en la investigación concerniente al vocabulario receptivo de los estudiantes en contextos AICLE en Educación Primaria. Del mismo modo, el presente estudio pretende analizar y comparar el vocabulario receptivo de ciencias e inglés de 25 alumnos y alumnas de primero de Educación Primaria de un colegio situado en la comarca de Pamplona (España) en un contexto AICLE. Además, pretende explorar la percepción del personal docente acerca de la diferencia entre el vocabulario de ciencias e inglés del alumnado y de los beneficios y desventajas de la enseñanza AICLE. Para ello, dos test fueron diseñados y adaptados al nivel de la muestra para satisfacer los propósitos del estudio así como una encuesta para averiguar la sensación del profesorado acerca de este enfoque. Los resultados, como nosotros habíamos supuesto, indican que el vocabulario receptivo de inglés y de ciencias es muy alto y que el vocabulario receptivo de inglés de los y las estudiantes está por encima del de ciencias, lo que concuerda con las deducciones del profesorado quien también estima que la enseñanza AICLE es beneficiosa para el alumnado.

Palabras clave: AICLE; Vocabulario receptivo; Ciencias; Inglés; Educación Primaria

Abstract

In this day and age, there is an increasing awareness of the acquisition and learning of a second language in our society. Nevertheless, there has been a gap in research related to primary education students' receptive vocabulary in a CLIL context. Likewise, the present paper aims at analyzing and comparing the Science and general English receptive vocabulary of 25 students in first grade of primary education at a school located in the surroundings of Pamplona (Spain) enrolled in a CLIL model. Furthermore, its purpose is to explore teachers' perceptions towards the difference between students' Science and general English receptive vocabulary and the advantages and drawbacks of CLIL. Two different tests were designed and adapted to the level of the sample in order to satisfy the purpose of the study as well as a survey to find out teachers' beliefs towards CLIL. The results, as we had hypothesized indicate that students' receptive vocabulary in Science and general English is excellent and their general English receptive vocabulary overtakes the Science vocabulary, which corresponds with teachers' assumptions who also consider that CLIL instruction is beneficial for students.

Keywords: CLIL; Receptive vocabulary; Science; general English; Primary education

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INTRODUCCIÓN

En las últimas décadas la investigación en la adquisición y el aprendizaje de una segunda lengua ha experimentado un enorme crecimiento, especialmente en dos áreas. Estas dos áreas son Aprendizaje Integrado de Contenidos y Lenguas extranjeras (AICLE) que es un nuevo método de enseñanza, y el aprendizaje del vocabulario que es una parte imprescindible de la competencia lingüística.

Actualmente, vivimos en una sociedad globalizada en la que las personas necesitan comunicarse de manera eficiente y para ello es preciso el aprendizaje de una segunda lengua (Ruiz de Zarobe, 2008). De este modo, la educación tiene un papel vital. Durante los últimos años, investigadores de todo el mundo se han estado cuestionando si el tipo de enseñanza afecta a la adquisición de una lengua extranjera (Coyle, Hood, & Marsh, 2010). Es por ello que AICLE ha sido introducido en numerosas escuelas europeas.

El vocabulario es un aspecto crucial en la adquisición de una segunda lengua, en el dominio global de una lengua así como en el éxito académico en general. Sin embargo, aunque actualmente se están llevando a cabo diferentes estudios relacionados con el aprendizaje del vocabulario, el foco principal siempre ha sido puesto en el estudio de la gramática de una lengua (Nation & Meara, 2010). En este sentido, analizar el léxico de los estudiantes puede proporcionarnos una percepción válida e interesante acerca del conocimiento que tienen de un idioma, ya que es imprescindible para alcanzar una buena comunicación. Asimismo, esta puede ser una buena manera de conocer los efectos de la enseñanza AICLE en el aprendizaje del inglés como lengua extranjera en estudiantes españoles de Primero de Educación Primaria.

De acuerdo con estas suposiciones, el presente documento trata de analizar el vocabulario receptivo de estudiantes españoles de inglés como lengua extranjera en 1º de Educación Primaria matriculados en el programa AICLE, donde el contenido de una asignatura es enseñado a través del inglés con el objetivo de comparar el vocabulario receptivo de ciencias con el vocabulario general aprendido en inglés y observar si hay diferencias significativas. De esta manera, estamos interesados en examinar el impacto que tiene el enfoque AICLE en la competencia léxica receptiva de los estudiantes.

Por consiguiente, vamos a revisar los estudios principales que han lidiado con el vocabulario receptivo de los estudiantes así como aquellos que han sido llevados a cabo en un contexto AICLE. Por otro lado, también vamos a explorar la relación entre este tipo de enseñanza y los beneficios así como

las desventajas que puede tener respecto a la enseñanza y la adquisición del vocabulario en una lengua extranjera.

Para todo ello, serán incluidos un informe del estudio llevado a cabo, los principales resultados obtenidos, así como una interpretación de los mismos. Finalmente, concluiremos resaltando algunas cuestiones abiertas así como limitaciones que ha podido tener el presente estudio.

1. JUSTIFICACIÓN

Una vez conocido el propósito del presente estudio, resulta indispensable determinar las necesidades e inquietudes a las que responde.

En primer lugar, cabe mencionar el papel tan significativo de este trabajo de fin de estudios poniendo un punto final a cuatro años del grado de Educación Primaria y en el que el estudiante debe demostrar una capacidad de análisis y reflexión acerca de todos los conocimientos y competencias adquiridas a lo largo de la formación universitaria, despertando una conciencia crítica y aportando una experiencia en el ámbito de la investigación.

En particular, en este caso resulta interesante observar cómo un estudiante de educación superior universitaria, utilizando las capacidades y habilidades desarrolladas durante su etapa universitaria investiga y analiza el enfoque AICLE en niveles de educación inferiores como es la Educación Primaria desde una perspectiva de análisis crítico, investigación e intervención. Es por ello que el estudio resulta significativo, pues se trata de un análisis del contexto AICLE y su efectividad en la adquisición del vocabulario en la actualidad en un contexto real partiendo del trabajo de una persona que ha recibido formación acerca de ello.

La Educación Primaria, junto a la Educación Infantil, es una de las etapas más importantes en relación al desarrollo personal del alumnado. Durante este periodo, los estudiantes acaban por adquirir su lengua materna así como su identidad cultural pues es donde empiezan a tener sus primeras interacciones comunicativas fuera del contexto familiar.

Además, los idiomas tienen un papel imprescindible en nuestra sociedad y son una parte muy importante de la educación. Gracias al aprendizaje de una lengua extranjera podemos comunicarnos con personas de otros lugares del mundo lo que hace que sea algo vital para la socialización. En la actualidad, teniendo en cuenta lo conectado que está el mundo, es imprescindible saber inglés, puesto que es el idioma más extendido en nuestro planeta, el más utilizado tanto en medios de comunicación como en distintas instituciones oficiales.

Teniendo esto como punto de partida, para el aprendizaje de una lengua extranjera es esencial el aprendizaje del léxico. Es por ello, que este estudio trata de dar luz a la adquisición del vocabulario receptivo en una segunda lengua desde un enfoque comunicativo intentando de cierta manera cubrir la brecha existente en los estudios relacionados a este tema puesto que son escasos hasta ahora. De esta forma, trata de dar respuesta a diferentes cuestiones que han sido planteadas a lo largo de los últimos años.

2. CONTEXTUALIZACIÓN

España es un país compuesto por diecisiete comunidades autónomas de las cuales cinco son bilingües. Los idiomas están directamente relacionados con la cultura y las tradiciones de cada comunidad autónoma pues forman parte de su identidad y por ello, tienen un papel tan importante en la educación. En un lugar en el que la enseñanza de lenguas es tan importante, el aprendizaje de una lengua extranjera cobra un papel muy significativo en el panorama español.

En este sentido, diferentes investigadores han explorado ámbitos similares a lo analizado en este estudio en distintas partes del país. A modo de ejemplo Canga (2013) llevó a cabo el estudio "The receptive vocabulary of Spanish 6th grade primary school students in CLIL instruction: A preliminary study" en el norte de España. Por otro lado, también en el panorama nacional Lasagabaster (2008) realizó la investigación "Foreign language competence in content and language integrated courses" en el País Vasco. Además, autoras como Jiménez-Catalán & Ruiz de Zarobe (2009) también llevaron a cabo un estudio en el País Vasco y La Rioja: "The recepive vocabulary of EFL learners in two instructional contexts: CLIL and non-CLIL instruction".

Igualmente, el presente estudio de manera similar a los anteriores, trata de definir más concretamente estas investigaciones llevadas a cabo en un contexto AICLE puntualizando y enfocándose particularmente en el aprendizaje del vocabulario receptivo de ciencias e inglés en Navarra. Los resultados de este estudio pueden ser beneficiosos para estudiantes, maestros, padres e incluso para la administración educativa.

3. THEORETICAL FRAMEWORK

3.1. CLIL in the world and in Europe

In the 1990s, there was an increased awareness on performing great on languages all over the world due to the influence of globalization (Coyle, Hood, & Marsh, 2010). Globalization had an impact especially in Europe that is why there was a need for improving the outcomes on language and

communication around the world (Coyle et al., 2010) as well as the necessity to have a society that is more integrative and is able to deal with a reality based on diversity.

Nowadays, there is a need for multilingual citizens in society (Ruiz de Zarobe, 2008). There is an increased necessity to speak more than one language due to socio-political factors and culture (Ruiz de Zarobe, 2008). A society that is in constant change with challenging demands requires an education that makes people capable of being part of this global community.

The majority of the population consider that learning another language has a positive effect on studying or finding a job instead of trying to understand citizens of other parts of the world (European Commision, 2012). A high percentage of Europeans believe that having success in foreign languages is essential for students' future and also for themselves (Ruiz de Zarobe, 2013). They agree on the usefulness of mastering a second language, English especially. (Ruiz de Zarobe, 2013). As a consequence, bilingualism has become widespread among the population in order to communicate and relate with one another. The focus now is put on the type of instruction and its effect on the learning of a foreign language (Cenoz & Ruiz de Zarobe, 2015) as different goals are being followed (Ruiz de Zarobe, 2013).

This global necessity for mastering languages resulted in the emergence of the concept "Content and Language Integrated Learning" (CLIL). English is the main foreign language in European CLIL programmes and has been established as a reference to communicate effectively between different global organizations (Lasagabaster & Sierra, 2010).

Coyle et al. (2010) argued that CLIL is an educational approach that combines both language and content in an integrated way in which a foreign language is used to teach and learn other subjects of the curriculum. In this way, some subjects are taught through an additional language. Students will become proficient in their native tongue and in the second language too, learning the contents of the curriculum at the same time (Lasagabaster & Sierra, 2010). The CLIL pedagogy is a more student-centred approach that uses the language being learnt to improve students' communicative competence and promotes interactions among learners.

This CLIL approach has recently become popular in Europe as different European schools could not teach other languages that were not the official ones used in the country before (Lasagabaster & Sierra, 2010). Immersion programmes where learners are completely immersed in the target language for a long period of time in and out of the school have a longer history in Europe (Lasagabaster & Sierra, 2010).

In the CLIL approach, the main aim is to reach an efficient communication that is necessary to create an atmosphere that guarantees motivation and significant learning to students (Lasagabaster & Sierra, 2010). CLIL consists of a classroom context that is mainly communicative and where the focus is put on using the language instead of speaking about it (Jiménez-Catalán & Ruiz de Zarobe, 2009). Another significant objective of this approach is trying to boost students' motivation towards the foreign language as they are less motivated towards the second language when they grow up, at least with traditional methodologies (Lasagabaster, 2011).

Currently, researchers agree on the effectiveness of CLIL over traditional language methodologies at school around the world (Marsh, Pérez, & Ráez 2015). For instance, Admiraal, Westhoff, & Bot's (2006) study carried out in The Netherlands about the effects of CLIL on the learning of English as a second language in compulsory secondary education, demonstrated that students in a CLIL programme outperformed their non-CLIL counterparts in the reading comprehension test and the oral proficiency test, although there were no significant differences. Research conducted by Mewald (2007) in Austrian secondary schools also indicate that students in CLIL education performed statistically better on speaking in the foreign language than students in the non-CLIL programme.

