CLILNetLE

DIGITAL PRACTICES IN AND OUT OF THE CLIL CLASSROOM: SPAIN

A Report by CLILNetLE Working Group 4

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NOTE. This country report presents results from the Spanish dataset, collected as part of two pan-European surveys administered by WG4 of the COST Action CLILNetLE. For the main report see *Digital Practices in and out of the CLIL Classroom: A pan-European survey of students and teachers*.

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1. Digital Literacies Student Survey (DLSS): Spain

1.1. Introduction

The DLSS was administered between April and May 2024 in different regions of Spain, namely Catalonia, Asturias, Cantabria, Basque Country, and Madrid. We obtained responses from 173 students in primary and secondary education schools. School administrators and/or teachers were contacted by the researchers via email or phone to recruit the student participants.

Due to Spain's organisation in autonomous regions, different procedures were followed to access the schools to collect data with underaged students. For instance, in Catalonia, where CLIL has been widely implemented for over three decades (Departament d'Educació de la Generalitat de Catalunya, 2019), a formal request had to be submitted to the local government to obtain permission to access schools (Departament d'Educació de la Generalitat de Catalunya, 2020). Once such permission was granted, the researchers were able to contact the schools to recruit the student participants. Our student participants in Catalonia came from six different schools of different types: two public, three semi-private, and one international. The public and semi-private schools implemented CLIL from Grade 3 in primary onwards, while the international school had English as the main language of instruction through all grades.

As for Asturias, where CLIL is less widespread, one school participated providing data from 12 student participants from one public school. In this region, CLIL is offered as a bilingual choice that students can be enrolled in, which leads to fewer students following CLIL programmes. Despite that, it has been gaining ground through schools' adherence to the bilingual program promoted by the local government (Consejería de Educación, Cultura y Deporte del Gobierno del Principado de Asturias, 2015).

In Cantabria, there are currently 56 bilingual programmes at infant and primary education levels and 46 in secondary (Consejería de Educación, Formación Profesional y Universidades de Cantabria, n.d.). First, we contacted the regional ministry of education for authorization, who then sent us a parental consent form to send to participants under the age of 14. We reached both primary and secondary schools with bilingual programmes. In this case, we found it difficult to find schools that were willing to participate, due to the time constraints for the administration of the survey, the time of the year when it was administered, and the school's willingness to ask for parental consent. Thus, we contacted two primary and two secondary schools with CLIL programmes, but only one high school participated.

Finally, we were able to reach schools in Madrid, where researchers shared the questionnaire with two public secondary schools with bilingual education programmes. Both participating schools offer two programmes, depending on students' profiles. One programme is more

academically-oriented, using English to teach Science, Technology, or History, while the other programme is more practically-oriented, and students learn Physical Education, Arts, or Music through English as a foreign language (Gülle & Nikula, 2024).

In spite of being able to gather responses from a fair amount of student participants (*N*=173) from a variety of regions in Spain, we originally aimed for a larger and more balanced number. However, since the survey was administered between April and May, it coincided with state standardised testing in schools, and the end of the academic year. These challenges entailed an additional workload for teachers, as well as a more complex scheduling of the data collection sessions within the school. As such, the number of schools providing student data is smaller than the number of schools whose teachers answered the DLTS. Despite that, the 173 student responses gathered are illustrative of the CLIL reality in Spain, as they come from different geographical regions and different school types (private, semi-private, international), and implement different models of CLIL (Renau & Mas, 2019).

1.2. Summary of main findings

- The majority of the students accessed the internet daily at home and at school.
- Smartphones were the most popular technology device used daily by students outside of school, with nearly half reporting daily use. While laptops and smart TVs were used quite frequently, desktops and smart home technologies were not used as much.
- Laptops were the most commonly used device at school, as most students used them daily or a few times a week. Mobile phones, tablets, and desktops were used less frequently. Roughly half of the students never used them at school.
- Online music was the activity that students thought was most important to support their CLIL learning. Also, social media use, phone-based apps use, video streaming, and online video consumption were considered important.
- The most common CLIL language was English, and Language and Sports were the most commonly taught subjects in this language, followed by Natural Science, Social Science, and Technology.
- Students perceived CLIL lessons prioritise language over content learning, but they felt the aim of learning the CLIL language was to master the content of the subject.

1.3. Participant background

The following histogram provides an account of the **age** of our participants. Students were asked to share their age, which we have grouped according to the educational stage they belong to. As can be seen, the entire sample of students were between 9 and 16 years old. Four participants did not share their age.

Age range
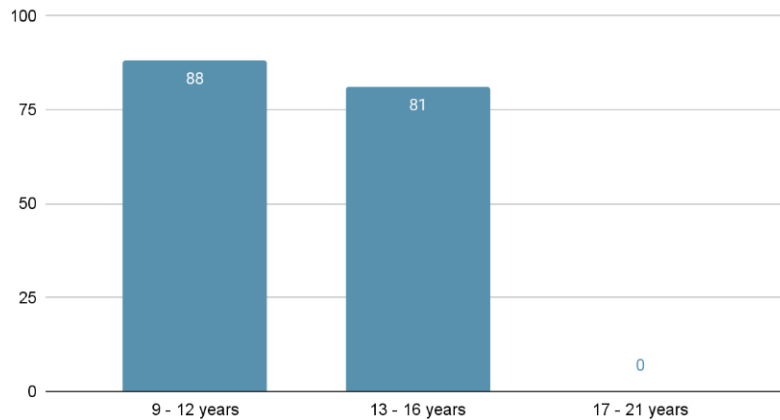
The following chart represents the **gender** of participants in percentages. As shown, most of our sample of students were female (*N*=93, 53.8%), while the rest were male (*N*=73, 42.2%), other (*N*=2, 1.2%) or preferred not to say (*N*=5, 2.9%).

Gender
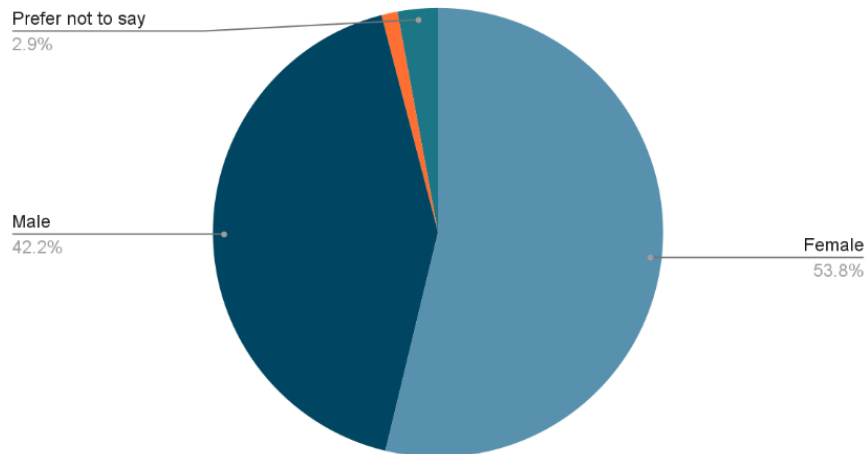
Participants were asked to choose the **highest level of education** that **their parents** had. As the histogram below shows, most students reported their parents having a university degree, such as a Bachelor's (*N*=88), a Master's (*N*=21), or a PhD (*N*=11). The remaining participants shared that the highest level of parents' education was an upper (*N*=16) or a lower secondary degree (*N*=6). Lastly, one participant chose primary education (*N*=1) as their parents' highest education level, while the remaining 30 participants from the Spanish sample did not answer this question, presumably, because they did not know the actual level of education of their parents.

Parents' education
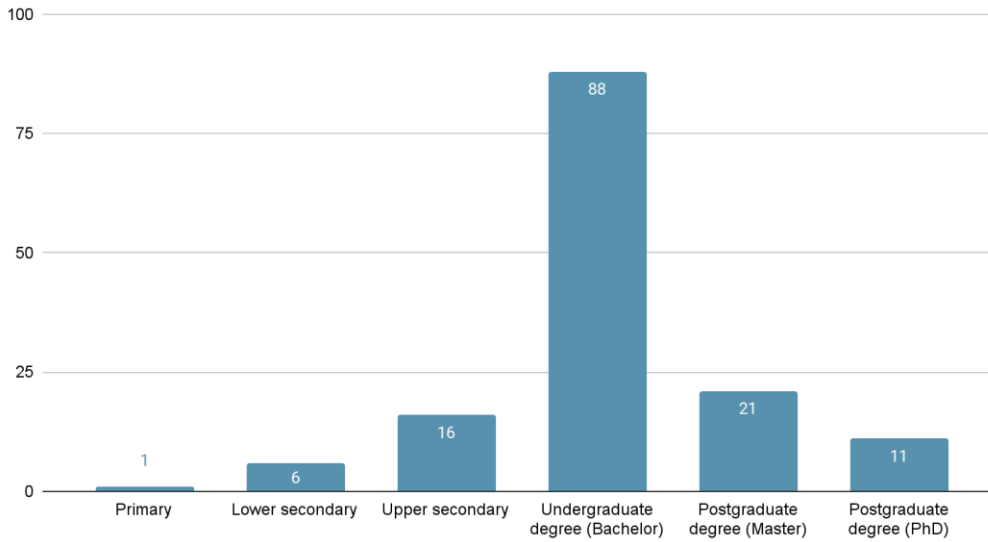
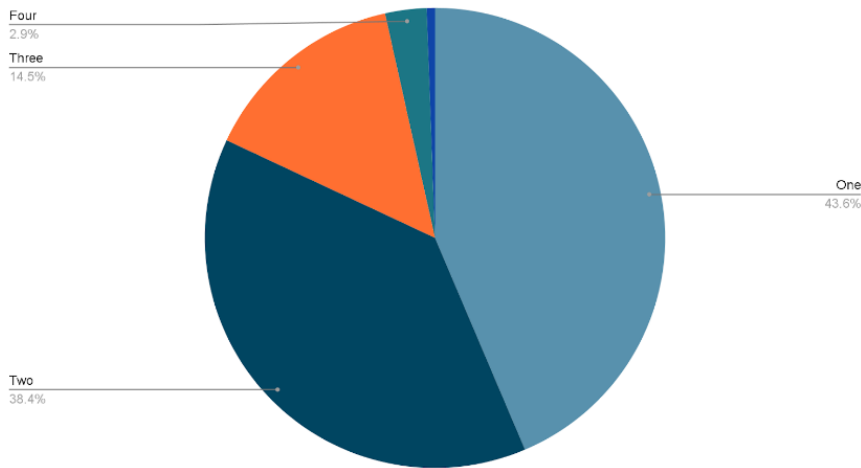The chart below shows all the **languages** that participants (*N*=172) reported using **at home**. As can be seen, the most spoken home languages were Spanish (*N*=135), and Catalan (*N*=114), followed by English (*N*=30), and other languages (*N*=10).