That is why CLIL has been promoted by European institutions and by individual initiatives such as schools, in order to improve the acquisition of a second language in this globalized world (Ruiz de Zarobe, 2013). Nevertheless, there is no overall agreement on the contents that should be taught in a CLIL model due to a lack of common objectives among institutions, textbook creators and governments (Jimenez-Catalan & Mancebo, 2008).

For this reason, different European institutions encouraged the implementation of CLIL through a wide range of approaches and methods. This resulted into the creation of an "Action Plan for language learning and linguistic diversity", as mentioned by Ruiz de Zarobe (2013).

The success of CLIL involves the investigation and creation of an integrated curriculum by teachers around the world in order to put this methodology into practice (Coyle, et al., 2010). It is important that students follow the same objectives and their learning is similar independently of the place they are from. These goals involve socio-economic objectives, for example that people can take advantage of a better position in the labour market, sociocultural objectives that involve promoting respect towards other cultures or educational objectives that aim at underlining efficient communication and developing subject-related learning (Lasagabaster, 2011).

In order to achieve that, CLIL uses the scaffolding technic (Cenoz & Ruiz de Zarobe, 2015). In this way, the teacher offers a guidance or some support to the student so that the learner can reach the intended degree of comprehension. Teachers can give students some clues or feedback or they

can even do a demonstration of the task that is being carried out. Then, when students can work by themselves, the scaffold can be removed.

Furthermore, for the purpose of inducting CLIL in this curriculum, the four dimensions: communication, cognition, culture and content have to be related (Coyle, Holmes, & King, 2009). This means the interaction between language, knowledge and reasoning, culture and subject matter (Coyle, 2007).

Therefore, performing great on languages has become a necessity these days and CLIL aims at covering this world-wide demand. This global trend is considered to integrate linguistic and sociocultural interests in different communities and seems to be beneficial for the current educational landscape.

In this respect, CLIL is used as a global concept but different countries adapt this term to their judgment of acquisition of a foreign language. In this way, Ruiz de Zarobe (2013) states that there would be differences between CLIL in Poland or the Netherlands and CLIL in Spain or Italy due to differences in socialization and culture. It does not only depend on the country but also on other factors of each region (Ruiz de Zarobe, 2013) and on how countries decide to adapt it to their own conditions.

3.2. CLIL in Spain

In the last decade, there has been overall discontent with the teaching and learning of English in Spain (Lasagabaster, 2011). Despite the effort to make the learning of English of better quality with different proposals such as starting the learning of English at an even earlier age, the situation has not improved (idem).

Spain is one of the countries where foreign-language-knowledge is less developed among European countries according to the Special Eurobarometer on Europeans and their languages (Lasagabaster & Sierra, 2009). Students in Spain finish compulsory education with a low level on English ability (Lasagabaster, 2011).

The evolution of students' English learning is very slow in our educational system being the productive skills the dexterities less developed when they finish compulsory education. At this time, most students feel they cannot hold a conversation in English or even understand native speakers after many years of instruction. This reality shows a complete failure in the teaching of a foreign language in our country. Different studies demonstrated that a broad percentage of citizens in the rest of Europe can speak more than one language while the percentage in Spain is very low (Lasagabaster, 2008).

One of the reasons for this fact is that English in Spain is not used as a means of communication as in other countries of Europe (Lasagabaster, 2008). Its use is restricted to communicate abroad or in formal contexts like the school (idem). There are no television series in English like in other countries as the dubbing sector is still very strong.

Nevertheless, it is not just that English is not used as a means of communication in Spain, but also the way English is addressed in our country. Students start learning English by learning the grammar and leaving the oral skills apart (Lasagabaster, 2010). Children start being introduced to a new language by speaking, so with English something similar has to be done. Likewise, the teaching and learning of English in Spain needs to be addressed from a different perspective where the productive skills have more weight in the English classroom.

As a result, there was common agreement on the implementation of a programme that fosters students' knowledge of other languages (Lasagabaster, 2008). In this way, CLIL provides a great chance to have direct contact with the foreign language using the hours established in the curriculum (Lasagabaster, 2008). In Spain, CLIL received support from educational institutions and has been implemented in different schools over the last few years (Lasagabaster & Ruiz de Zarobe, 2010). The number of CLIL programmes carried out in Spain has been increasing during the last decade (idem) being now one of the European pioneers in CLIL practice and research.

The introduction of CLIL in Spain has led to a discussion in some autonomous communities where there are two official languages (Lasagabaster, 2011). In these autonomous communities, it is thought that the implementation of English can lead to a lower command of one of the official languages, mainly the minority language because they will dedicate less hours of instruction in the curriculum to give place to English (idem).

This fact can happen because we have to bear in mind that in these autonomous communities where there is more than one official language, there are some students that use Spanish as their native tongue while others use Spanish as the L2 which affects students differently in a CLIL programme. For instance, in the Basque Country, where CLIL has been introduced in the last few years, they have different models of instruction in order to cover all needs. They have Model A where all subjects are in Spanish, Model B that offers half the subjects in Spanish while the other half is taught in Basque and Model D where all the subjects are in Basque. Nowadays, the government is trying to implement CLIL so that learners can master the three languages: Basque, Spanish and English but the enacting of the programme would be different in the different models.

As it was aforementioned, CLIL adopts a different form depending on the autonomous community it is being implemented in (Ruiz de Zarobe, 2013). For example, in some autonomous

communities, students learn the second language from the first year of infant education, this is three years old while in others they can start later. Likewise, there are different modes in Spain that allow for a great diversity of CLIL models with different objectives. For instance, CLIL can be implemented as a way to foster the learning of another language in a monolingual community, to promote multilingualism in a community were a second language is already being taught or as a way to improve the English competence.

These days, the main focus is put on the consolidation of the CLIL programmes that are being carried out in Spain (Ruiz de Zarobe, 2013). It has been demonstrated that students that are enrolled in CLIL programmes have a better command of the language than students in English as a foreign language (EFL) settings (Lasagabaster, 2011).

Regarding this methodology, among the most relevant research conducted in Spain, it is worth mentioning some studies run mainly in the North of Spain that show beneficial outcomes on students' linguistic ability. By way of illustration, Lasagabaster (2008), conducted a study in the Basque country. He made a comparison between secondary education students' English language competence in a CLIL programme and students in a traditional context, finding out statistically important differences in all language competences, as students in CLIL instruction outperformed the students in a non-CLIL context. Furthermore, Jiménez-Catalán, Ruiz de Zarobe, & Cenoz (2006) conducted a study with students in secondary education in the Basque country and La Rioja, the results of which showed that learners in CLIL instruction performed better than the non-CLIL students in a task on reading comprehension, writing and a cloze test.

Despite the fact that CLIL has a positive influence in Spain, Fernández (2010) alerts that we have to bear in mind that the enhancement of the linguistic competence of CLIL students over their non-CLIL counterparts in Spain, might be caused by the fact that CLIL students receive further English exposure, as their classes imply more hours in touch with the foreign language.

Taking into consideration all of the above, educational authorities in Spain aim at continuing with the implementation of CLIL programmes as they think that it improves the English language competence, gives more value to the acquisition of the contents of the curriculum, enhances students' motivation towards the learning of English and prepares them to their future life.

All in all, as Cenoz & Ruiz de Zarobe (2015) think, CLIL can cause a revolution on pedagogies and there is a need to highlight the importance of teaching subjects through an additional language as students can deeply improve and expand their academic literacy skills. Thus, there is a need for education, investigation and innovation to operate collectively (Heras & Lasagabaster, 2015) and to utterly implement CLIL.

3.3.   Advantages and drawbacks of the CLIL method

3.3.1. Benefits of this methodology

Before introducing CLIL, teachers need to consider how to deal with this new challenge, the idea of incorporating languages into the curriculum. Taking into account the above mentioned aspects, now it is time to consider if this methodology is efficient and valid or if it requires improvement. There have been numerous researches about this approach, finding out positive outcomes from it. However, despite the fact that CLIL seems to be a beneficious methodology with regard to English learning, it might have some negative aspects too as considered by some researchers.

Regarding the advantages of CLIL, this pedagogy is very different from traditional teaching and learning because it provides more opportunities to develop a high degree of language competence and ability (Coyle, et al., 2009). This is because students are constantly exposed to the second language (idem) by receiving direct exposure to the language from native speakers, for example.

Likewise, CLIL unites different areas of the curriculum so that learners can relate knowledge and skills from one subject to another (Nation & Meara, 2010). This transversality promotes in an integral way a cognitive, personal and social development of students which in turn requires cooperation among the different teachers of a school. If students can associate the content of one subject to another and to their lives in particular, they will build a more significant and meaningful learning that will benefit them in every way.

Moreover, CLIL promotes collaboration, team work and cultural knowledge because it uses realia and students talk about the real world and relevant topics of their community (Lasagabaster, 2008). In this way, they create a better knowledge about their society and they are more motivated and involved as they can use what they learned in class in their real life (Lasagabaster & Sierra, 2009). This is something that we have always been in search of as we have always wanted our students to feel motivated and interested in what they are learning.

In addition, CLIL benefits a drop of students' anxiety by encouraging them to the learning of the target language introducing clear and explicit input (Jiménez-Catalán & Ruiz de Zarobe, 2009). As a result, learners focus on meaning and develop their communicative competence through the use of effective communicative strategies.

This involvement may positively affect students' motivation towards English, making them have more positive attitudes towards the learning of a second language. Apart from making children skilled in two languages, CLIL also wants that other languages and cultures are appealing to children and that they open their mind to other civilizations and cultures while they are glad of their own

customs and lifestyle (Lasagabaster & Sierra, 2009). Consequently, this approach might help them to be more open-minded and at least know that there are other ways of living different from their own, that all of them are acceptable and this will enrich them as citizens of this globalized world.

In addition, CLIL improves critical thinking and cognitive conscience by focusing on the development of receptive and productive abilities (Coyle, et al., 2009). The methodology helps increase learners' critical analysis and creativity and make a great use of time because content and language are learned at the same time (Coyle, et al., 2009). It is an innovative methodology that breaks with the traditional grammar-based lessons (idem). Students enrolled in CLIL also take advantage of a higher quality instruction that helps students' cognitive growth (Lasagabaster & Sierra, 2009).

In summary, CLIL instruction is a more student-centred method in comparison to traditional methodologies that are more teacher-centred and do not develop students' communicative skills that much. It provides the students with more opportunities to develop a high degree of lexical competence while using the target language to learn the academic content and to interact between scholars.

3.3.2. Disadvantages of this methodology

It is widely believed that CLIL is a modern methodology that promotes the learning of an additional language and has proved to have good outcomes in Europe (Marsh et al., 2015). Nevertheless, some authors start wondering about its clarity and coherence and the challenge of introducing it into the curriculum (idem).

Firstly, as Cenoz, Genesee & Gorter (2013) affirm, CLIL is missing clarity as it is not concise and it wants to cover very different aspects so their limits are not precise. Its pedagogical implementation also implies other difficulties that will be mentioned below.

Firstly, CLIL requires investing a lot of time on planning, using and creating suitable material and resources (Coyle, et al., 2009) which is time consuming for teachers while they might not have time in their schedule to prepare all these materials needed. Furthermore, teachers might not be prepared to teach classes in another language as they may know the contents but not the specific vocabulary of the topic in the second language (Coyle, et al., 2009). Educators need to have a great command of the language taught, so they need to be trained in the methodology too (Naves, 2009). Besides, teachers need to scaffold the tasks done and know how to grade these activities so they need to learn how to do this in a CLIL methodology (Ruiz de Zarobe, 2013).