Languages used at home
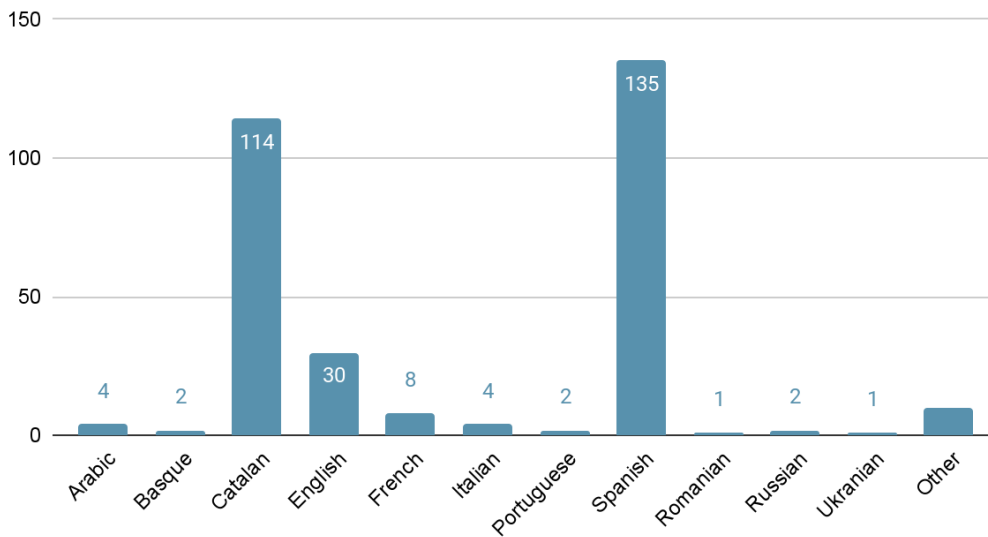
It is important to note that more than a half of the students asked (*N*= 97, 56.4%) spoke more than one home language, as seen in the chart below.

Number of home languages

Next, participants had to select all the **languages** that they **used with family or relatives** who **lived elsewhere**. As the chart below shows, in this case, Spanish (*N*=112), and Catalan (*N*=72) were again the most used languages, followed by English (*N*=30). It is interesting to note that different languages came up in this question, such as Galician (*N*=5), German (*N*=4), Hungarian (*N*=1), and Norwegian (*N*=1), which might imply that some participants could speak more languages than those used at home and at school.

Languages used with family elsewhere
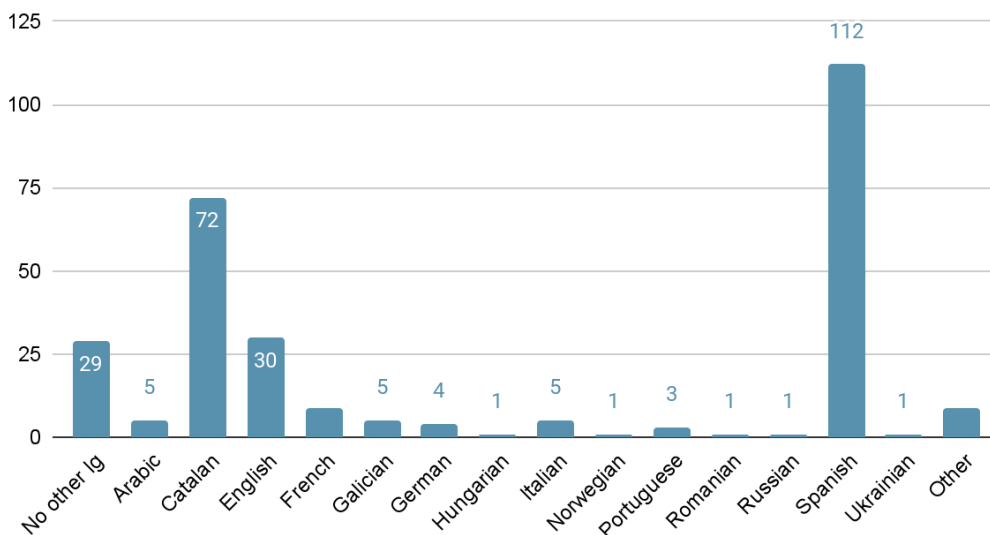
The chart below represents the **main languages of schooling**, with the only options chosen by all participants (*N*=172, 1 missing) being Catalan (*N*=147, 85.5%), and Spanish (*N*=25, 14.5%). This answer illustrates that most participants who answered the DLSS were from Catalonia, where Catalan is one of the two co-official languages, and the main language of schooling, according to the Catalan immersion model.

Language of schooling

Spanish
14.5%

Catalan
85.5%
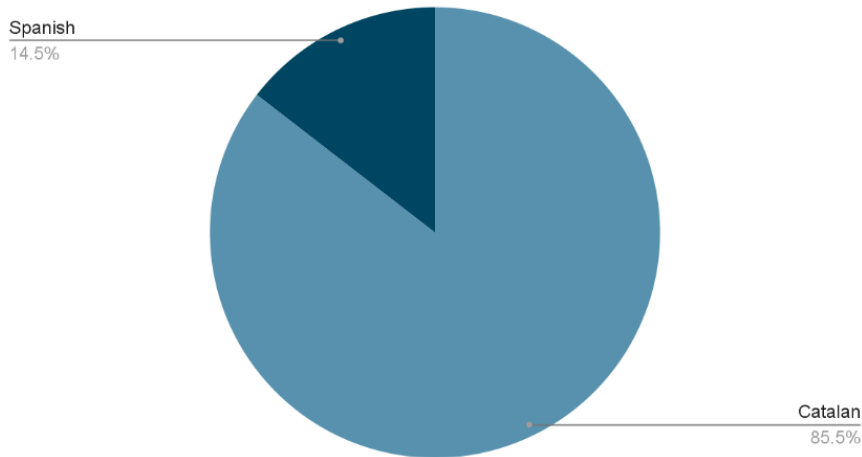
Next, participants (*N*=172) were asked to select their **school year** by counting upwards from the first year they started primary school until they reached the year that they were in at the moment. The following histogram shows that the majority of DLSS respondents in Spain were enrolled in primary education (*N*=101, 59%), which is year 4 (*N*=43, 25.6%), year 5 (*N*=31, 18.5%), and year 6 (*N*=25, 14.9%). As for the other participants who presumably attended secondary school, most respondents reported they were in their year 10 (*N*=17, 10.1%), year 11 (*N*=9, 2.4%), and year 13 (*N*=15, 8.9%) of schooling. However, these responses may not be fully accurate since in Spain there are only 12 grades, so we can assume that those students who typed 13 misunderstood the question, and it is likely that they typed in their age instead of their grade year.

School year enrolment
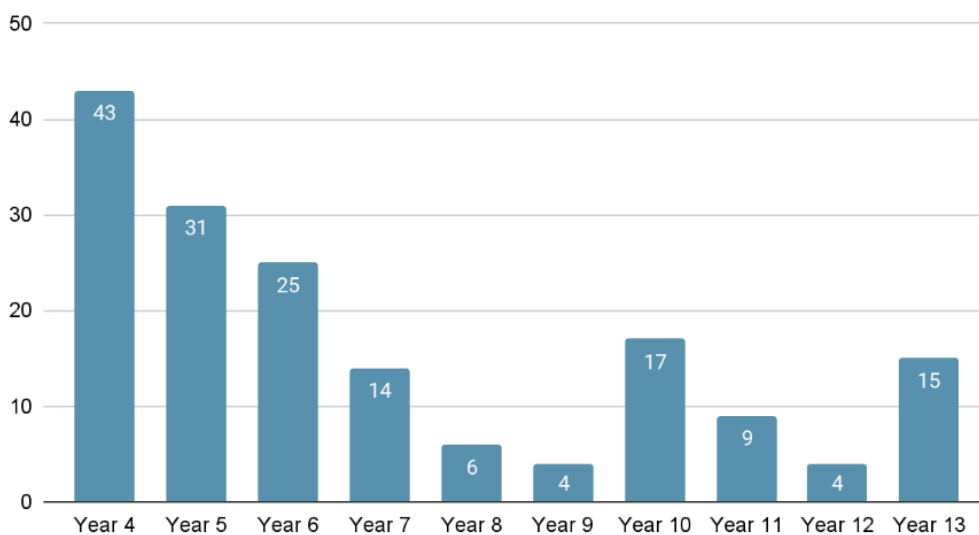
The pie chart below shows **where the participants' schools were located**. As can be seen, the majority of participants attended schools in urban areas (*N*=144, 85.2%) or in the suburbs (*N*=24, 14.2%), while only one participant reported attending a rural school (*N*=1, 0.6%). These numbers represent the sample of schools where the DLSS was sent to in Spain, which were mostly located in urban areas of different Autonomous Communities.

Rural
0.6%
Suburbs
14.2%

Urban
85.2%
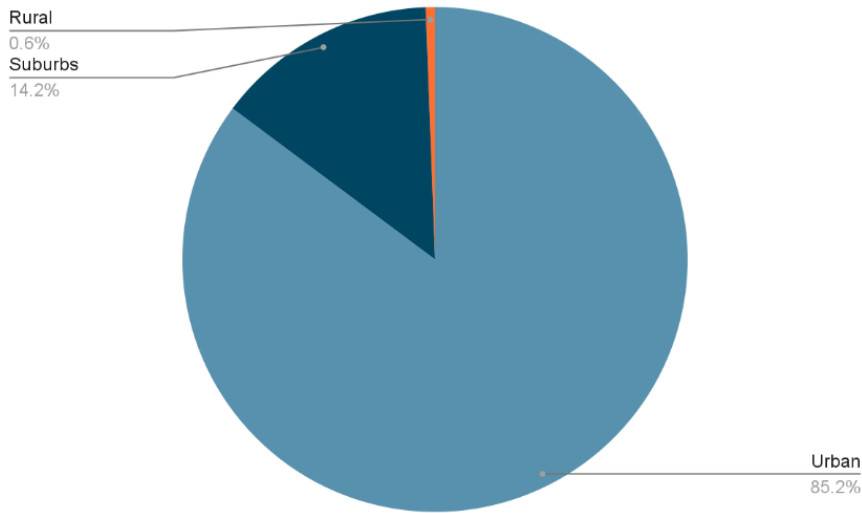
1.4. Participants' CLIL learning experience

The chart below shows the **main CLIL languages** used at the participants' schools. As can be seen, most participants (*N*=150, 86.7%) reported that English was the main CLIL language in their schools. Other languages were Catalan (*N*=15, 8.67%), Spanish (*N*=6, 3.47%), and French (*N*=1.16%).

CLIL languages

150

150

100

50

15

6

2

0

English   Catalan   Spanish   French
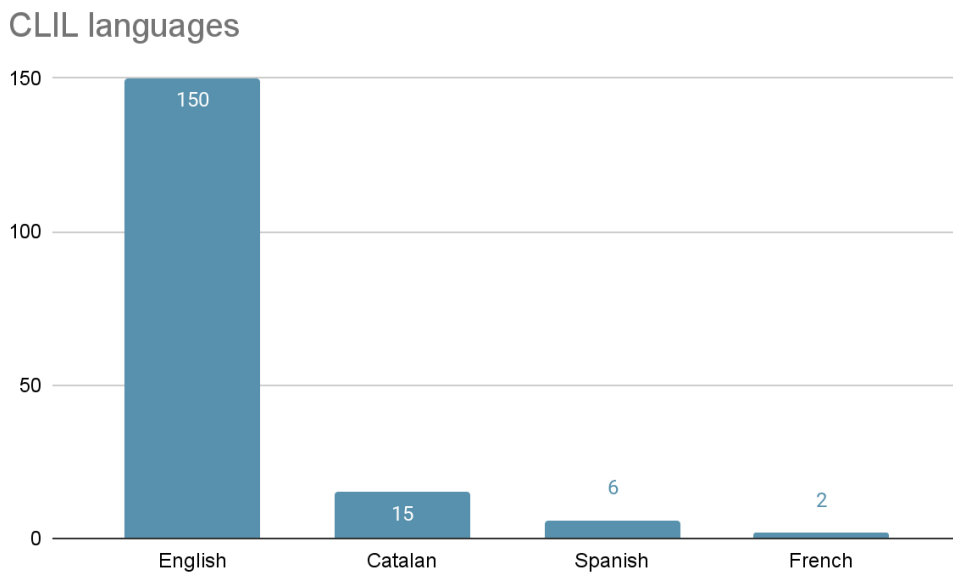
Students were also asked about the **subjects** they learned **in the main CLIL languages** reported above. The following chart provides a summary of these results. We can observe that all content subjects were taught in English to some extent. Language *(N*=76) and Sports *(N*=61) were the most commonly taught subjects in this language, followed by Natural Science (*N*=56), Social Science (*N*=53), and Technology (*N*=49).