Talking about the receptive and productive skills, it is true that CLIL does not affect both of them equally as some researchers allege that it has more benefits in receptive abilities. (Jiménez-

Catalán, & Ruiz de Zarobe, 2009). Consequently, productive skills are left apart and extra attention needs to be paid in order to foster these aptitudes, as we have mentioned before.

Apart from that, students' participation in CLIL classes usually drops (Ruiz de Zarobe, 2013). Students usually talk in their native tongue instead of speaking in English (idem). This could be assumed as when they work in groups or pairs, there is no adult supervising how they communicate all the time so students tend to relax and change to their easiest way to talk with each other, which means they are not practising English and CLIL is not having an impact on their learning.

Besides, when learning in a CLIL context, the language that is being learned is a second language as it is not spoken outside school, in an informal context. Students, have contact with the foreign language only at school because they speak their native language at home and with friends so they have less opportunities to learn the second language than students in immersion programmes, for instance (Lasagabaster & Sierra, 2010).

Moreover, it is difficult to introduce a new methodology in a school where the staff changes every year as it is expensive and teachers need to be trained for it (Coyle, et al., 2009). There is no time or staff available to teach the methodology or way of instruction of each centre every school year to the new educators that come to the school. As a result, some of them do not know how to work with new approaches and this fact can become an obstacle to the good functioning of the programme. Some autonomous communities in Spain are carrying out different action plans in order to keep teachers and promote permanent staff among schools, although they need the implementation of other governmental measures and it is still not giving results.

Another disadvantage of this approach would be that it is difficult for immigrant students to enrol in CLIL as they don't know the native tongue of the country. In this way, starting to learn another language apart from the one spoken in the country at the same time is tough and can lead to interferences in the learning process. For this reason, CLIL programmes could become exclusive for certain social classes or part of the population. (Lasagabaster & Sierra, 2010).

In the present days, this fact could be a real dilemma because as it was aforementioned, we live in a globalized world where immigration is a fact. Talking especially about Spain, immigrants mainly come from the East of Europe, Morocco and different parts of Latin America. In some of these countries their mother tongue is different from ours, so learning contents through English, while trying to become proficient in Spanish in order to relate with others and master the contents of the school year could be real trouble.

Additionally, it is commonly assumed that CLIL is just suitable for students who know how to handle with different languages and have good marks in languages (Coyle, et al., 2009). However, this is a misconception as CLIL has been created for every student (idem). With the implementation of CLIL, every student will feel more motivated towards the learning of a language because everything is more related to their real life that is why the learning of a new language will become easier for those that used to struggle before too.

Notwithstanding, apart from all the downsides that CLIL instruction might have, it has been demonstrated that the benefits of the approach overcome the disadvantages and by using suitable CLIL materials and instruction, the learning of other subjects through a foreign language might even facilitate the learning of these subjects (Ruiz de Zarobe, 2013). CLIL is an innovative form of education that provides students great opportunities to develop a high degree of ability competence in the language as students are all the time exposed to the language in different interactions in class and also in the functional academic specific language.

3.4. CLIL Vocabulary studies

3.4.1. Relevant authors who researched vocabulary learning and acquisition

There are numerous studies showing that CLIL programmes have a better influence on students than traditional contexts when talking about mastering languages (Heras & Lasagabaster, 2015). In one of the studies carried out in the Basque country where attitudes towards English were analyzed, the results demonstrated that older groups were less interested in the learning of a foreign language (Lasagabaster & Sierra, 2009). This trend is based on the fact that as students get older, they are more tired of a traditional educational system where the focus is put on the teacher (idem).

Students must have a sense of implication in the teaching and learning process in order to feel motivated and know the meaning of what they are doing. As youngsters grow, the methodology based on speaking disappears while grammar and terminology become more popular in the teaching method what makes students lose interest in the learning of English (Lasagabaster & Sierra, 2009). However, this study on language attitudes demonstrated that children in the CLIL approach were more interested in the learning of English than those in non-CLIL programmes and they performed better in the vocabulary tests (idem).

For this reason, it is thought that a CLIL methodology that is more student-centred could postpone or even make disappear their lack of interest while making students more participative in the teaching-learning process. As a result, students will get involved and will be motivated as CLIL

provides more meaningful opportunities to practise the foreign language and to learn the grammar and vocabulary because as Heras, & Lasagabaster (2015) declare, in a CLIL approach students have more occasions to learn vocabulary in real situations.

Furthermore, as Canga (2015) affirms, studies that measure vocabulary size show that student's vocabulary size increases at the same time as the exposure to the foreign language do. For this reason, CLIL instruction might benefit the acquisition of vocabulary as students receive longer exposure to the language to be learnt.

In a study carried out in the Basque Country where English works as the L3 for the participants, they did different tests about the four dimensions of English showing that the larger exposure to English benefited their language ability and also their motivation (Lasagabaster, 2011). This study corroborated the efficiency of CLIL as it was shown that CLIL benefits the learning of the vocabulary of a language while boosting students' motivation (Lasagabaster, 2011).

As we have said beforehand, vocabulary size is related to the amount of hours of instruction in the target language (Canga, 2015). As a consequence, we could establish a link between CLIL instruction and vocabulary learning. Xanthou (2011) claims that CLIL positively influences the acquisition of vocabulary as she demonstrated that by teaching words related to kids' real lives, their retention of those words is higher as well as their understanding. They learn vocabulary in contexts for real communication in a significant way.

Truthfully, nowadays, most students become experts in grammar even recognizing grammatical structures in a text, while they might not understand any native speaker nor understand a conversation in the target language. Even though vocabulary acquisition is a part of the learning of a second language that has been of low importance for researchers in the recent decades (Meara, 1980), recently researchers have been studying this field more deeply.

Despite the fact that attention has always been given to the learning of grammar, now attention is paid to the effect of CLIL on vocabulary acquisition as it is essential to accomplish communication (Canga, 2015). Regarding vocabulary studies, a wide variety of authors tried to demonstrate that there is a relationship between the type of instruction and the acquisition of a foreign language.

Talking about lexical learning, it is true that vocabulary knowledge does not guarantee high English communicative skilfulness but it constitutes an essential pillar of lexical usage that can make communication easier (Nation, 1993) and it can also promote interaction with one another in the foreign language (Canga, 2013).

The learning of vocabulary is vital to communicate in an oral and written form in the second language and it has to be taught. In a study run in La Rioja where English receptive vocabulary size of Spanish 6th primary school learners was analyzed, it was shown that learners' receptive vocabulary knowledge in students in the non-CLIL context was under 1,000 frequency words (Canga, 2013). This means that they might not be able to decode simple written texts in English nor spoken speech (Canga, 2013). However, their CLIL counterparts had a receptive vocabulary size bigger than 1,000 words (Canga, 2013). At this age, students should have a higher vocabulary knowledge if compared to other European countries.

These studies can give us a clue about how the type of instruction affects the acquisition of vocabulary as well as the hours of exposure to the target language, students' motivation and other variables such as the age where the first exposure to the language occurred.

3.4.2. Productive versus Receptive Vocabulary

Vocabulary is of great importance to ease the interaction with the language to be learnt. Having a broad vocabulary in the second language allows you to develop your intelligence as well as your reasoning abilities that are crucial to hold a fluent and coherent conversation. It also helps you put in order, organize your thoughts and open your mind to other cultures.

Firstly, we can differentiate between productive (active) and receptive (passive) vocabulary. On the one hand, productive vocabulary refers to the words that someone regularly uses in speaking and writing, while receptive vocabulary concerns the words that a person can understand when another one uses them in reading and listening, even if that person cannot produce them yet (Melka, 1997). Receptive vocabulary precedes productive vocabulary but these two should be understood as complementary rather than as separate terms (Merikivi & Pietä, 2014). As Melka (1997) claims, youngsters' and even adults' receptive vocabulary remains larger than their productive vocabulary as we do not use all the words we know when speaking or writing. It is easier for people to extract the meaning from a word in a context when reading or listening than to use it with nuances or hidden meanings, this is to say, to manage a lot of knowledge about a word before using it accurately. Acquiring productive vocabulary is a progressive process and youngsters need exposure to the target language in order to acquire both receptive and productive vocabulary. Researches have been carried out measuring the size of receptive and productive vocabulary, the relationship between receptive and productive vocabulary and the relationship between these two and general English proficiency.

As regards passive vocabulary, there are numerous researches showing a connection between receptive vocabulary and reading comprehension as learners with a great management of terminology

find the comprehension of academic texts easier than students with a lower management (Jiménez-Catalán, & Ruiz de Zarobe, 2009).

In research guided by Laufer (1992) was found a firm positive connection between vocabulary and passive comprehension from reading and also from listening. It is important to highlight the significance of learning in a passive way. Even though, some words have to be taught deliberately because as Biemiller (2001) states, there is a need for a more intentional and organised as well as contextualized insertion of vocabulary to kids at least in the first years of primary education through oral sources in order to wrap a broader scope of vocabulary. He thinks that a more teacher-centred approach, which actively teaches vocabulary could promote students' growth in vocabulary and language acquisition (Biemiller, 2001). It has been demonstrated that students that have a greater vocabulary knowledge are thought to be more competent when learning more words by incidental exposure (Laufer, 1999; Jiménez-Catalán & Ruiz de Zarobe, 2009). Even so, combining explicit and implicit teaching of words will lead students to success.

Furthermore, some researchers tackled the issue of what vocabulary should be learnt (Nation & Meara, 2010). According to Nation & Meara (2010) lists of words can be very helpful for students when they start learning a new language, distinguishing between high-frequency and low-frequency words. In texts of a particular purpose, as it can be in the subject of Science, technical vocabulary plays a very significant role as it is associated to a specific field. This vocabulary needs to be taught actively and in a conscious way (Nation & Meara, 2010). In order to learn vocabulary, a lot of input is needed as well as some strategies that can be taught such as guessing from the surrounding text, learning from flashcards (Merikivi & Piertä, 2014) or with different activities to promote vocabulary.

Other researchers investigated about how many words are necessary to comprehend oral speech (Adolphs and Schmitt, 2004) and to understand texts when reading. Adolph and Schmitt (2004) state that 2,000 words should be learnt to comprehend between 90% and 94% of spoken speech in distinct situations. Nation (2006) estimates that around 8,000 and 9,000-word families have to be mastered in order to get the idea of a written text, and between 6,000 and 7,000 word families for understanding spoken discourse. On the other hand, Canga (2013) affirms that between 2,000 and 3,000 of the most frequent words are needed as soon as possible if students want to be efficient in communicating in spoken discourse and in a written form in the language being learnt (Canga, 2013).

It has also been reported that students learn the most frequent words first (Read, 1988). However, they might know other significant words that are different to the first 1,000 most common words. For instance, in their firsts' years of instruction, students may learn first common words pertaining to the *nouns* category while they might not learn other most frequent words as they belong

to other categories such as *verbs* or *adverbs*. It is important that students learning a second language receive as much exposure to the target language directly or indirectly in order to expand their vocabulary and be successful in CLIL.

By way of illustration, the students participating in the study presented below were mainly learning nouns when researches was being conducted, although they also knew some verbs, prepositions or adjectives. These students had been working with activities related to the acquisition of receptive vocabulary before being tested all along the school year (See appendix 1). We could participate in the students' lives and see how they acquired new vocabulary and learn from different activities that is why we wanted to test their receptive vocabulary.

Similarly, other research got closer to the one carried out in this paper. In one of the studies carried out by Merikivi & Pietilä (2014) "Vocabulary in CLIL and in Mainstream Education" in Finland where they compared vocabulary acquisition in two different instructional contexts, trying to measure both the productive and the receptive vocabulary of students, they concluded that as could be expected, CLIL students achieved better results than non-CLIL students in both the Vocabulary Levels test (Nation, 1990) and the Productive Vocabulary Levels test (Laufer & Nation, 1999). Going from International studies to national ones, particularly close to Navarra, Jiménez-Catalán & Ruiz de Zarobe (2009) in "The receptive vocabulary of EFL learners in two instructional contexts: CLIL versus non-CLIL instruction" carried out research in La Rioja and the Basque country trying to establish the effectiveness of CLIL on the acquisition of receptive vocabulary and comparing the English receptive vocabulary of students in two different instructional contexts. Results demonstrated that CLIL students performed greater than their non-CLIL counterparts in the two receptive vocabulary tests (Jiménez-Catalán & Ruiz de Zarobe, 2009). They again verified a connection between being more time in contact with the language and a higher degree of vocabulary acquisition (Jiménez-Catalán & Ruiz de Zarobe, 2009).