Main CLIL subjects
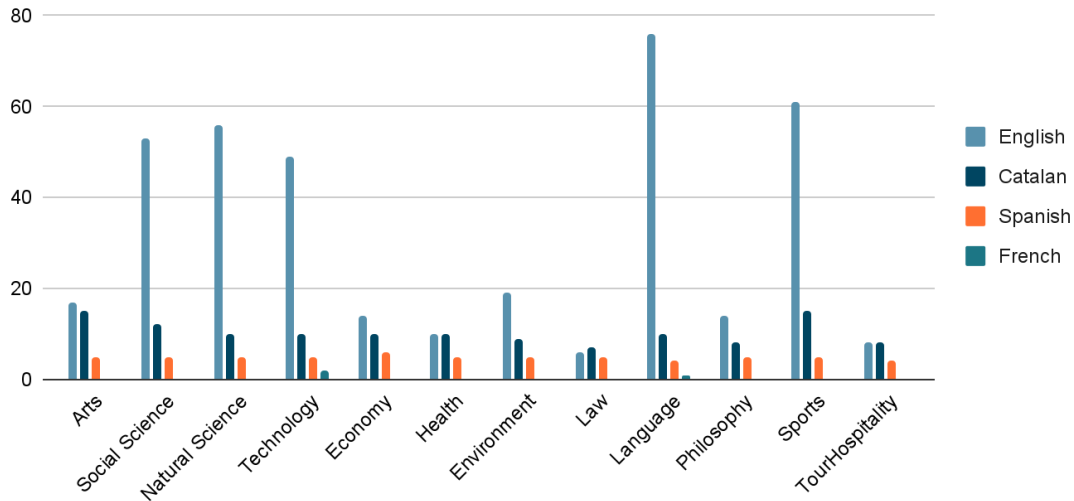
The following question referred to the **main aim of CLIL lessons** at their schools. Participants selected (using a '1' to '100' scale) whether CLIL lessons focused more on language learning ('1') or on content learning ('100') by moving the slider towards the end they felt better represented the objective of CLIL lessons.

On the table below, we observe that, on average, students reported that their CLIL lessons focused more on language than on subject content (*M*=46.48), contrary to what teachers reported in the DLTS, who reported focusing more on content than on language teaching and learning in their CLIL lessons.

Aim of CLIL lessons: language and subject contents	
Valid	161
Missing	12
Mean	46.48
Std. Deviation	32.44
IQR	54.00

In the following question, participants were asked (using a '1' to'100' scale) about the extent to **which language was used in CLIL lessons**, indicating whether it was to learn the language ('1') or to learn subject content ('100').

In this case, respondents considered the use of language in CLIL lessons aimed at learning subject content (*M*=60.85). Therefore, while they still perceived CLIL lessons to be more focused on language than content learning, students thought they learned the target language to master the content of the subject.

Extend of CLIL language use	
Valid	157
Missing	16
Mean	60.85
Std. Deviation	27.44
IQR	43.00

1.5. Focus on spare time

Student participants were asked to reflect about the **digital activities** that they engaged with **in their free time on a daily basis**. To do so, they were given a list of activities (listed in the frequency table and chart below) and asked to indicate how important they were for developing their skills in CLIL subjects in their first CLIL language. They were asked to use a three-level likert scale from 1 to 3 ('1'=important, '2'=moderately important, '3'=not important).

When interpreting the results below, it is important to note that it was not mandatory for students to rate each device, which is why the number of answers are rather low, compared to our total sample of 173 participants. However, such results can be interpreted as a subsample of the whole and provide a representation of what we would expect our full sample results to look like.

As can be seen, online music was the activity that students thought was most important to support their CLIL learning, with more than 30 participants rating it as 'important' (*N*=15) or 'moderately important' (*N*=17). After this, there were four other activities that were rated high by between 20-30 participants: social media use, phone-based apps use, video streaming, and online video consumption and sharing.

Digital activities	Important		Moderately important		Not important	
	N	%	N	%	N	%
Social media	8	4.6%	18	10.4%	3	1.7%
Phone-based apps	9	5.0%	15	8.7%	4	2.3%
Instant messaging	10	5.8%	5	2.9%	4	2.3%
Single-player online gaming	2	1.25%	4	2.3%	2	1.25%
Multiplayer online games	7	4.0%	4	2.3%	4	2.3%
Video streaming	13	7.5%	8	4.6%	5	2.9%
Online video	12	6.9%	11	6.4%	3	1.7%
Online music	15	8.7%	17	9.8%	6	3.5%
Online shopping	12	6.9%	7	4%	1	0.6%
Mobile photography	5	2.9%	5	2.9%	3	1.7%
Digital storytelling	3	1.7%	1	0.6%	0	0%
Online forums	4	2.3%	1	0.6%	1	0.6%
Online research & learning	7	4.0%	4	2.3%	4	2.3%
Free educational apps	6	3.5%	2	1.25%	3	1.7%
Online research & learning	7	4.0%	4	2.3%	4	2.3%
Free educational apps	6	3.5%	2	1.25%	3	1.7%
Paid educational apps	3	1.7%	1	0.6%	1	0.6%
Online courses	2	1.25%	1	0.6%	0	0%
Digital projectors & whiteboards	3	1.7%	4	2.3%	1	0.6%
E-textbooks	3	1.7%	3	1.7%	1	0.6%
E-book readers	4	2.3%	3	1.7%	1	0.6%
Digital reading devices	1	0.6%	2	1.25%	1	0.6%
VR & AR	4	2.3%	3	1.75%	0	0%
AI-based technologies	9	5.05	1	0.6%	1	0.6%

The following stacked bars plot visually represents the data reported in the previous table.

Spare time activities that support CLIL learning
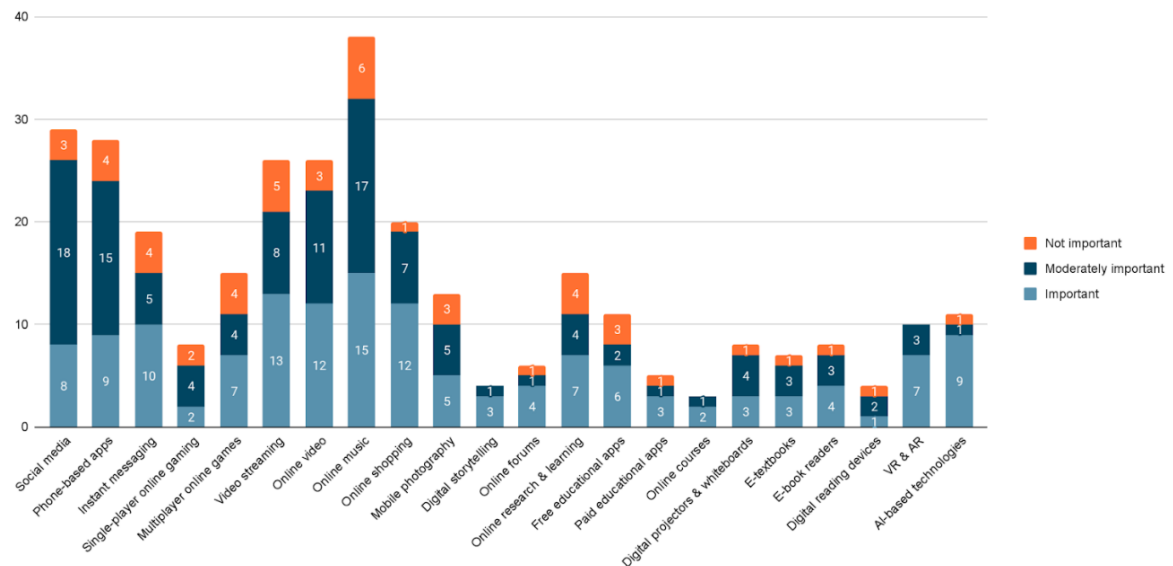
1.6. Access to digital devices in and out of school

Regarding students' access and use of digital devices in and out of school, they were first asked how often they **accessed the internet** in a range of different settings (i.e., at home, at school, in a public setting). The chart below shows that the majority of the students accessed the internet 'daily' either from a public room at home (*N*=110, 64%) or from their own room at home (*N*=100, 58%). After these, school was the next place where students accessed the internet most commonly on a 'daily' basis (*N*=59, 35%) or 'a few times a week' (*N*=28, 16%).

Frequency of internet access
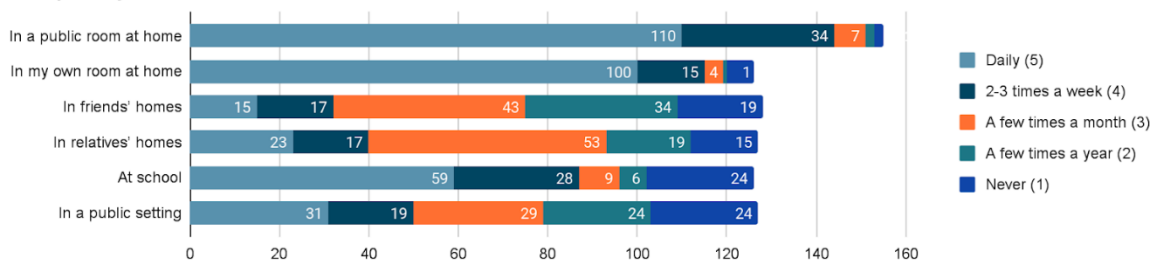
While the previous question was more general, we were interested in knowing which **digital devices** students used in and out of school and with which frequency. Thus, they were asked to indicate, for each of the two settings, how often they used the following devices: mobile phone, tablet, computer (laptop and desktop), games console, smart watch, e-book reader, smart TV, and smart home technologies.

The chart below illustrated students' use of the above-mentioned technology devices **outside of school**. As can be seen, the most common ones that students use 'daily' were mobile phones (*N*=76, 44%), laptops (*N*=83, 48%), and smart TVs (*N*=61, 35%), followed by desktop computers (*N*=35, 20%), and smart home technologies. On the contrary, there was very little use of other devices, which the majority of the students indicated that they 'never' used, such as e-book readers (*N*=123, 71%), and smartwatches (*N*=103, 60%).

Frequency of use outside of school
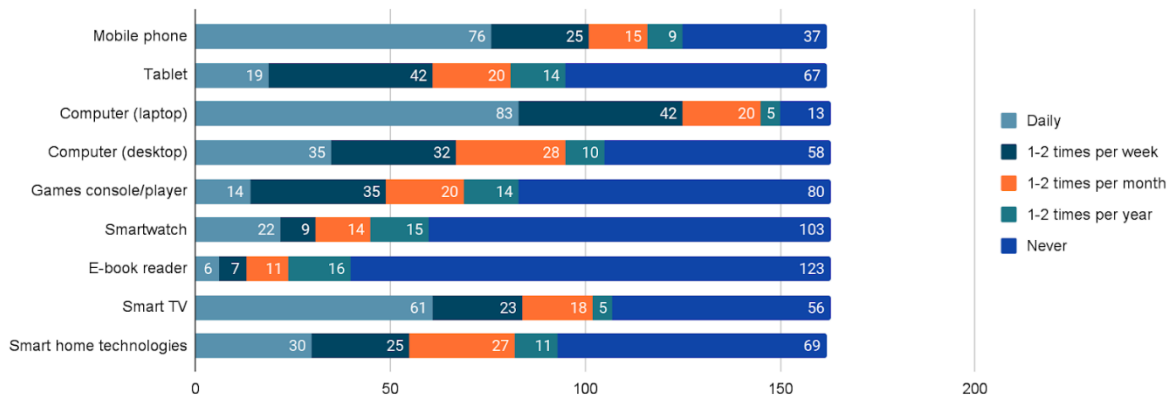
When examining the students' use of the same digital devices **in school**, the picture changed significantly, as can be seen in the chart below. Following the trend of their home use, laptops were the digital devices used most frequently, with 86 students (50%) indicating that they used it 'daily', and 40 other students (23%) indicating that they used it '1 or 2 times per week'. As for mobile phones, tablets, and desktop computers, between 48% and 54% of the student participants indicated that they 'never' used them at school, while the other half of participants indicated that they used such devices with varying frequency (from '1-2 times a year' to a 'daily' basis) at school. Finally, the vast majority of the students indicated 'never' using most of the other devices at school; that was the case of games consoles (*N*=141, 82%), smartwatches (*N*=128, 74%), e-book readers (*N*=125, 73%), smart TVs (*N*=120, 39%), and smart home technologies (*N*= 133, 77%).