Likewise, the study carried out in this paper, aims at testing the students' receptive vocabulary in primary 1 in a CLIL context where most of the words being tested belong to the *nouns* category as it is the easiest one when starting to learn a second language.

To our knowledge, studies comparing Science related receptive vocabulary and general English receptive vocabulary of students in primary education following CLIL have not been conducted yet. There is a gap in some fields of investigation because most studies mainly have compared CLIL with non-CLIL contexts with students in the same school year. Nowadays, studies on vocabulary are scarce. For this reason, the purpose of the present paper is to take part in the sealing of this breach by running research on the comparison between science (CLIL) receptive vocabulary and general English receptive

vocabulary of primary 1 students in the same instructional context, a school in Navarra. Furthermore, we aim at ascertaining whether CLIL instruction helps the acquisition of receptive vocabulary in primary school children by carrying out a survey among the teaching staff of the same educational institution.

4. THE STUDY

4.1. Research questions and hypothesis

The present study aims at covering the gap of studies on vocabulary in the search of more explicit answers to the questions that arouse over time around the CLIL approach.

As it was above-mentioned, the goal of the present paper is to examine students' receptive vocabulary related to Science with their general English lexical development in CLIL instruction. We compared Science related vocabulary to general English vocabulary of students aged 6-7. Furthermore, we tried to find out teachers' beliefs and perceptions concerning the effectiveness of CLIL. We attempt to obtain a response to the following questions:

1. What is the receptive vocabulary knowledge related to Science in English of the primary education students in year 1 (1st of Primary) in Navarra?
2. What is the general English receptive vocabulary knowledge of primary education kids in year 1 (1st of Primary) in the CLIL model in Navarra?
3. Can we account for significant differences between Science related vocabulary and general English vocabulary?
4. Does CLIL instruction benefit the receptive vocabulary learning of primary school children?

Based on previous research, the following hypothesis are put forward:

Concerning the receptive vocabulary knowledge related to Science in English, we expect students in first of primary to achieve a high level of performance.

As for the general English receptive vocabulary knowledge of the students in year 1, they will perform great in all the tests.

Regarding the differences between Science related vocabulary and general English, we expect students to perform slightly better in the general English vocabulary tests than in the Science related tests.

As regards the positive influence of CLIL instruction in primary school on children's receptive vocabulary, we predict that the CLIL approach has more benefits than drawbacks towards learners' lexical acquisition both in general English and Science-related vocabulary.

4.2. Context of the study

As it was above-mentioned, the purpose of this research is to assess the CLIL receptive vocabulary of students in first of primary education, as well as ascertain if CLIL instruction benefits the students' acquisition of receptive vocabulary. The study reported here differs from previous research as it examines the application of English as the language of instruction and it analyzes the differences in the acquisition of receptive vocabulary in Science (CLIL) and in English as a subject (Jiménez-Catalán et al., 2006).

As far as we are concerned, there are few studies showing the impact of the type of instruction (English as a subject vs. English to teach Science) in a context where English is not used in the community as a means of communication.

The study that is going to be discussed in this chapter was conducted in a school located in a town of 4,000 inhabitants, Beriain that is next to Pamplona, the capital city of Navarra.

4.3. The school

This research has been conducted in Navarra, at "C.P. Beriain" school, located in Beriain, next to the capital city, Pamplona. The "C.P. Beriain" is a public education school that embraces around 340 students both in primary and infant education that is about 200 families in total. The students mainly come from Beriain and its surroundings as it is a regional centre. There is around a 20% of immigration and as a consequence there is a high level of cultural and linguistic diversity that enriches the educational community. Although there is a high percentage of immigration, the vast majority of the families work in Pamplona. As a result, most of them have a similar socio-economic status that is middle class.

Considering the educational offer of the centre, the school of Beriain has a plurilingual model that bets high on the teaching of different languages. They promote the teaching of English although they keep teaching the official languages of Navarra:

- On the one hand, there is a program called PAI that promotes the rise of hours taught through English. This PAI model is based on the CLIL approach in which Spanish and English are used for promoting both content mastery and language acquisition. As a result, students make connections between language and specific subject-related

content. They have a total of 10 sessions taught through English: 3 Science sessions, 1 of arts and crafts, 1 of maths and 5 of English literacy.

- On the other hand, there is a program called PAI-A where learners have the opportunity to include Basque in their educational offer. They have 4 sessions of Basque per week.

4.4. Participants

The sample of the study consists of 25 students enrol in a school in the North of Navarra learning English in a CLIL model in first of primary education. There are 25 participants in all, 8 of which are boys and 17 are girls. Participants mainly come from Spanish-speaking families. However, there are 3 Moroccan students, 1 Moldavian and 1 Bulgarian that do not speak Spanish at home as their L1 is different, although all of them are competent in Spanish. In this way, the sample is homogeneous regarding social environment although they do not share the same mother tongue (L1), this is, there are differences in sociolinguistic characteristics and most of them do not have a common background. However, they are considered equally competent in English as they started learning the language at the same time.

Furthermore, students share not only the school year but also the type of instruction they receive and the number of hours of exposure to English and Science taught through English too. None of the participants attended any extracurricular activities related to English or Science (mainly due to the COVID-19 situation), nor had they travel to an English-speaking country.

Moreover, participants belong to two different classes in first of primary education in a CLIL context. The first class is made up of n = 13 male and female students and the second one comprises n = 12 male and female learners. Only participants that started in the school from the beginning of the year have been included in the sample. In this way, we would like to overcome the limitations of research where there was a difference in the number of hours of exposure to the target language and the starting age. As a result, there is a girl who has come from Morocco in November, this year, that does not speak Spanish and does not know English either. For this reason, we could not give her the vocabulary test as it would have altered the results. We studied the possibility of testing her orally as she does not know how to read, but she just learnt some vocabulary words in the second term of the school year. In addition, there is another student whose family is being examined by the social services as it is a case of absenteeism. As a result, he was not tested either.

Table 1.

Characteristics of the sample when the study was conducted

Class	Female students	Male students	Total of students
A	8	5	13
B	9	3	12
Total	17	8	25
%	68%	32%	100%

Moreover, learners receive three hours of Natural Sciences in English a week while they receive five hours of English literacy per week. In this way, students receive input of general English in the Science class too. In addition to these hours of formal instruction of English, the groups also have other subjects taught through English such as Arts and Crafts, one session per week and maths that comprises another session per week, as we have mentioned before.

Table 2.

Approximate number of hours of Science and general English students receive

Subject	Hours of exposure before the study	Hours of exposure in the whole year
General English	134	213
Science	75	103

As students did not have Science as a subject in infant education, we could not calculate the total amount of hours of exposure students received since they started learning English. As a result, we just took the hours of exposure of the current year into account.

It is worth mentioning that students did different activities in class to promote the acquisition of receptive vocabulary before the study was conducted. Some of them were closely related to one of the tests that was carried out so that students got used to the format. The activities are properly explained in appendix 1.

Apart from the study, a survey was carried out whose participants were the English educators of the school of Beriain. The sample consisted of eight teachers that are in charge of instruction of these subjects: English literacy, Science, Arts and crafts and Mathematics between 1st and 6th of primary education. All of them are permanent contract teachers at the school of Beriain and have some years of experience in this educational institution.

4.5.   Data gathering instruments

As it was above-mentioned, this research is based on two instruments. On the one hand, Merikivi & Pietilä (2014), compared the learning of vocabulary in two different instructional contexts, and used the Vocabulary Levels Test (Nation, 1983) in order to measure receptive vocabulary. On the other hand, in Spain, in a study run in La Rioja and the Basque country, Jiménez-Catalán & Ruiz de Zarobe (2009) used the 1000-word test (1000 WT), the 2000 bands from the Vocabulary Levels Test (VLT) and a cloze test in order to measure the receptive vocabulary size of students.

Our study is a bit more specific as we are trying to measure students' receptive vocabulary in Science (CLIL) and general English in a school in Navarra. Therefore, there is a need to have appropriate instruments to measure students' receptive vocabulary knowledge (Read, 1993). Before starting to test and analyze the data, we have to find the most suitable way to do so. Students' learning of content-related vocabulary in the present research was tested by means of two instruments.

Firstly, we created an adapted version of the original format of the Word Association Test (WAT) originally proposed by Fitzpatrick & Meara (2014) with primary 1 School children: Test 1. The original test is a productive vocabulary test designed with a pedagogical purpose that aims at measuring the breadth of knowledge of students which refers to the number of words that are known by them (Anderson and Freebody, 1979).

The original format meant that test-takers provided their own responses to the words offered in the test (Fitzpatrick & Meara, 2014). However, this is proved to be inadequate for learners of a second language (Read, 1993). This is possible to do with people that have a high level of cognitive development, they are in secondary education, study at university or they are adults able to read, write and associate isolated items without context.

Thus, Paul Meara put forward another format based on this one (as cited in Read, 1983). On account of that, Paul Meara decided to introduce a stimulus word simultaneously to a group of other lexemes, having some relation to the stimulus while others not (as cited in Read, 1993). Thereby, students had to identify the words related to the main topic, this is called word associates format (Read, 1993). This vocabulary uses word association (Read, 1993). Nevertheless, in this study, as they

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just started learning to read and write (they are very young learners) we came up with the proposal to simplify and modify the original test of the 1st of primary students in order to make it kids friendly and, at the same time, be able to analyze receptive vocabulary (not productive).

In this way, we tried to cover as many words as possible in the time available for testing with just one response in order to have a big sample of vocabulary to evaluate. This guided us to a more direct and manageable test (Read, 1993). The contextualization of words for young learners is indispensable, that is why we decided to include pictures next to the main topics. As a result, a vocabulary test format that demanded a simple response but a wide coverage of words that verified that students know the words was used (Read, 1993). Consequently, this is the way in which we tried to modify the format of the test originally presented by Paul Meara:

1. Firstly, we needed to include vocabulary items selected from the textbook used by teachers in the CPEIP Beriain School, which was based on the books and units studied at this school. We needed to include vocabulary from the Cambridge English vocabulary lists for starters too (Cambridge Assessment English, 2018).

2. We used and included pictures in the test next to the main topic related to the tested words from the activities children did during the school year.

3. The instructions of the original WAT test format were modified in this way:

   - The original instruction of the WAT is: *"For each word, write up to four other words it makes you think of"* (Fitzpatrick & Meara, 2014)

   - The instruction of the test presented by Paul Meara is: *"Identify the words that associate with the stimulus"* (as cited in Read, 1983)*.

   - The new instruction proposed in this study is as follows*: "Cross out the word which does not match or relate to the main topic and picture".*

As there were three words related to the main topic and just one distractor, we decided that these distractor words had no link with the main topic. There was one test for Science (See appendix 2.1.) and one for general English (See appendix 2.2.) using this format.

The second instrument to test content-related vocabulary was a test specifically created for this study which consisted of two different sections: Test 2A and Test 2B. A specific test to measure learners' receptive vocabulary had to be designed, as no other test was used before in similar researches that could meet our needs.

The first part of this test, Test 2A, consisted of identifying the word represented in a picture. Test-takers had ten different pictures with three words next to each of them so that they had to choose and circle the word that referred to the image. The instruction was as follows: *"Circle the correct word".*

There were two different tests: one for Science related vocabulary (See appendix 2.1.) and the other one for general English (See appendix 2.2.).