Frequency of use at school
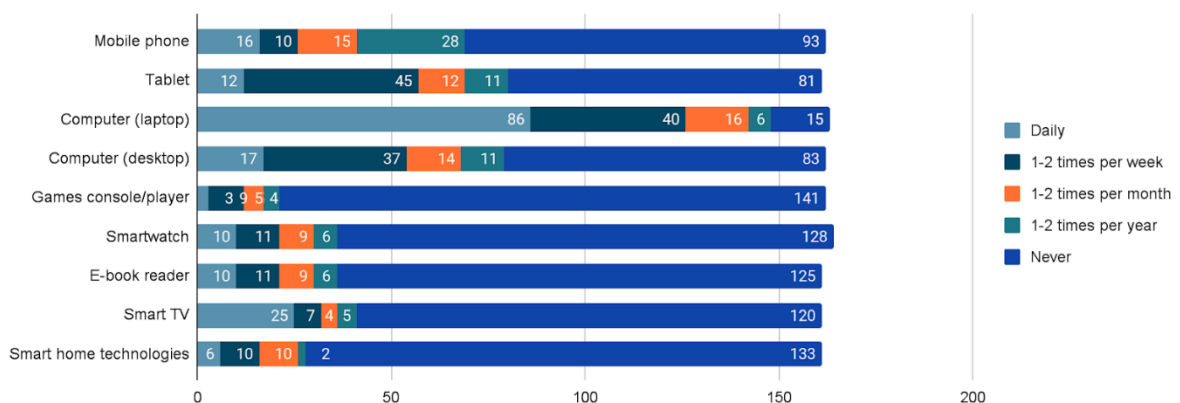
1.7. Challenges when using digital technologies

To examine which **challenges** students faced when using digital technologies in and outside of school, they were asked to organise a list of challenges into three categories ('always a challenge', 'sometimes a challenge', and 'never a challenge'), according to how often they faced them. The stacked bars plot below illustrated the results. As it can be seen, a minority of participants (between 18 and 39 out of 173) indicated that the challenges listed were 'always a problem'. However, a bigger number (between 56 and 71 out of 173) mentioned that they were 'sometimes a problem'.

The graph also shows that the challenges that our sample of participants seemed to face more often were related to limited internet connectivity at school, time constraints, school policies and restrictions (e.g., banned phones), and privacy and security concerns. On the other hand, the challenges faced less often were related to budget constraints, their limited IT skills, and parents' reluctance and/or resistance to change and adapt to new technologies.

Challenges when using digital technologies
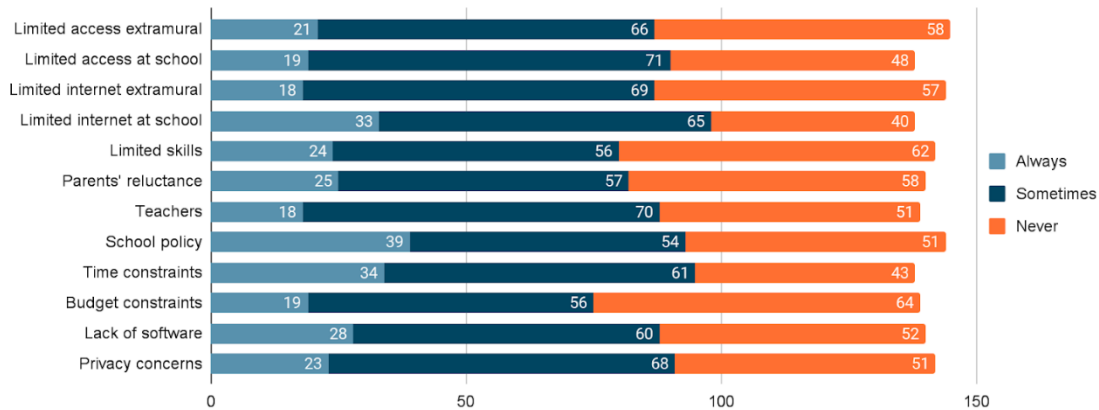
2. Digital Literacies Teacher Survey (DLTS): Spain

2.1. Introduction

The DLTS was administered in different regions of Spain between March and May 2024, and full responses were obtained from 34 primary and secondary education teachers. More specifically, the DLTS was distributed to schools in five autonomous regions: Catalonia, Asturias, Cantabria, Basque Country, and Madrid. School administrators and/or teachers were contacted by the researchers via email or phone, and they were presented with the project and survey. Because each autonomous region in Spain has different autonomic regulations regarding accessing schools for research purposes, different procedures were followed.

For example, in the case of Catalonia, private and semi-private schools could be contacted directly by the researchers, but public schools recruitment could only start after being granted permission by the local government, namely the Generalitat de Catalunya (Departament d'Educació de la Generalitat de Catalunya, 2020). Such a procedure delayed the start of the data collection in Catalonia, which ended up overlapping with standardised testing in primary schools, which, consequently, resulted in very few schools accepting to participate. Despite that, the final sample of schools from this region included eight schools (and 24 teachers) of different types: three public, three semi-private, and two international schools. This varied sample provides a good sample of the types of schools that currently implement CLIL in Catalonia (Departament d'Educació de la Generalitat de Catalunya, 2019), where this approach is widely implemented from Grade 3 in primary until Grade 12 in secondary school (Lorenzo & Piquer, 2013).

In other regions, such as Asturias, CLIL is traditionally implemented in fewer schools, although there has been an increasing adherence of schools to the "Programa bilingüe" by which CLIL is promoted (Consejería de Educación, Cultura y Deporte del Gobierno del Principado de Asturias, 2015). These schools offer a bilingual option to students, which usually entails one to four school subjects being taught in English through CLIL in primary and secondary schools (Hompanera, 2023). In this region, school recruitment followed a different approach: the researchers reached out to a public school through a personal contact. In this specific school, very few students followed the bilingual option and the number of CLIL teachers was very reduced, which led to a smaller sample of teacher participants from this region, namely only two teachers.

Similarly, in Cantabria and Madrid, researchers also reached out to teachers they knew personally and who worked at bilingual schools (both in primary and in secondary). While the number of final responses was not large, we were able to reach out to teachers in four schools in Cantabria (two public and two semi-private) and in two high schools in Madrid with bilingual programmes. In two schools, the coordinators of the bilingual program (or CLIL program) disseminated the questionnaire amongst all CLIL teachers in their schools.

Finally, we were able to reach a semi-private school in the Basque Country, one of the bilingual (Spanish-Basque) communities in Spain, through a personal contact. The school followed the linguistic model B, in which normally all subjects except Mathematics are taught through Basque (Cenoz, 2023). In the case of this school, some subjects were also taught in English.

In sum, CLIL is a well-established approach in Spain and has been implemented in the country for over three decades (Lasagabaster & Ruíz de Zarobe, 2010; Palacios-Hidalgo, et al., 2022). The complex diversity between Spain's autonomous regions has led to CLIL being implemented differently across regions (e.g., weekly intensity, percentage of schools; Renau & Mas, 2019). Such diversity was captured in the sample that responded to the DLTS.

2.2. Summary of main findings

- The technical devices that teachers used the most at school were mobile phones, laptops, tablets, and desktop computers.
- Teachers used digital projectors and whiteboards in all their CLIL lessons, and they used platforms for online research and virtual learning several times per week, with an average time of 20 minutes per lesson.
- Most teachers considered their knowledge of digital tools for feedback as average.
- Teachers believed that their students' use of technology benefited their bi-/multilingual disciplinary literacy and language skills in the CLIL language.
- Only 7% of teachers had heard of critical digital literacies (CDL), who reported mostly discussing with their students how to be safe online.

2.3. Participant background

The following figure illustrates the **gender** (in percentages) of the teachers who responded to the DLTS in Spain. As can be seen, the vast majority of teachers were female (*N*=27, 79%), while the rest were male (*N*=6, 18%) or preferred not to say (*N*=1, 3%).

Gender

Prefer not to say
2,9%
Male
17,6%
Female
79,4%
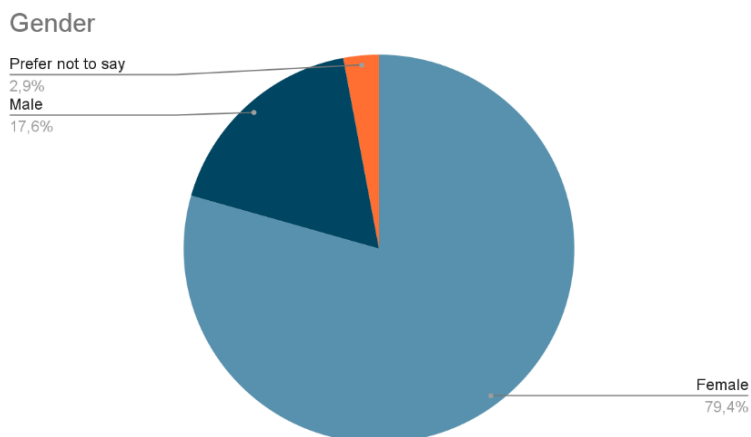
Regarding the **participant's L1s**, since the DLTS was administered in different monolingual and bilingual regions of Spain, our teachers' sample reflects this reality: it included teachers that defined themselves as monolinguals (*N*=13, 38%) and bi/multilinguals (*N*=21, 62%). Among the monolingual teachers, three different L1s were selected: Spanish (*N*=9, 26%), Catalan (*N*=2, 6%), and English (*N*=2, 6%). The bi/multilingual teachers selected different combinations of L1, which can be seen in the pie chart below. It is worth highlighting, however, that the most common combinations of L1s were, first, Catalan & Spanish (*N*=9, 26%), and second, Catalan, Spanish & English (*N*=6, 18%).
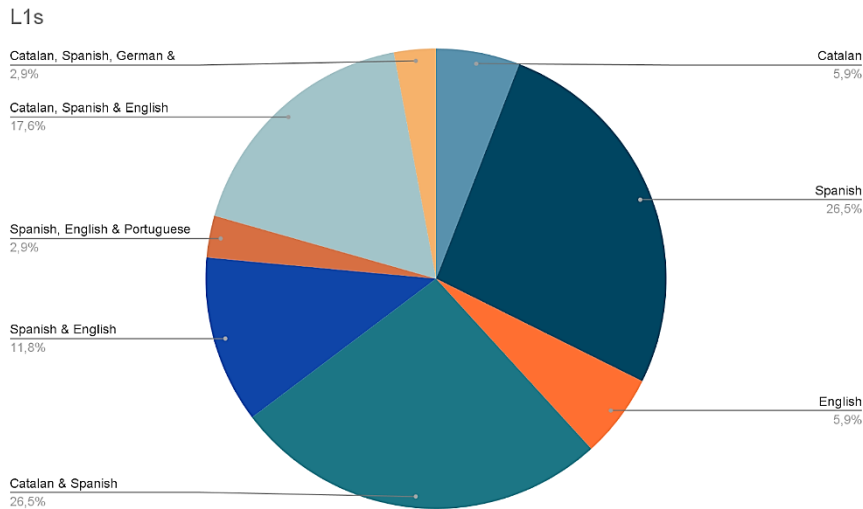
The histogram below represents the **official languages of schooling**, with the most common options being English (*N*=12, 35%), Catalan (*N*=10, 29%), and Spanish (*N*=8, 24%). Similarly to the question before about the teachers' L1s, the official languages of schooling also illustrate the linguistic diversity in Spain with one teacher stating each of the remaining four combinations of languages represented in the histogram.
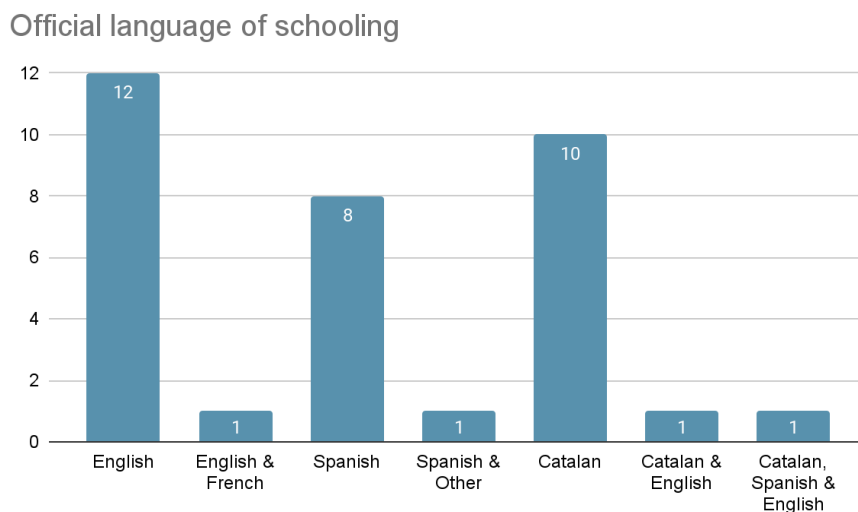
As for the **main language used in the CLIL lessons**, our sample of teachers stated that they taught CLIL through English. These results are illustrative of how CLIL is implemented across Spain, where English is both the main foreign and the main CLIL language.

When asked about the subjects they taught, the sample of teachers from Spain showed a variety of subjects, with 13 teachers indicating they taught Languages and Communication courses, and the rest teaching other content courses. As illustrated in the histogram below, Biology, Arts (drama, music, art), and Mathematics were the following subjects most commonly taught by 9, 8 and 7 teachers respectively. After these, 6 teachers reported teaching Geography and/or Chemistry, and 5 teachers selected Society and Environment, Technology and ICT, and Physics. The subjects less commonly taught by our sample of teachers are Physical Education, Sports and Health, Philosophy, Ethics or Religion, and History, which are taught by only 3 or 4 teachers.

Teaching subjects
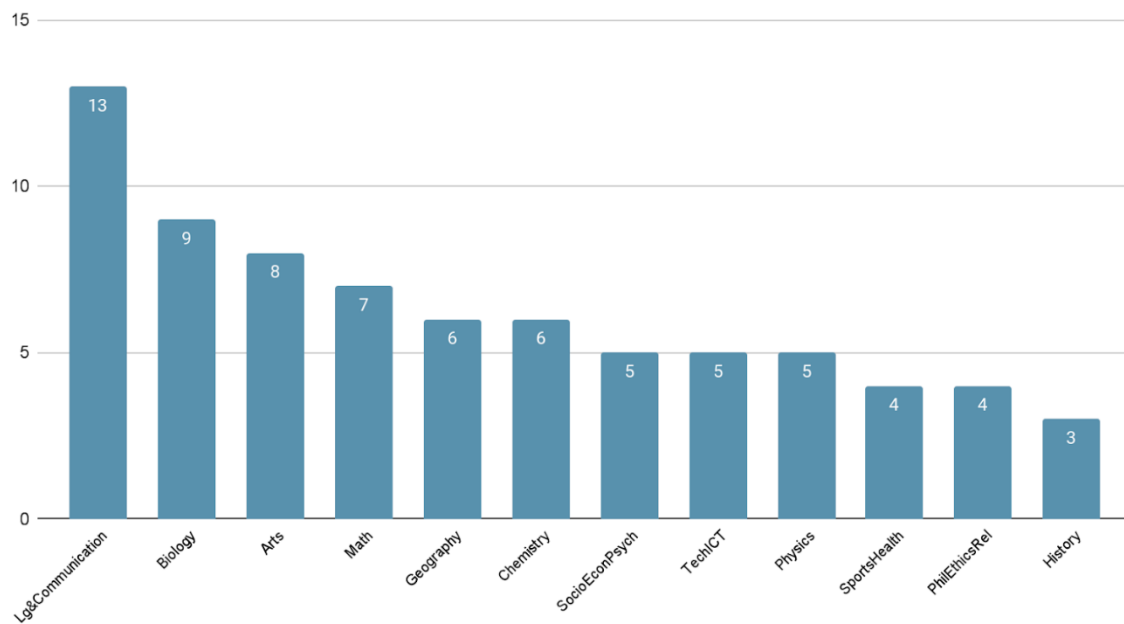
Teachers were also asked about the **age of the students** to whom they taught the subject areas above mentioned. The following histogram provides a summary of these results. As can be seen, most of the teachers in our sample were primary or early secondary education teachers.

Age range of students
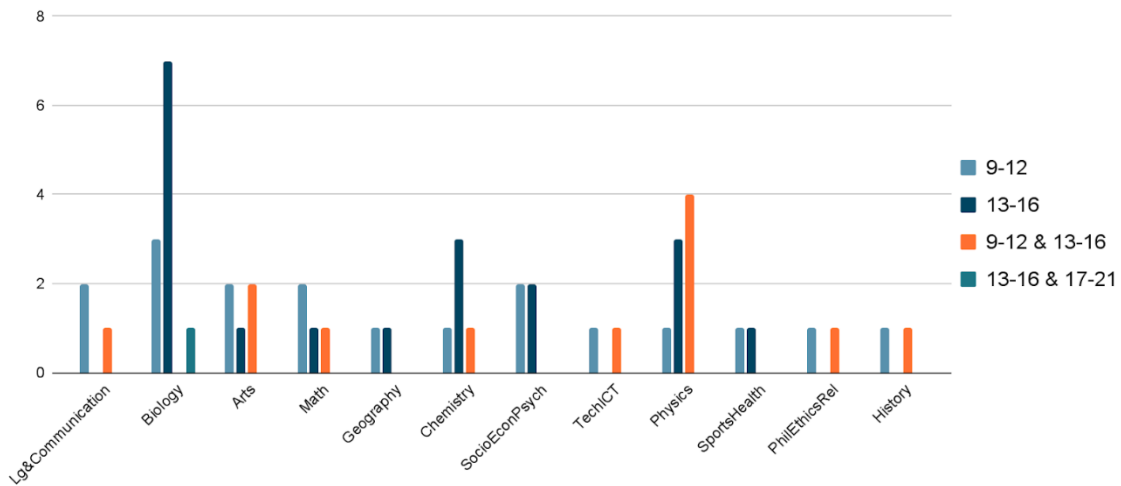
Our sample of teachers showed a wide range of **years of teaching experience**, from a minimum of 2 years to a maximum of 34. The table below presents the descriptive statistics for this variable.

Teaching years	
Valid	34
Median	10.000
Mean	13.471
Std. Deviation	9.845
IQR	15.000

In contrast with the teachers' years of teaching experience, they had fewer years of **experience teaching CLIL** specifically. Their experience teaching CLIL ranged from a minimum of 1 year to a maximum of 19 years. The table below presents the descriptive statistics for this variable.

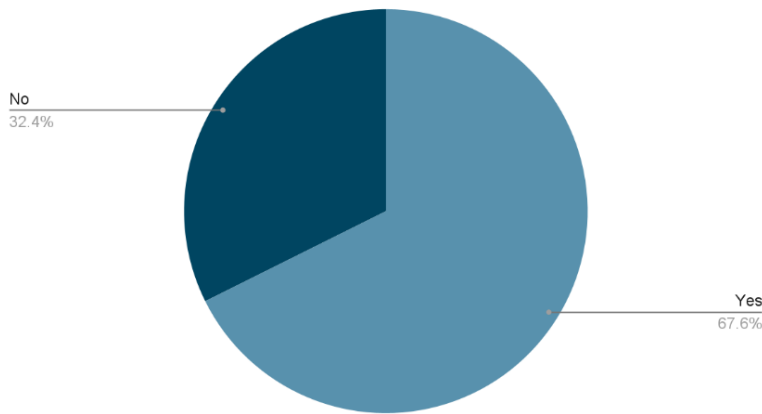| CLIL Teaching years	
Valid	33
Median	6.000
Mean	6.970
Std. Deviation	4.391
IQR	7.000

Regarding teachers' **training in CLIL**, most of the participants reported having received some type of training, as the chart below shows.

CLIL training

Furthermore, as we can see in the next chart, most of the teachers' **training in CLIL** came from PD and informal training, while some of them also reported receiving some training during their undergraduate degree. In contrast, few of our participants had postgraduate qualifications in CLIL teaching.

Type of CLIL training
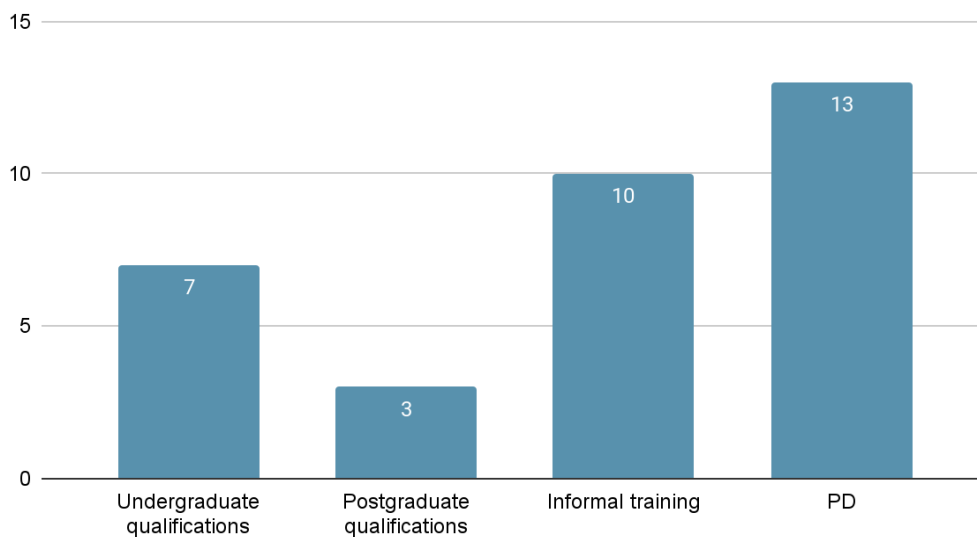
As seen in the chart below, over 40% of our participants were also **foreign language teachers**. In Spain, while secondary school content subjects are taught by specialists in the content area, in primary education, there are also foreign language specialists who can teach content areas in a CLIL language with their undergraduate qualification.