Then, in the second section designed, Test 2B, students were given ten different images for the Science related vocabulary test (See appendix 2.3.) and ten different images for the English vocabulary test (See appendix 2.4.). On the top, they had a box with the words that corresponded to the pictures. In this way, text-takers had to write the word in a line under the corresponding image. In order to do the test, we used The Compleat Randomizer v.2.7 a freestanding software proposed by Tom Cobb for randomly putting in order different items or words, but this is also possible with strings, numbers, letters, texts or anagrams (Cobb, n.d.). In this way, we could mix the words in the square by chance. There was also a version created to measure Science vocabulary and another to measure general English vocabulary like in the other tests.

Furthermore, a preliminary version of both tests was tried with two first grade primary students from another school, in order to check whether the test could be valid.

Finally, a survey was designed through *Google Forms* in order to find out teachers' ideas about how students acquire vocabulary in General English and Science and their beliefs about the advantages and disadvantages of CLIL (See appendix 3):

- The first two questions were multiple choice: a scale was used to answer with different variables ranging from 3 being "excellent" to 0 being "very low" in questions related to the level of Science and general English vocabulary of their students.
- The last question had to be answered with a short response about the pros and cons of teaching subjects through English.

4.6.   Procedures and data analysis

The tests were done during class time except for the survey that teachers had to complete in their own free time, while we were doing the practicum III. We decided to carry out the tests at the school in two different class periods with each class. In this way, the time allotted to complete the task was 90 minutes (two sessions of 45 minutes each).

At the beginning of the test, a power point presentation was used to explain the tests as well as an oral explanation both in Spanish and in English. We put different examples on the whiteboard and, additionally we also gave some other examples so that test-takers could understand better what they were being asked to do and clarify what to do in the test before starting. In addition, learners

were told that the results of the tests would not affect their grades in the English literacy or Science subjects.

Firstly, they were given *Test 1* of Science and then the one of general English as we assumed it was the toughest one, just because it was a more different format to what they are used to doing. Then, they were given the *Test 2A* and *2B*. We decided to do both tests at 9.00 AM in the morning (during the first lesson) so that students were not tired and felt more concentrated.

Then, in the scoring of the tests, one point was given to pupils for each correct answer. Tests were corrected and total scores obtained. Both in the Science and General English Test 1, a total of 108 target words were used for testing apart from the 27 main topics. Twenty seven groups or main topics of 4 words each completed the test. Each correct answer (crossing the odd one out) was given one point, so that the maximum score of each of these tests was 27 points.

Besides, the Test 2A used 30 target words in total. Ten groups of 3 words each, made up the test. For each correct answer (circling the corresponding word of the 10 groups), test-takers were given 1 point. Test 2B used 10 words in a whole. Each correct answer (writing the word under the corresponding picture), gave the learners 1 point, so that the maximum score of Test 2 is 20 points for Science and 20 points for general English.

The information with the results of the two tests was gathered in four excel tables as we can see in appendix 4 in order to make the analysis of the results easier and to have a broader view of the performance of the participants. There are four tables: one for Science Test 1 (See appendix 4.1.), another for general English test 1 (See appendix 4.2.), a third one for Science test 2 (See appendix 4.3.) and the last one for English test 2 (See appendix 4.3.). The tables collect the data of each answer of the participants as well as the total number of correct responses and the number of items they answered right.

Finally, the survey was shared in electronic format so that teachers could fill it when they had free time. They all had maximum one week time to answer the questions of this questionnaire (See appendix 3).

5. RESULTS

Research question 1:

What is the receptive vocabulary knowledge related to Science in English of the primary education students in year 1 (1st of primary) in Navarra?

As regards our first research question, none of the learners taking the Science tests obtained a zero score in either form of the tests although some of them got the maximum score in Test 2. In addition, none of the items was answered wrongly by any participant. For this reason, there were no items excluded from the sample.

Table 3.

Means of the receptive vocabulary tests scores for the sample.

	Vocabulary Test 1 Max = 27	Vocabulary Test 2 Max = 20
Mean of the participants	20,48	16,68
Percentage of correct answers %	75,85%	93,4%

The table above shows that students performed well in Science receptive vocabulary in the two tests. The percentage of correct answers in Test 1 is 75,85% which means that students performed positively. Then, in Test 2 the percentage is 93,4% which indicates that students performed very well in those forms of the tests.

Regarding Test 1, as it can be seen in appendix 4.1. the maximum score was 26 points out of 27 that was obtained by two of the participants, while the minimum score was 13 out of 27 that was attained by two learners.

On the one hand, all of the participants answered the items *parts of a plant* and *transports* correctly while the vast majority (23 out of 25) had the items *needs of plants* and *types of transports* correct.

On the other hand, most of the students answered the items *non-living things* and *where I live* wrongly (16 and 14 out of 25 respectively answered it wrongly).

As a result, we can say that the topics that children best control are related to transports and plants but also *body*, *land animals* and *subjects* (22 out of 25 had them right). On the contrary, the

items in which they have less control apart from the ones mentioned above are *sea animals* and *classroom* (14 out of 25).

Regarding Test 2, as it can be seen in <u>appendix 4.3</u>. the maximum score was 20 that was achieved by a great number of students (10 of them) while the minimum score was 14 that was accomplished by one participant.

With regard to the words in which they performed better, all of the students got the words *nose*, *lion*, *roots*, *fingers*, *water*, *crocodile*, *art* and *monkey* correct which emphasizes the results of Test 1 where the most controlled topics were those related to the human body, land animals and plants.

Talking about the words in which children had more trouble, *sunlight* was mistaken by 9 of the participants. The word *plane* was mistaken by 5 of the participants and other two concepts in which they had more complication were *space* and *playground* (3 students had them wrong).

Research question 2:

What is the general English receptive vocabulary knowledge of primary education kids in year 1 (1st of primary) in the CLIL model in Navarra?

Regarding our second research question, there was no participant that achieved a zero score in any of the general English tests carried out. Some of the participants got the maximum punctuation and there was no item answered wrongly by any participant. There were even questions answered correctly by all of the participants. As a result, there were no items excluded from the tests.

Table 4.

Means of the general English receptive vocabulary tests scores for the sample.

	Vocabulary Test 1 max = 27	Vocabulary Test 2 max = 20
Mean of the participants	23,36	19,32
Percentage of correct answers %	86,52	96,6

The figure above show that students performed excellent in all the English receptive vocabulary tests. As for the percentage of correct answers, there is a 86,52% of correct answers which implies that students performed fantastic in Test 1. They had even better outcomes in Test 2 with a 96,6% of correct answers, revealing outstanding results.

As regards Test 1, as it can be seen in appendix 4.2., the maximum score was 27 points out of 27 that was achieved by five of the participants, while the minimum score was 8 that was obtained by one student.

On the one hand, all the participants got the item *body* right while most of them answered correctly the items *pet*s, *family* or *games* (24 points). On the other hand, children showed poorer results in respect to the topics *orders*, *clothes* and *directions* (16, 18 and 19 points respectively).

Talking about Test 2 (appendix 4.4.), 17 out of 25 students had a perfect score (10 points). The minimum score was 14 points out of 20, achieved by one student.

The words they best control are *doll*, *purple*, *present*, *chicken*, *rabbit*, *cup*, *pen*, *legs*, *pink*, *milk*, *skates*, *boy* and *zebra* as no one got them wrong. However, some of them answer incorrectly to the word *baby* (6 participants got it wrong) closely followed by *twenty* and *jumper* (3 of the participants got them wrong).

Research question 3:

Can we account for significant differences between Science related vocabulary and general English vocabulary?

Table 5.

Means of the two vocabulary tests scores for Science and General English

	Vocabulary Test 1 max = 27	%	Vocabulary Test 2 max = 20	%
Science	20,48	75,85	16,68	93,4
General English	23,36	86,52	19,32	96,6

In Test 1, the results show there was a 75,85% of right answers regarding the Science vocabulary test while there was an 86,52% of right answers as regards to the English vocabulary test. These statistics show that students perform better in general English than in Science. Test 2, shows a similar correlation as there was a 93,4% of right answers in the Science vocabulary test and a 96,6% in the general English one.

All in all, the figure show that in terms of receptive vocabulary, as measured by Test 1 there is a difference in favour of General English vocabulary. This tendency is corroborated by results in the other receptive vocabulary test as students achieved higher scores in General English than in Science.

The difference in favour of general English in the two forms of the test is not that clear but is more evident in Test 1 where students in English clearly outperform the Science results.

The mean scores also show that Test 2 was somewhat easier than Test 1. This fact could be explained because students did activities with a similar format to Test 2 in their day to day in class, so they were more used to it and they had seen this format before. As I have explained before, students did some receptive vocabulary activities along the school year similar to these tests (See appendix 1).

Research question 4:

Does CLIL instruction benefit the receptive vocabulary learning of primary school children?

Regarding our fourth research question, teachers were asked to answer three different questions that we are going to analyze one by one.

- Question 1: What is the General English vocabulary level of most of your students (in the subject: English only)?

Graphic 1.

Teachers' beliefs about their students' general English receptive vocabulary
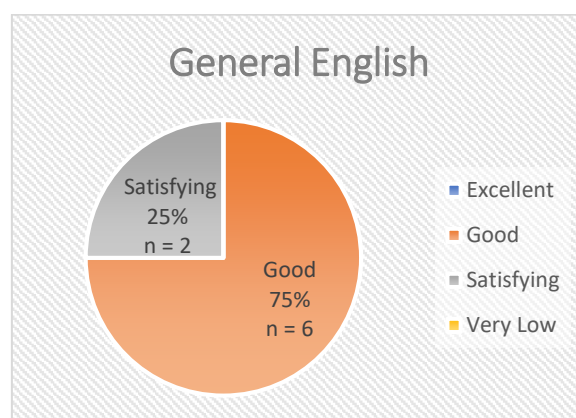
As regards this first question, 75% of the teachers think that students have a good general English vocabulary knowledge while 25% of them think that students have a satisfying level in general English.

- Question 2: What is the (CLIL related) English vocabulary level of your pupils in Science and other CLIL subjects (Arts and crafts, PE)?

Graphic 2.

Teachers' beliefs about their students' receptive vocabulary in Science
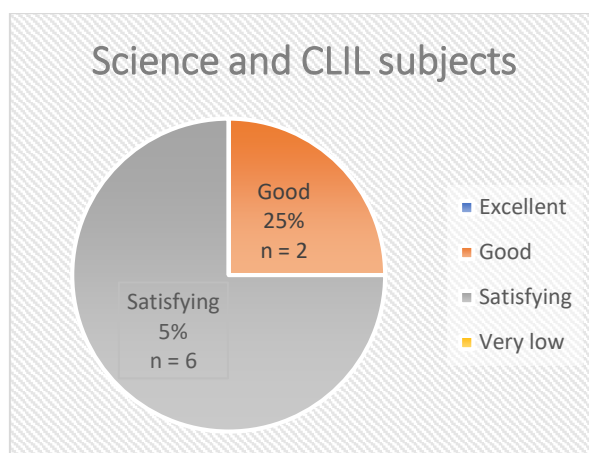
In relation to the second question, 25% of the teaching staff believes that students have a good command of Science and other CLIL subjects' receptive vocabulary while 75% of them consider that their students have a satisfying level in CLIL related vocabulary knowledge.

- Question 3: What are the pros and cons of teaching other subjects in English (Natural Science, Social Science, Arts and crafts, etc.) for you?

The last question was opened to teachers' answers which made them reflect about the advantages and drawbacks of the CLIL approach.

Regarding the benefits of the CLIL approach, all teachers declare that as the time of exposure to the target language is increased, students have more opportunities to use it and to learn vocabulary related to different fields such as Science or even mathematics at this school (both in a written and oral way) and also in other contexts. Furthermore, almost every teacher considered that CLIL connects the language to students' real life which makes the learning more significant and meaningful.

As for the downsides, all the teaching staff report that students with special educational needs, or those who are not good at languages find it very difficult to learn the CLIL subjects properly (especially Science). They have to double the effort in order to learn both content and language. The same trend is repeated with students who join the programme late or those that come from other countries and have to learn two languages instead of just one: Spanish and English. The exposure to Spanish is lower and learning English at the same time can cause inferences in the learning process.

Moreover, some teachers coincide that pupils in the CLIL approach might learn some words in English while they don't know the translation into Spanish so they end up not recognizing the word in their own language. Finally, most of them consider that some educators are not prepared enough to teach through CLIL as they need to be experts in the subject but also know the specific subject-related vocabulary in the second language.

Teachers belonged to different primary school years so they had different beliefs about their students' receptive vocabulary learning in both contexts (Science and general English). However, they all shared common points of view and attitudes towards the advantages and drawbacks of the implementation of CLIL in a school.

5.1.   Discussion

As could be expected, results indicate that students have a great vocabulary knowledge both in Science and general English as the tests show.

Regarding Science vocabulary Test 1, we can highlight that students performed better in the topics they saw at the beginning of the semester as they were more familiarized with them. Nevertheless, they had more problems with the ones they are studying now as they are not so used to seeing them that much. Students had better results in topics related to their daily life, for example *transports*, *body* or *subjects* as they are in contact with them every day.

Contrarily, *non-living things* is a difficult concept for them as test-takers have to identify the living thing as the one that is incorrect and cross it out. This is a difficult concept for students at this age as the main topic already includes a negative form. Regarding the main topic *where I live* they might have experimented difficulties because they were working on this unit when the tests were carried out so they did not have time enough to settle down in their brain all the words related to the unit.

Regarding Science test 2, they had problems with the item *sunlight* because it is a term that involves high reading skills and it is more difficult to decode by students at this age. The word *plane* might have been difficult when segmenting and blending sounds when reading. They might have had problems with the word *space* because it is an abstract concept as kids cannot see it or touch it so it is more difficult to decode it and understand it when reading. Additionally, *playground* is a long word that involves a lot of letters and sounds which makes it more difficult to know the meaning of the word in its decodification.

Therefore, we can remark the fact that students have a better command of the themes related to their daily life and the ones they saw at the beginning of the semester like *body*, *animals* or *subjects* while pupils experienced more difficulties with words that are more difficult to decode when reading and with the ones that are not that present in their daily life.

As regards general English Test 1, we can again agree that students' strengths are on topics related to their daily life as they performed better when talking about *pets*, *family*, *games* or even their own *body*. However, they showed weaknesses regarding *orders* and *directions* because they are more

used to hearing them out loud rather than in a written form. At school, they are all day listening orders such as *tidy up* or *sit down, please* and directions like *circle*, *colour*, etc. Nevertheless, teachers usually say them orally, so most children are still not able to recognize them when reading and are not able to decode them yet.

As for Test 2, as I have mentioned before, students have a better command of topics related to their daily life while they present more difficulties in topics such as *family* and *numbers* as students were just learning the family members and the numbers from 1 to 20 at the moment when the study was being conducted.

In general, Test 2 demonstrated better results as students are more used to this format of tests. As it was above-mentioned, similar activities have been done all along the school year both in books and worksheets (See appendix 1). Test 1 was more challenging as students did not do as many activities related to this format (cross the odd one out). Test 1 involves a harder instruction to understand at this age when children are still moving from the preoperational stage to the concrete operational stage that is when they develop concrete reasoning (Piaget, 1964).

From this values, although participants demonstrated a high performance both in Science and general English tests, it can be claimed that students have a better knowledge of general English than Science receptive vocabulary, confirming in this way our hypothesis. This interpretation can be understood as Science is a subject that involves more technical terms and words while in general English students learn concepts more related to their routine. Science uses topics related to specific fields that are usually harder to learn even in the students' mother tongue while the English subject starts with simpler themes or just with topics closer to students' interests and daily life. At this age, students need to learn vocabulary in an interactive and safe environment but they also need to relate the vocabulary they learn to a specific context in real life, that is why this fact plays a very important role in the acquisition of vocabulary. Although test-takers did a striking participation in all the tests, they recognized more words in the general English tests than in the Science related ones, pointing to a slightly better performance in the two forms of the test, Test 1, Test 2, in general English over Science. This domination is notably obvious in the Test 1 while it is not that evident in both parts of Test 2.

It is also worth mentioning that students received 134 hours of exposure to English when the study was conducted, while they received 75 hours of Science, which clearly influenced students' performance. In this way, the students' greater results in general English are likely to be due to the greater amount of exposure received.

All in all, we should be careful with the interpretation of the results as on the one hand, the difference in the results is very small and on the other, as we have mentioned beforehand, Science

instruction usually comes hand in hand with the learning of more rigorous words for children, this is to say, terms that are challenging to students, less related to their daily life, being some of them more abstract, specific and hard to comprehend by 6 year-old children. Pupils, usually learn words in Science that are new for them even in Spanish, which is why it is tougher to memorize them. However, in general English they learn topics that are more related to day to day situations and to the youngsters' context, this is to say, words they have already mastered in their native tongue, Spanish.

Apart from that, reading must have been an obstacle in the identification of words. We should bear in mind that students might had been able to recognize more words if the tests were taken orally. As test-takers are in first grade of primary education, they just started to learn how to read and doing it in a foreign language is a challenging demand. Students have to segment and then blend graphemes in their mind in order to understand them and be able to do the task they are asked for. This fact requires reading skills that some students might have not developed yet.

Moreover, when reviewing the tests, one common feature behaviour was that none of the test-takers left a question unanswered. The reason for that might be their willingness to guess the solution (Jiménez-Catalán & Ruiz de Zarobe, 2009) as well as their fearlessness to answer.

Therefore, despite the fact that results indicate that students displayed better scores in the general English vocabulary tests than in the Science related vocabulary tests, we cannot claim for significant differences as the difference between general English and Science is so slight. Thus, the statements presented here need further investigation.

Concerning the benefits and downsides of CLIL in the acquisition of vocabulary knowledge both in general English, Science and other CLIL subjects, agreeing with Lasagabaster (2008), teachers report that CLIL gives students the opportunity to learn new vocabulary and use English in different contexts related to real life. As Coyle, et al., (2009) claimed, teachers at this school agree on the effectiveness of constant exposure to the language for the improvement of the English level. However, they also acknowledge that students coming from other countries or those with special needs have to make an extra effort as Lasagabaster & Sierra (2010) declare. Some of them also allege on the poor preparation of some educators as well as the fact of knowing the subject related vocabulary in the second language but not in their native tongue (Coyle, et al., 2009). In spite of that, teachers believe that the advantages of the CLIL approach overwhelm the disadvantages and that it is an innovative and motivating method that is able to activate students' skills and abilities to all areas of knowledge. They all shared a common point of view: all in all, the advantages of CLIL in the teaching of other subjects overcome its disadvantages, although some implementations are needed which also confirms our initial hypothesis.

This finding is not surprising, since it is in line with our assumptions from previous observation and research (Jiménez-Catalán & Ruiz de Zarobe, 2009).

In light of these results, it can be claimed that we have achieved our main objective confirming our four hypothesis. Children showed striking results in both Science and general English, demonstrating an even better participation in general English, while teachers allege to the benefits of CLIL instruction over its downsides in primary education.

CONCLUSIONES Y CUESTIONES ABIERTAS

La realización de este estudio surge ante la necesidad de una integración completa del aprendizaje de contenido y lengua (Cenoz & Ruiz de Zarobe, 2015) así como de seguir investigando acerca de la adquisición y el aprendizaje de las lenguas extranjeras en el panorama nacional principalmente (Jiménez-Catalán & Ruiz de Zarobe, 2009).

Para poder llevar esta investigación a cabo, hemos revisado estudios similares anteriores así como el enfoque AICLE en el mundo, en España y sus posibles ventajas y desventajas. Se ha realizado un análisis de los diferentes estudios de vocabulario a lo largo de las últimas décadas y lo que han aportado en la actualidad. Para ello, se ha mostrado la importancia del aprendizaje del vocabulario para la adquisición de una segunda lengua así como para un mayor rendimiento académico e incluso para el mejor futuro de los y las estudiantes.

Para responder a los objetivos que plantea este estudio, dos modelos de test distintos fueron adaptados, como el Test 1 (See appendix 2.1. & 2.2.) o diseñados como el Test 2 (See appendix 2.3. & 2.4.) así como una encuesta (See appendix 3) tratando de responder a las hipótesis planteadas sobre la adquisición del vocabulario receptivo y las ventajas y desventajas del modelo AICLE. El estudio respondía a la necesidad de llenar el vacío respecto a las diferencias de vocabulario receptivo entre la asignatura de ciencias y de inglés en un contexto AICLE y lo que el profesorado considera acerca de ello.

Una vez mencionado esto, a lo largo del presente estudio, hemos llegado a tres grandes hallazgos que confirman nuestras cuatro hipótesis. Primeramente, el vocabulario receptivo de los y las estudiantes de Primero de Primaria en un contexto AICLE en ciencias así como en inglés es extraordinario pues los resultados en ambos test muestran un alto porcentaje de respuestas correctas. Asimismo, el dominio del vocabulario receptivo del alumnado de Primero de Primaria es mayor en inglés que en ciencias puesto que los resultados muestran un porcentaje de aciertos mayor en las dos formas de test de inglés que en las de ciencias. Nuestro último hallazgo tiene que ver con la percepción del profesorado acerca del enfoque AICLE pues su opinión apoya nuestro descubrimiento acerca del mayor rango de vocabulario receptivo del alumnado en inglés que en ciencias. Asimismo, el claustro coincide en que los beneficios de AICLE predominan sobre las desventajas de este enfoque.

A la luz de los presentes hallazgos, podemos inferir que la instrucción AICLE con su correspondiente enseñanza contextualizada y significativa de una lengua extranjera, es un enfoque beneficioso para la adquisición y el aprendizaje del vocabulario receptivo. Este hecho concuerda con

previos estudios donde el enfoque AICLE ha mostrado ser beneficioso para la adquisición del vocabulario receptivo (Jiménez-Catalán & Ruiz de Zarobe, 2009; Canga, 2015).

En este sentido, aunque los resultados son muy positivos y coinciden en gran medida con investigaciones anteriores, son necesarios más estudios que exploren concretamente la adquisición y el aprendizaje de vocabulario en ciencias e inglés en un modelo AICLE así como las ventajas de este enfoque para ello, puesto que las diferencias en el presente estudio son muy pequeñas.

Es preciso mencionar también algunas de las limitaciones de este estudio como son el pequeño número de estudiantes que han podido realizar los test, puesto que las clases de primero en este centro educativo eran muy pequeñas así como el corto periodo de tiempo en el que los estudiantes han sido examinados, pues estudios más largos son necesarios para determinar un resultado más claro y preciso. Igualmente, el número de ítems de ambos test también ha sido una limitación puesto que a mayor número de ítems mayor validez tendría el estudio y en este caso solo hemos podido contar con 27 ítems en el Test 1 y 20 en el Test 2 para el área de ciencias y de inglés.

En conclusión, los alentadores resultados presentes en este estudio, junto con previas investigaciones llevados a cabo en España y Europa, necesitan ser confirmados por medio de una indagación más rigurosa que también pueda examinar el proceso de aprendizaje del vocabulario receptivo en un entorno AICLE y no solo el producto final. Igualmente, esta investigación indica que el aprendizaje en un entorno AICLE parece ser más favorable para las habilidades de los alumnos en una segunda lengua aunque algunas ya mencionadas cuestiones quedan aún sin contestar en relación a este área. Por todo ello, más investigaciones son necesarias para poder paliar las limitaciones presentes en este estudio y confirmar los resultados obtenidos.

En definitiva, la metodología AICLE parece ser positiva en lo que respecta a la adquisición del vocabulario receptivo puesto que todo el alumnado puede beneficiarse de este tipo de instrucción y se debería incentivar su implementación desde las instituciones educativas.