FL teaching
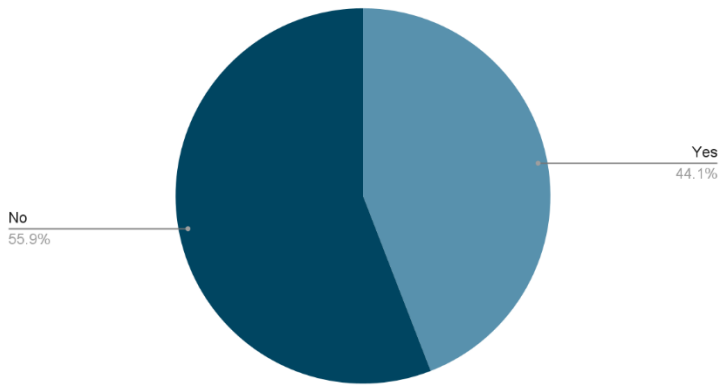
English was the **foreign language** that was most taught by these participants (*N*=12) who were also language teachers, something that is consistent with the teaching of English as foreign language across Spain. German was taught by 2 participants, and 3 teachers selected "Other options."

2.4. Participants' CLIL teaching experience

The histogram below shows the **subjects** that the participants taught in CLIL and in non-CLIL languages. As can be seen, the subject that was the most commonly taught in a CLIL language was Biology (*N*=12) followed by Arts (*N*=8). Other CLIL content areas represented in our data set were Chemistry (*N*=6), Language and Communication (*N*=6), Technology and ICT (*N*=5), Physics (*N*=5), Math (*N*=5), Geography (*N*=3), History (*N*=2), and Philosophy, Ethics and Religion (*N*=2).
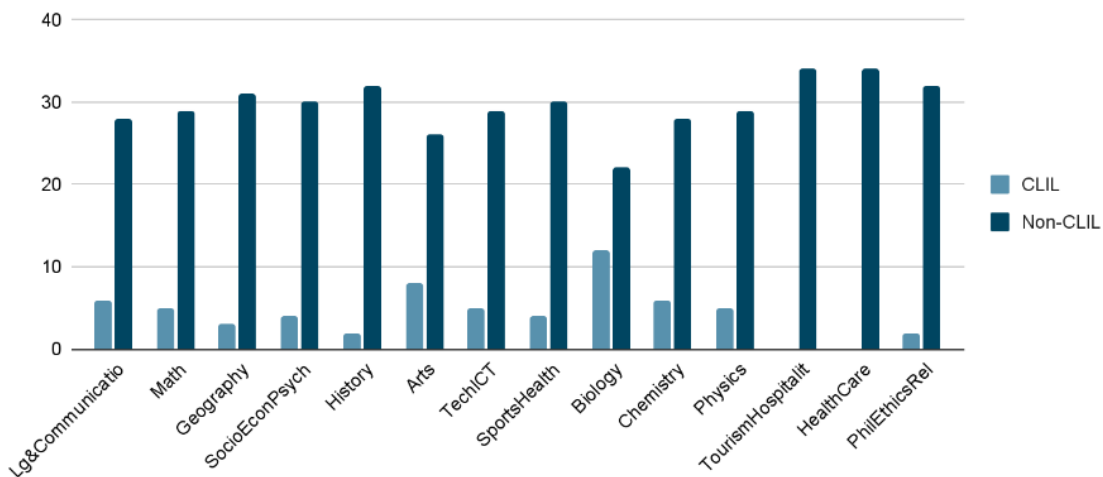
Next, teachers were asked about the **objectives of CLIL teaching and learning** in classes. Participants selected (on a scale from '1' to '100') whether their lessons were more likely language-oriented ('1') or content-oriented ('100'). As the table below shows, while there is some variability, on average, teachers reported that their lessons focused more on content than on language (*M*=81).

Objectives of CLIL teaching	
Valid	32
Median	81.000
Mean	74.438
Std. Deviation	25.908
IQR	34.500

In the following question, teachers had to describe the **use of language** in their lessons by choosing the degree of language use on a scale (from '1' to '100') that went from language use being multilingual ('1') to only the CLIL language being used ('100'). While the variation was large, we can observe on the table below that the use of the target language was minimally higher (*M*=56.939).

Language use in CLIL lessons	
Valid	33
Median	57.000
Mean	56.939
Std. Deviation	33.599
IQR	62.000

2.5. Participants' school environment

As shown on the chart below, the languages that our participants reported as the **main language of schooling** were Catalan (*N*=18), Spanish (*N*=10), English (*N*=5), and Other (*N*=1).

Language of schooling
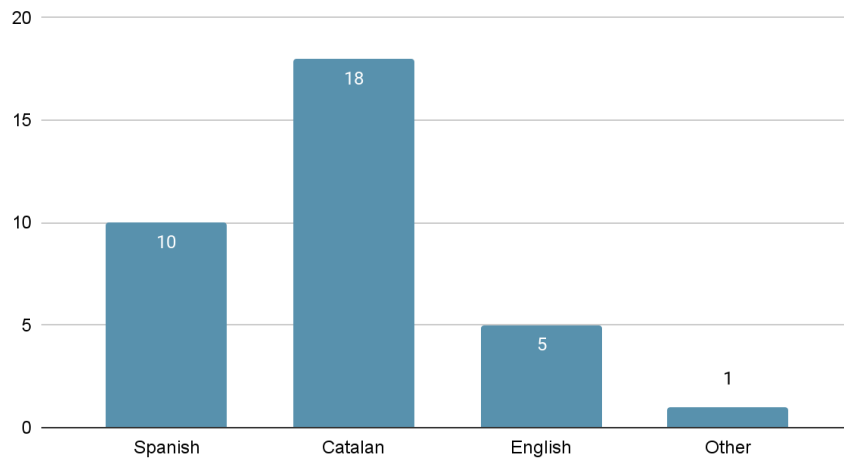
Next, teachers had to choose the percentage of their **school student population that speaks more than one mother tongue**. As we can see on the table below, the mean was 59.625, and the variation was large, which can be explained by the fact that some schools were located in bilingual Autonomous Communities where there are two official languages, while other schools were located in monolingual Autonomous Communities.

Language of schooling	
Valid	32
Median	68.000
Mean	59.625
Std. Deviation	33.669
IQR	65.000

2.6. Use of digital tools in CLIL

To examine the use of **technical devices**, teachers reported on the use they made of each device either for personal use, for school or for both. As we can see on the table and chart below, the devices that teachers used the most, in general, were mobile phones, laptops, tablets and desktop computers.

The table below shows that teachers used desktops mostly for school (45% for school and 40% both), as well as laptops (17.65% for school and 76.47% both), while mobile phones and tablets were used more broadly. Other devices such as consoles or e-book readers were used exclusively for personal use (100%).

Technical device	Personal use	For school	Both
Mobile phone	38.24%	0.00%	61.76%
Tablet	35.71%	25.00%	39.29%
Laptop	5.88%	17.65%	76.47%
Desktop	15.00%	45.00%	40.00%
Consoles	100.00%	0.00%	0.00%
Smart watch	29.31%	0.00%	7.69%
E-book reader	100.00%	0.00%	0.00%
Smart TV	72.73%	13.64%	13.64%
Smart home tech	80.95%	0.00%	19.05%

Personal use, for teaching and both
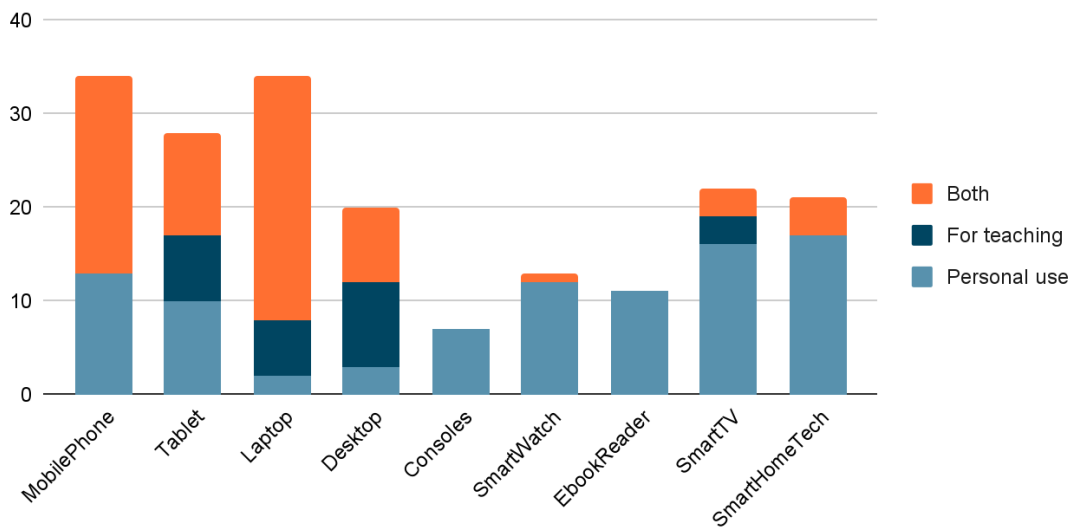
Participants described how **often they used each digital technology device or tool** (see table below) in the CLIL language, by selecting from a 5-point likert scale ('1'= never, '2'= a few times per term, '3'= a few times per month, '4'= a few times per week, '5'= every lesson).

Looking at the results, we find that the digital projector and whiteboard were used in all lessons (*MDN*=5), and that platforms for online research or virtual learning were used several times per week (*MDN*=4). Other digital technology, such as video sharing or free education apps and games were used a few times per month (*MDN*=3), and video streaming or digital storytelling and content creation tools were only used a few times per term (*MDN*=2). However, we should note that most of the digital technologies included in the table were never used in the CLIL language, which could be an indication that the latter were not available in such language.

Digital tool	Median	IQR
Social media	1.000	0.000
Multi-player games	1.000	0.000
Instant messaging	1.000	0.000
Video streaming	2.000	1.000
Mobile phone apps	1.000	0.000
Online video sharing	3.000	1.250
Online research virtual learning platforms	4.000	2.000
VR & AR	1.000	0.000
Online shopping	1.000	0.000
Mobile photo	1.000	2.000
Digital storytelling & content creation	2.000	2.000
Online forums discussion Boards	1.000	0.000
Free education apps games	3.000	1.250
Paid education apps games	1.000	1.750
Online music streaming downloading services	1.000	1.500
E-book readers digital book platforms	1.000	1.000
AI	1.000	2.000
E-textbooks	1.000	3.000
Digital projector whiteboard	5.000	1.000
Single player	1.000	0.000
Online courses platforms	1.000	1.000
Digital reading devices	1.000	0.000
Online shopping	1.000	0.000

Teachers reported the amount of **time** (in minutes) that they spent **using digital technologies** during a regular CLIL lesson. As we can observe on the table below, the average time spent was around 20 minutes per lesson, but the considerable variability from the standard deviation suggests that while some participants used digital technologies during a considerable amount of time, others made a limited use of them.

Time spent on digital technologies in CLIL lesson	
Valid	31
Median	15.000
Mean	20.161
Std. Deviation	9.529
IQR	15.000

As we can see in the chart below, over two thirds of the respondents also **taught non-CLIL subjects**, i.e., other content subjects in a non-CLIL language.

Non-CLIL teaching

No answer 5.9%

No 26.5%

Yes 67.6%
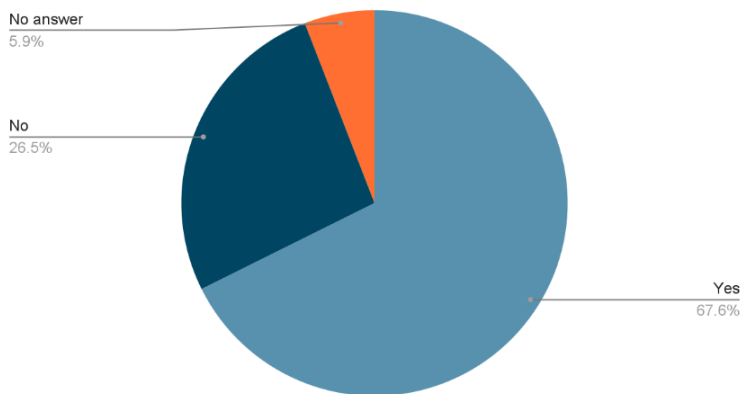
Those participants who answered that they also **teach non-CLIL subjects** were asked if their use of technologies differed from their CLIL classes. Here, teachers had to answer the question *Does your use of digital technologies in your non-CLIL classes differ from that in your CLIL classes?* on a scale from '1' to '100' ('0'= no difference, '100'= substantial difference).

The table below presents the descriptive statistics from the results. In short, we can see that participants considered there was some difference in their use of technologies in CLIL and non-CLIL lessons. However, the large standard deviation indicates substantial variability in the values.

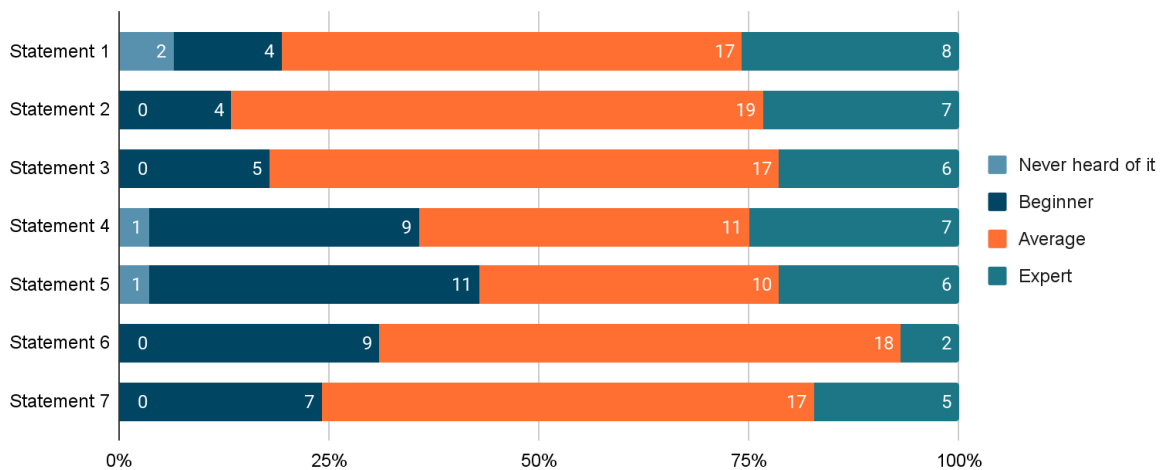| Difference in digital technologies use	
Valid	15
Median	44.000
Mean	43.733
Std. Deviation	29.256
IQR	30.500
Minimum	0.000
Maximum	100.000

2.7. Teachers' competences and challenges

To examine teachers' **competence levels of digital tools for feedback**, they were asked to self-report their knowledge using a 4-level likert scale from 1 to 4 ('1'= never heard of it, '2'= beginner, '3'= average, '4'=expert). The following table presents the basic descriptive statistics for each of the statements, while the bar chart below presents more in detail the distribution of teachers' answers within the above mentioned rating scale.

In sum, it can be seen that most of the teachers rated themselves as 'Average' users, with some rating themselves as 'Beginner' or 'Experts' too. However, very few indicated that they had 'never heard of' the tools mentioned in the statements.

Statements		Median	IQR
Statement 1	I integrate effectively technology into my teaching and learning including videos, images, interactive elements	3.0	0.50
Statement 2	I select digital resources, tools or platforms appropriately	3.0	0.00
Statement 3	I align my use of digital tools and resources with specific learning objectives	3.0	0.00
Statement 4	I encourage and facilitate communication and collaboration between students using digital technologies	3.0	1.25
Statement 5	I assess students and provide feedback to students using digital tools	3.0	1.00
Statement 6	I evaluate my own digital strengths and weaknesses easily	3.0	1.00
Statement 7	I adapt teaching, learning and assessment using digital technologies to ensure that learning experiences are inclusive	3.0	0.00

Self-reported knowledge of digital tools for feedback

When asked whether they experience any **challenges** when implementing digital technologies in their context, about a third of the participants indicated encountering difficulties, as displayed in the pie chart below.

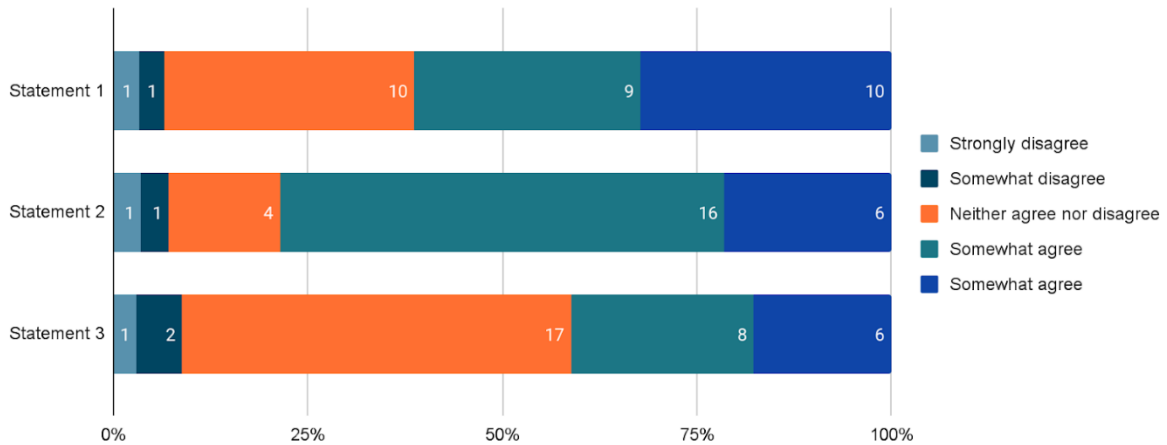Challenges digital technologies in teaching
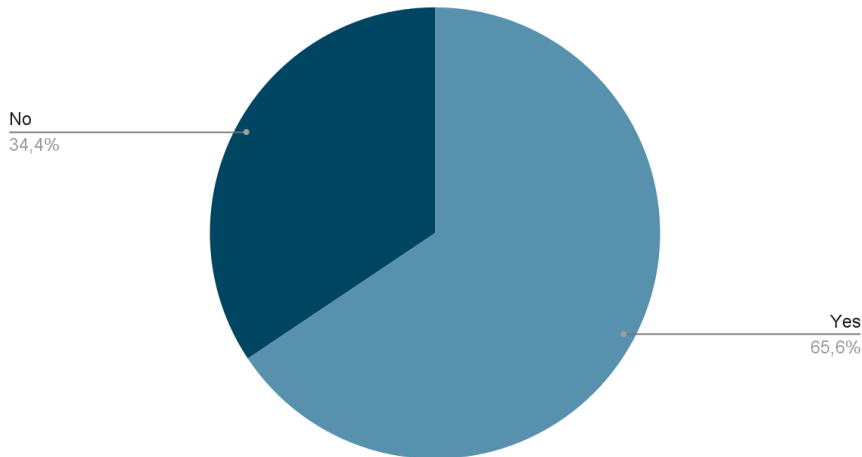
2.8. Teachers' perceptions of digital technologies in CLIL

Teachers were asked to rate on a 5-level ordinal scale from 1 to 5 ('1'= strongly disagree, '2'= somewhat disagree, '3'= neither agree nor disagree, '4'= somewhat agree, '5'= somewhat agree) their agreement with three statements related to their **beliefs and perceptions of technology use**.

As it can be seen in the table displaying the general descriptive statistics and the detailed plot below, teachers had positive beliefs of the effects of technology used to enhance learning and motivation.

Statements		Median	IQR
Statement 1	Students' disciplinary literacy skills improve when incorporating technology into CLIL learning	4.0	2.0
Statement 2	Using technology encourages students to be more multilingual in their learning	4.0	0.0
Statement 3	Students are inherently more motivated to use language and content in an integrated way (i.e., project work) when a digital tool or technology is required to complete it	4.0	1.0

Agreement to technology statements

	Strongly disagree	
	Somewhat disagree	
	Neither agree nor disagree	
	Somewhat agree	
	Somewhat agree	

Regarding the **importance of understanding students' use of technology** outside of school when they are designing teaching and learning practices for the CLIL classroom, most of the teachers rated it as 'quite important', within a 5-level ordinal scale from 1 to 5 ('1'= not important, '2'= slightly important, '3'= moderately important, '4'= quite important, '5'= extremely important). The chart below illustrates the distribution of teachers' answers.

Importance of student's technology use for CLIL lesson planning
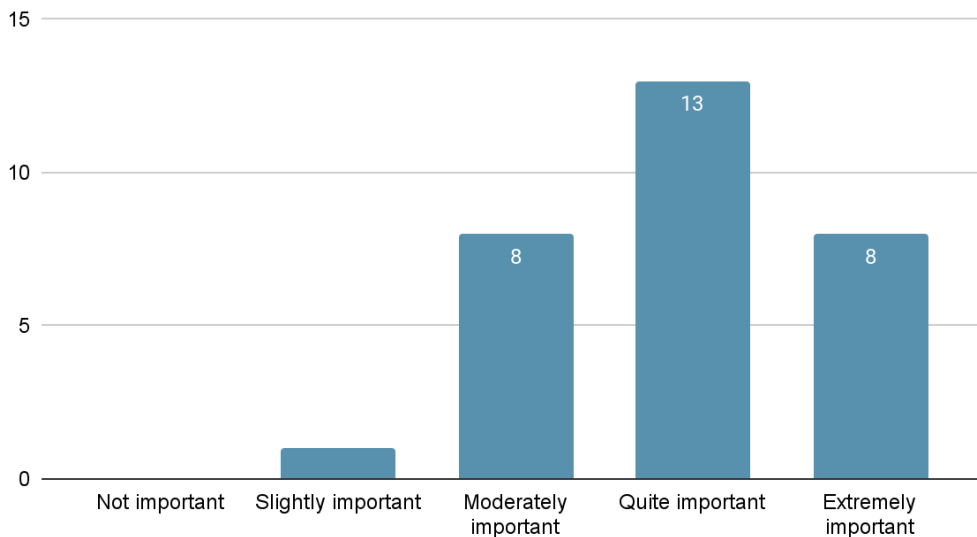
Considering that most of the teachers indicated in the previous question that they believe it is important to understand their students' use of technology outside of school, we were interested to know about their **students' use of technology outside the classroom**. Thus, teachers were asked to rate using a sliding bar (scores '1' to '100') whether they thought that their

students' use of technology was more beneficial for developing their bi-/multilingual disciplinary literacy skills ('100') or simply language skills ('1').

The table below displays a summary of the descriptive statistics. As can be seen, both the median (50.00) and the mean (56.28) are towards the middle of the rating scale, indicating that teachers believed that their students' technology use benefits both their bi-/multilingual disciplinary literacy skills and their language skills.

Rating students' use of technology	
Valid	25
Missing	9
Median	50.00
Mean	56.28
Std. Deviation	27.23
IQR	38.00
Minimum	7.00
Maximum	95.00

2.9. Students' digital competences: teachers' perceptions

When asked how often they **discussed or talked to their students about their technology use outside of school**, most of the teachers said that they did it to some degree. They were asked to indicate their answer according to a 5-level ordinal likert from 1 to 5 ('1'= never, '2'= rarely, '3'= sometimes, '4'= often, '5'= always). The median of the teachers' answers was 3.0, with an IQR of 1.0. The histogram below presents the distribution of the teachers' answers in greater detail.