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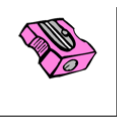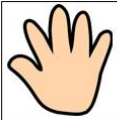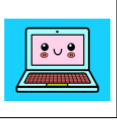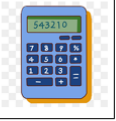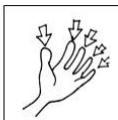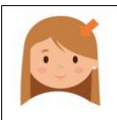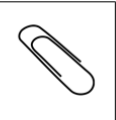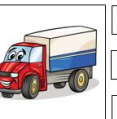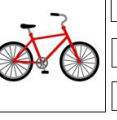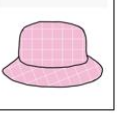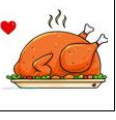
APPENDICES

Appendix 1: Activities to promote students' receptive vocabulary

During the school year, primary 1 students did different activities in order to promote the development of receptive vocabulary.

Appendix 1.1. Circle the correct option

In this activity, learners had different pictures. Next to each image, they had 3 different items: one of them was the name of the object in the picture and the two left were wrong. They had to read the three words and select the one that corresponded to the image. Then, they had to put a token over the correct word. They had different charts with different topics.

Appendix 1.2. Snakes and ladders

Students had to play this boardgame with words they had studied before. They had to roll the dice and read in a loud voice the word of the square until they arrived to the last square. If they did not recognize the word they had to go backwards.
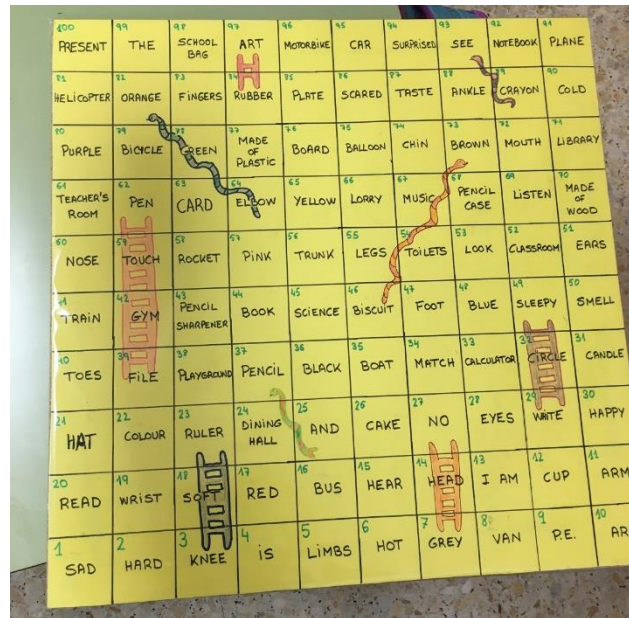
Appendix 1.3. Food dominoes

Students had different small cards with pictures and names of the different food they knew and they had to play dominoes with them. They just had to put all the cards in a line.
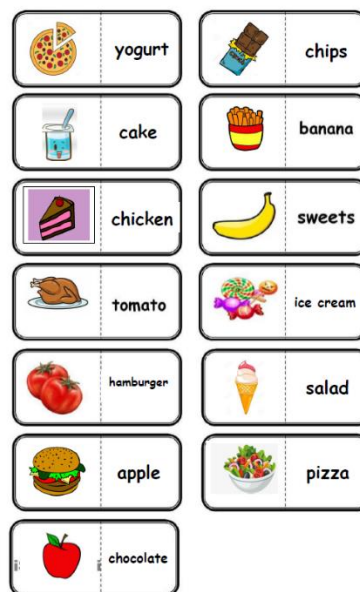
Appendix 1.4. Plants posters

In this activity, students had these four different posters with images. They had the words written in paper so that the objective was to place each word under its corresponding picture.

PARTS OF A PLANT

WHAT DO PLANTS GIVE US?

CYCLE OF PLANTS

NEEDS OF A PLANT

Leaves	Stem	Seeds	
Roots	Flower	Fruit	Love and care
Water	Air	Sunlight	Space
Soil	Paper	Oxygen	Perfume
Wood	Food	Cotton	Medicines
Plants are born	Plants grow	Plants reproduce	Plants die

Appendix 1.5. Classification

In the last activity about receptive vocabulary, students had to read, identify and classify different words according to three different topics: clothes, food and plants.

CLOTHES

FOOD

PLANTS

Roots	Stem	Leaves	Flower
Fruit	Seeds	Chicken	Hamburger
Salad	Chips	Ice cream	Chocolate
Pizza	Apple	Banana	Yogurt
Coat	Hat	Dress	Shirt
Skirt	T-shirt	Socks	Shoes	Tree
Jumper	Trousers	Gloves	Soil	Water
Sunlight	Air	Space	Love and care	Bush	Grass

Appendix 2: Receptive vocabulary tests

Appendix 2.1. Test 1 Science option

- Unanswered version:

Test 1: Science
Cross the incorrect option.

Body	Eyes Ears Toes Helicopter	Smell	Perfume Flower Nose Zebra
Land Animals	Hen Cow Roots Horse	Transports	Taxi Lorry Smell Train
Emotions	Child Happy Scared Angry	The senses	Touch Van Hear Taste
Type of Transports	Air Land Flower Water	Living things	Plants Child Cat Paper
Animals	Duck Crab Mouth Snake	Plants	Seed Soil Lorry Stem
Subjects	Foot Music Science P.E.	School	Toilets Robot Dining room Gym
Where I live	Park Shop Road Science	Types of plants	Boat Tree Bush Grass

Sea animals	Dolphin Elephant Whale Fish	**Routines**	Wash my hands Caretaker Have a shower Brush my teeth
Feelings	Hot Cold P.E. Soft	**Classroom**	Finger Board Computer Teacher
Needs of plants	Taste Love and care Water Air	**Joints**	Knee Pencil case Wrist Ankle
Land Transports	Van Train Space Bus	**Food**	Legs Omnivore Herbivore Carnivore
Utilities of plants	Paper Medicines Perfume Library	**Air Transports**	Helicopter Plane Happy Balloon
Non-living things	Book Paper Rock Person	**Parts of a plant**	Stem Roots Flower Card
Face	Eyes Mouth Chin Toilets		

- Answered version:

1. Cross the incorrect option.

Correct answers: 26
Incorrect answers: 1

Body	Eyes, Ears, Toes, Helicopter	Smell	Perfume, Flower, Nose, Zebra
Land Animals	Hen, Cow, Boots, Horse	Transports	Taxi, Lorry, Smell, Train
Emotions	Child, Happy, Scared, Angry	The senses	Touch, Van, Hear, Taste
Type of Transports	Air, Land, Flower, Water	Living things	Plants, Child, Cat, Paper
Animals	Duck, Crab, Mouth, Snake	Plants	Seed, Soil, Lorry, Stem
Subjects	Foot, Music, Science, P.E.	School	Toilets, Robot, Dining room, Gym
Where I live	Park, Shop, Road, Science	Types of plants	Boot, Tree, Bush, Grass

X

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Sea animals	Dolphin ~~Elephant~~ Whale Fish	Routines	Wash my hands ~~Caretaker~~ Have a shower Brush my teeth
Feelings	Hot Cold ~~P.E.~~ Soft	Classroom	~~Finger~~ Board Computer Teacher
Needs of plants	~~Taste~~ Love and care Water Air	Joints	Knee ~~Pencil case~~ Wrist Ankle
Land Transports	Van Train ~~Space~~ Bus	Food	~~Legs~~ Omnivore Herbivore Carnivore
Utilities of plants	Paper Medicines Perfume ~~Library~~	Air Transports	Helicopter Plane ~~Happy~~ Balloon
Non-living things	Book Paper Rock ~~Person~~	Parts of a plant	Stem Roots Flower ~~Card~~
Face	Eyes Mouth Chin ~~Toilets~~		

Appendix 2.2. Test 1 English option

- Unanswered version:

Test 1 English
Cross the incorrect option

Body		Family	Sister
	Present Foot Leg Ear		Brother Mother Fish
Animals	Sheep Brother Pony Bird	**Small numbers**	Five Chips Seven Three
Clothes	Shirt Smell Handbag Shoe	**Wearing**	Doll Gloves T-shirt Shirt
Birthday	Chicken Plate Cake Candle	**Classroom**	Pencil Crayon Marbles Ruler
Healthy food	Pear Pig Carrot Tomato	**Games**	Ball Marbles Teddy bear Notebook
Shapes	Circle Triangle Arm Rectangle	**People**	Skates Adult Baby Child
Pets	Ruler Dog Cat Rabbit	**Food**	Sandwich Apple Hat Ice cream
Celebration	Biscuit Sandwich Rubber Balloon	**Emotions**	Child Happy Scared Angry
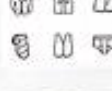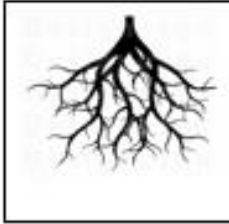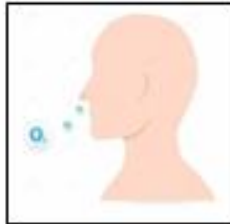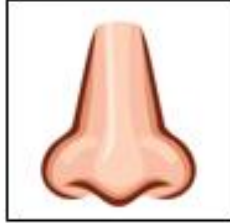
School	School bag Pencil sharpener Notebook Ten	**Classroom supplies**	Table Chair Board Hamburger
Colours	Black Red Tiger Green	**Prepositions**	In On Under Green
Big Numbers 12 15	Nineteen Eleven Silver Eighteen	**Classroom materials**	Pencil Pen Eight File
Directions	Draw Circle Colour Train	**Materials**	Chocolate Plastic Wood Paper
Orders	Socks Tidy up Sit down Silence		
Toys	Banana Robot Computer game Skates		
Instructions	Don't run Hands up! Pig Line up		

- Answered version:

Correct answers: (24)
Incorrect answers: (3)

1. Cross the incorrect option

X

Body		Family	Sister
	Present		Brother
	Foot		Mother
	Leg		Fish
	Ear		

Animals	Sheep	Small numbers	Five
	Brother	1	Chips
	Pony		Seven
	Bird	4	Three

Clothes	Shirt	Wearing	Doll
	Smell		Gloves
	Handbag		T-shirt
	Shoe		Shirt

Birthday		Classroom	Pencil
	Chicken		Crayon
	Plate		Marbles
	Cake		Ruler
	Candle		

Healthy food	Pear	Games	Ball
	Pig		Marbles
	Carrot		Teddy bear
	Tomato		Notebook

Shapes	Circle	People	Skates
	Triangle		Adult
	Arm		Baby
	Rectangle		Child

Pets	Ruler	Food	Sandwich
	Dog		Apple
	Cat		Hat
	Rabbit		Ice cream

Celebration	Biscuit	Emotions	Child
	Sandwich		Happy
	Rubber		Scared
	Balloon		Angry

School		Classroom supplies	
	School bag Pencil sharpener Notebook ~~Ten~~		Table Chair Board ~~Hamburger~~
Colours		Prepositions	
	Black Red ~~Tiger~~ Green		In On Under ~~Green~~
Big Numbers		Classroom materials	
12 15	Nineteen Eleven Silver ~~Eighteen~~		Pencil Pen ~~Eight~~ File
Directions		Materials	
	Draw Circle Colour ~~Train~~		~~Chocolate~~ Plastic Wood Paper
Orders			
	Socks Tidy up Sit down ~~Silence~~		
Toys			
	~~Banana~~ Robot Computer game Skates		
Instructions			
	Don't run Hands up! ~~Big~~ Line up		

Appendix 2.3. Test 2 Science option

- Test 2A: unanswered version
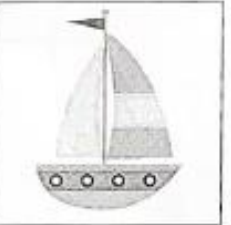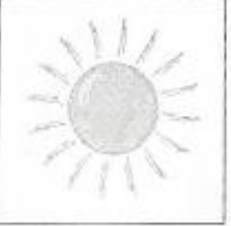
Test 2A Science

Circle the correct option.

Head			Flower
Hand			Leaves
Chin			Roots

Helicopter			Music
Plane			English
Bus			Religion

Perfume			Boat
Medicines			Motorbike
Oxygen			Car

Mouth			Sunlight
Nose			Soil
Knee			Air

Cat			Hear
Chick			Taste
Lion			Smell

- Test 2A: answered version

2. Circle the correct option.

Head			Flower
(Hand)			Leaves
Chin			**(Roots)**

Helicopter			Music
(Plane)			English
Bus			**(Religion)**

Perfume			**(Boat)**
Medicines			Motorbike
(Oxygen)			Car

Mouth			**(Sunlight)**
(Nose)			Soil
Knee			Air

Cat			Hear
Chick			Taste
(Lion)			**(Smell)**

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- Test 2B: unanswered version

Test 2B Science
Write the word under the corresponding place

Fingers – space – monkey – green man – crocodile – see – playground – bike – water - art

- Test 2B: answered version

~~fingers - space -~~ monkey - ~~green man - crocodile - see -~~ playground - ~~bike - water - art~~

Playground

Fingerers

Bike

Water

Space

Crocodile

See
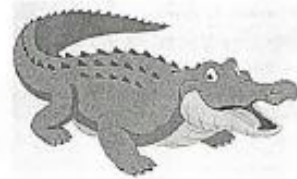
Art

Green man
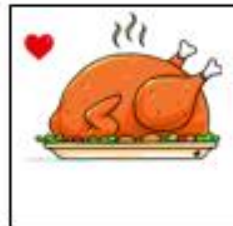
Monkey

Appendix 2.4. Test 2 English option

- Test 2A: unanswered version

Test 2A English

Circle the correct option.

Rubber			Present
Book			Hat
Pencil case			Card

Coat			Pizza
Dress			Chips
Jumper			Chicken

Doll			Fish
Robot			Rabbit
Skates			Hamster

Blue			Arms
Yellow			Legs
Purple			Ankle

Twelve			Baby
Twenty			Mother
Nine			Father

- Test 2A: answered version

2. Circle the correct option. (20)

Rubber			(Present)
(Book)			Hat
Pencil case			Card

Coat			Pizza
Dress			Chips
(Jumper)			(Chicken)

(Doll)			Fish
Robot			(Rabbit)
Skates			Hamster

Blue			(Arms)
Yellow			Legs
(Purple)			Ankle

(Twelve)			(Baby)
Twenty	20		Mother
Nine			Father

- Test 2B: unanswered version

Test 2B English
Write the word under the corresponding picture.

Zebra – pen – cup – milk – boy – skates – pink – sleepy – trousers - legs

- Test 2B: answered version

Milk   Pen   Legs

Pink   Trousers   Cup

Skates   Boy

Zebra   Sleepi

Appendix 3: Teachers' survey

Primary students' vocabulary knowledge in CLIL

Dear teachers,
We would like to invite you to answer the following survey, which is part of a study. Research represents my Final Research Project at UPNA (TFG) and the purpose of the questionnaire is to find out teacher's beliefs and perceptions concerning the difference between primary students' vocabulary knowledge of General English and CLIL or science. In other words, we would like to find out your ideas about how students acquire vocabulary in general English and in science. Are there any differences between their level and their vocabulary knowledge in these two areas/subjects? Thank you for taking the time to answer these questions.

*Obligatorio

What is the GENERAL English vocabulary level of most of your students (in the subject: English (only)? Choose 3 for excellent, 2 for good, 1 satisfying and 0 very low. *

○ 0

○ 1

○ 2

○ 3

What is the (CLIL related) English vocabulary level of your pupils in Science and other CLIL subjects (arts and crafts, PE)?Choose 3 for excellent, 2 for good, 1 for satisfying and 0 for very low. *

○ 0

○ 1

○ 2

○ 3

What are the pros and cons of teaching other subjects in English (Natural Science, Social science, arts and crafts, etc.) for you? *

Tu respuesta

Appendix 4: Tables to gather the results of the test

We gave letters from A to Y to name students in order to protect their personal data.

Appendix 4.1. Science Test 1

Student	Body	Land animals	Emotions	Type of transports	Animals	Subjects	Where I live	Smell	Transports	The senses	Living things	Plants	School	Types of plants	Sea animals	Feelings	Needs of plants	Land transports	Utilities of plants	Non-living things	Face	Routines	Classroom	Joints	Food	Air transports	Parts of a plant	Right answers	Wrong answers
A	1	1	1	1	1	1	0	1	1	1	1	1	1	0	0	1	1	1	1	0	1	1	1	1	1	1	1	23	4
B	1	1	1	0	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	25	2
C	0	1	1	1	0	1	0	0	1	1	0	1	0	1	1	0	0	0	0	1	1	0	1	1	0	0	1	14	13
D	1	1	1	1	0	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	25	2
E	1	0	1	1	1	1	0	0	1	1	1	0	1	1	0	1	0	0	0	0	1	1	1	1	1	1	1	18	9
F	1	1	1	1	1	1	1	0	1	1	1	1	0	1	1	1	1	1	0	0	1	1	1	1	1	1	1	23	4
G	1	1	1	1	0	1	1	1	1	1	1	1	0	1	0	1	1	1	1	1	1	1	0	1	1	1	1	23	4
H	1	0	0	1	0	0	1	1	1	0	1	1	0	1	0	0	0	1	0	0	1	1	0	1	0	1	1	14	13
I	1	1	1	1	1	1	0	0	1	1	0	1	1	1	0	0	0	1	1	0	1	1	0	1	0	1	1	17	10
J	1	1	1	1	1	0	1	1	1	1	0	1	0	1	0	1	1	1	1	0	1	1	1	0	1	1	1	21	6
K	1	1	1	1	1	1	0	1	1	1	0	1	1	1	0	1	1	1	0	0	1	1	0	0	1	1	1	20	7
L	1	1	1	1	0	1	0	0	1	1	1	1	1	1	1	1	1	1	0	0	1	1	1	1	1	1	1	22	5
M	1	0	1	1	0	1	0	1	1	1	1	0	0	0	1	1	1	1	1	1	0	1	1	1	1	1	1	20	7
N	1	1	1	1	1	1	0	1	1	1	0	1	1	1	1	1	1	1	1	0	1	1	0	1	1	1	1	23	4
O	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	26	1
P	1	1	0	0	0	1	0	0	1	0	1	1	0	1	0	1	1	1	0	0	0	1	0	1	0	0	1	13	14
Q	1	1	1	1	1	1	1	1	1	1	0	1	1	1	0	1	1	1	1	0	1	1	1	1	1	1	1	24	3
R	1	1	1	1	1	1	0	0	1	1	1	0	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	23	4
S	0	1	1	0	0	0	0	0	1	1	0	1	0	1	0	1	0	0	1	1	1	0	0	0	1	1	1	13	14
T	1	1	0	1	1	1	0	0	1	1	0	1	0	1	0	0	1	1	0	0	0	0	1	1	1	0	1	15	12
U	1	1	1	1	1	1	0	1	1	0	1	1	1	0	1	1	1	1	1	0	1	1	0	1	1	1	1	22	5
V	1	1	0	1	0	1	1	0	1	1	1	1	0	0	1	1	1	1	0	0	1	1	1	1	1	1	1	20	7
W	0	1	1	1	0	1	1	1	1	1	1	1	1	1	1	0	1	1	0	0	1	0	0	1	1	0	1	19	8
X	1	1	1	1	1	1	0	1	1	1	1	1	1	1	0	1	1	1	0	0	1	1	0	1	1	1	1	23	4
Y	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	26	1
Total right answers	22	22	21	23	13	22	11	15	25	22	16	21	15	21	14	18	23	21	14	9	21	22	14	21	20	21	25		

Appendix 4.2. English test 1

Student	Body	Animals	Clothes	Birthday	Healthy food	Shapes	Pets	Celebration	Family	Small numbers	Wearing	Classroom	Games	People	Food	Emotions	School	Colours	Big numbers	Directions	Orders	Toys	Instructions	Classroom supplies	Prepositions	Classroom materials	Materials	Right answers	Wrong answers
A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	27	0
B	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	26	1
C	1	1	1	1	1	1	1	0	1	0	0	0	1	1	1	0	1	1	1	1	0	1	0	0	1	1	1	19	8
D	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	26	1
E	1	0	0	1	0	1	1	0	1	0	1	0	1	1	0	1	0	1	1	1	1	1	1	1	0	1	1	18	9
F	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	27	0
G	1	0	0	1	0	1	1	0	1	1	0	1	1	1	0	1	1	1	1	0	0	1	0	0	1	1	1	17	10
H	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	26	1
I	1	0	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	0	1	1	1	1	1	1	1	24	3
J	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	26	1
K	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	25	2
L	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	27	0
M	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	27	0
N	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	25	2
O	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	26	1
P	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	1	0	1	0	1	22	5
Q	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	27	0
R	1	0	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	0	1	23	4
S	1	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	1	1	0	0	1	0	0	1	0	0	0	8	19
T	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	0	1	0	0	1	1	0	21	6
U	1	1	1	1	1	1	1	1	1	0	1	1	1	0	1	1	1	1	1	0	0	0	1	1	1	1	1	22	5
V	1	1	0	1	0	1	1	1	1	1	1	1	1	0	1	0	1	0	0	1	1	1	1	1	1	1	1	21	6
W	1	0	1	0	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	0	0	1	1	1	1	1	1	22	5
X	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	26	1
Y	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	26	1
Total right answers	25	19	18	22	21	23	24	21	24	22	23	22	24	21	22	21	23	22	21	19	16	23	20	21	23	22	22		

Appendix 4.3. Science test 2

Student	Hand	Plane	Oxygen	Nose	Lion	Roots	Music	Boat	Sunlight	Hear	Playground	Fingers	Bike	Water	Space	Crocodile	See	Art	Green man	Monkey	Right answers	Wrong answers
A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	20	0
B	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	20	0
C	1	1	1	1	1	1	0	0	0	1	1	1	1	1	0	1	1	1	0	1	15	5
D	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	20	0
E	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	19	1
F	1	1	1	1	1	1	1	1	0	1	0	1	1	1	1	1	1	1	1	1	18	2
G	1	1	1	1	1	1	0	1	1	0	1	1	1	1	1	1	1	1	1	1	18	2
H	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	19	1
I	1	1	0	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	18	2
J	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	19	1
K	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	20	0
L	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	19	1
M	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	20	0
N	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	20	0
O	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	20	0
P	0	1	0	1	1	1	1	1	0	1	0	1	0	1	1	1	0	1	1	1	14	6
Q	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	20	0
R	1	0	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	18	2
S	1	1	1	1	1	1	1	1	0	0	0	1	1	1	0	1	1	1	1	1	16	4
T	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	19	1
U	1	0	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0	1	1	1	17	3
V	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	19	1
W	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	19	1
X	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	20	0
Y	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	20	0
Total right answers	23	20	23	25	25	25	23	24	16	23	22	25	24	25	22	25	23	25	24	25		

Appendix 4.4. English test 2

Student	Book	Jumper	Doll	Purple	Twenty	Present	Chicken	Rabbit	Arms	Baby	Cup	Pen	Legs	Pink	Trousers	Milk	Skates	Boy	Zebra	Sleepy	Rigth answers	Wrong answers
A	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	20	0
B	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	20	0
C	0	0	1	1	1	1	1	1	0	0	1	1	1	1	0	1	1	1	1	0	14	6
D	1	0	1	1	0	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	17	3
E	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	20	0
F	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	19	1
G	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	20	0
H	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	20	0
I	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	20	0
J	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	20	0
K	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	19	1
L	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	20	0
M	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	19	1
N	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	20	0
O	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	20	0
P	1	1	1	1	0	1	1	1	0	0	1	1	1	1	1	1	1	1	1	1	17	3
Q	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	20	0
R	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	20	0
S	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	19	1
T	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	20	0
U	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	20	0
V	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	19	1
W	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	20	0
X	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	20	0
Y	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	20	0
Total right answers	24	22	25	25	22	25	25	25	23	19	25	25	25	25	24	25	25	25	25	24		