Frequency of discussion about technology use outside of school
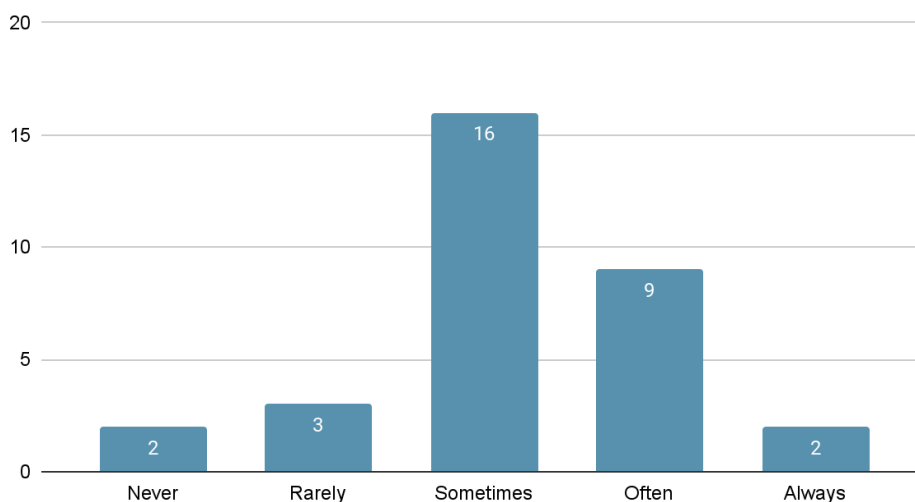
Next, teachers were asked how often they made an **explicit link** between these discussions about technology and their learning in the CLIL classroom. They were asked to rate their answers according to the same 5-level ordinal scale used in the previous question ('1'= never, '2'= rarely, '3'= sometimes, '4'= often, '5'= always). In this case, the median of their answers was still 3.0, but the IQR increased to 2.0, indicating a bigger spread in their answers, as can be seen in the chart below.

These results indicate that teachers tended to discuss technology use at home with their students, but in a general manner, rather than by making an explicit connection between how these technologies may help enhance their learning.

Explicit link between discussion and CLIL learning

Never	Rarely	Sometimes	Often	Always
5	7	5	8	4
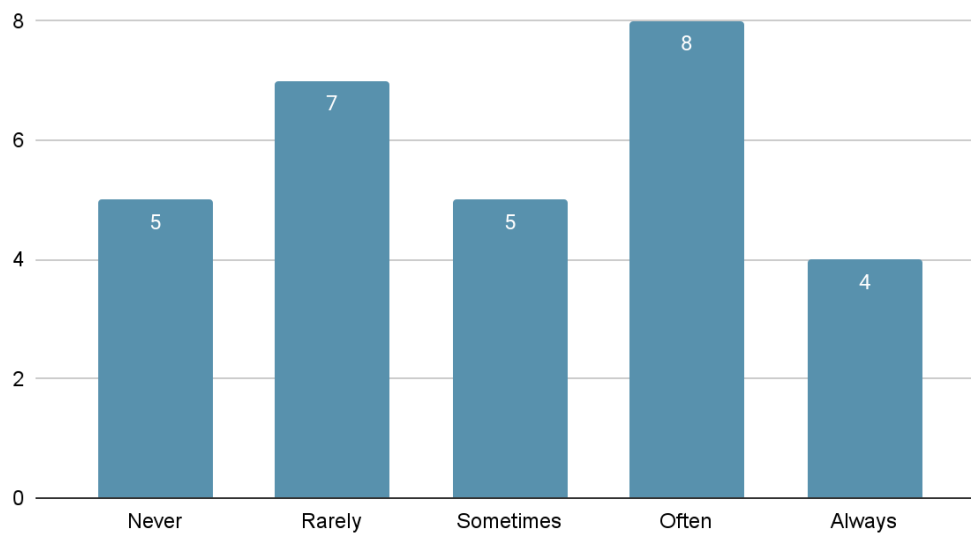
To try to establish a connection between the potential digital technology benefits and the **school subject areas**, teachers were asked to classify some subject areas into five categories: 'significant benefit', 'some benefit', 'hard to tell', 'very little benefit', and 'no benefit whatsoever'.

The following table displays how many teachers (out of a total of 34 participants) placed each of the subject areas into the 5 categories just described. It is important to keep in mind that because it was not obligatory for participants to classify all subjects, the numbers displayed in the table may not add up to our total number of participants.

From what can be seen in the table, it seems that teachers thought that learning of all subjects could benefit from digital technology support, as all subjects were classified into the 'significant benefit' and/or 'some benefit' between 9 and 14 times. More specifically, Technology and ICT, and Language and communication were the subjects that teachers expected to be benefited most from technology support. On the contrary, and unsurprisingly, Physical Education, Sports and Health was rated as the subject that could benefit less from technology use.

Subject	Significant benefit	Some benefit	Hard to tell	Very little benefit	No benefit whatsoever
Language and communication	14	9	1	0	1
Mathematics	6	8	7	2	1
Biology	11	8	5	0	0
Chemistry	10	7	3	2	0
Physics	11	8	1	1	2
Society and environment	12	9	2	1	2
History	9	9	4	1	0
Arts	9	11	2	3	0
Technology and ICT	22	0	2	0	0
Physical Education, Sports and Health	0	9	5	5	3

Regarding teachers providing **specific guidance or suggestions** to students on how to utilise technology outside of school to improve their CLIL languages, we found similar results to the question about frequency of their discussion of technology use outside of school with their students. When asked to rate how often they provided such guidance on a 5-level ordinal scale from 1 to 5 ('1'= never, '2'= rarely, '3'= sometimes, '4'= often, '5'= always), the median of their answers was 3.0 with an IQR of 1.5. The graph below presents the distribution of their answers in greater detail.

Guidance of using tools outside of classroom
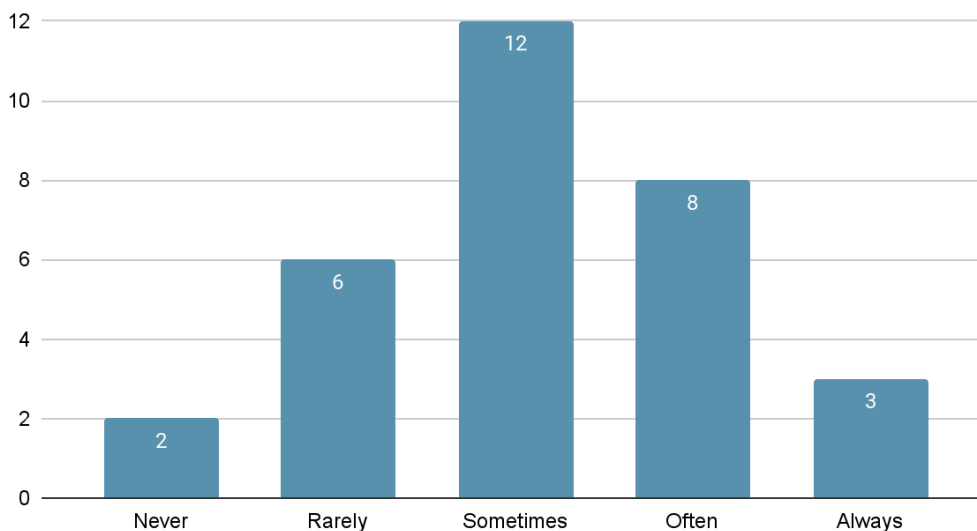
2.10. Students' extramural use of digital technologies: teachers' perceptions

The table below summarises the **technology-based activities** that teachers believe or are aware that **students participate in out of school**. Data regarding students aged 9-12 and 13-16 has been included, while data from students aged 17-21 has not due to only one teacher teaching this age group.

As seen in the table below, there was an increase in most of the technology-based activities that students participated in from the 9-12 group to the 13-16 group. In the young group of students, in none of the cases the percentage of teachers indicating that their students engaged in such activities was superior to 50%. In addition, the activities that were chosen most often by the teachers were related to videos (streaming services, and sharing), to multiplayer online games, mobile phone-based applications, mobile photography, educational applications and games, and online music streaming.

In the older group of students, around 60% of the teachers believed that their students engaged most in social media platforms, video consumption (streaming services, and sharing), and instant messaging. In addition, around 50% of the teachers mentioned that their students also engaged in other activities, such as multiplayer online games, mobile photography, and online music streaming.

Technology-based activity	Aged 9-12		Aged 13-16	
	N	%	N	%
Social media platforms	11	32%	20	59%
Multiplayer online gaming	13	38%	17	50%
Instant messaging apps	9	26%	19	56%
Video streaming services	14	41%	20	59%
Mobile phone-based applications	10	29%	19	56%
Online video sharing and consumption	10	29%	20	59%
Online research and virtual learning platforms	4	11%	10	29%
Virtual reality (VR) and augmented reality (AR)	2	6%	2	6%
Online shopping and e-commerce platforms	4	12%	11	32%
Mobile photography and image editing apps	11	32%	16	47%
Digital storytelling and content creation tools	4	12%	4	12%
Online forums and discussion boards	1	3%	2	6%
Educational apps and games	11	32%	8	24%
Online music streaming and downloading services	10	29%	16	47%
E-book readers and digital book platforms	3	9%	5	15%

2.11. The teaching of Critical Digital Literacies in CLIL

When asked whether they had heard of the concept of **Critical Digital Literacies** (CDLs), as illustrated in the plot below, only around 10% of our sample responded yes, which entails that the remaining 90% were not familiar with the concept.

Awareness of CDLs
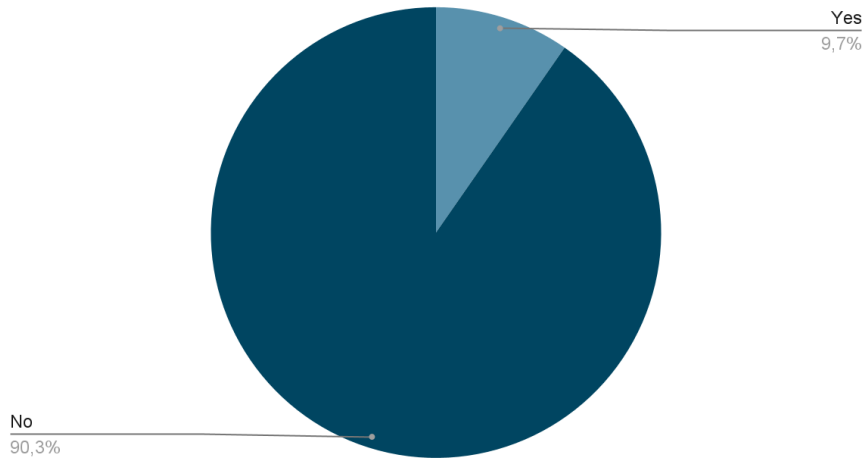
Finally, teachers' were asked to rate on an ordinal scale from '1' to '5' ('1'= never; '2'= rarely, '3'= sometimes, '4'= often; '5'= always) how often they embedded the CDLs stated below into their CLIL teaching and learning. It is important to note that in this case, we report only the data of the three teachers that in the previous question mentioned knowing what CDLs are. The following table provides the descriptive statistics for each.

CDLs	Median	IQR
Assess the credibility, accuracy and reliability of online information	4.0	2.0
Analyse and interpret media bias, understand persuasive techniques (i.e. photo editing, decontextualized images), examine stereotypes (i.e. stereotypical images of masculinity).	4.0	2.0
Discuss issues related to online privacy, cyberbullying, digital footprint and responsible online behaviour	4.0	2.0
Discuss how to be safe online	5.0	1.0
Use digital technologies to foster communication, collaboration and knowledge sharing	3.0	1.0
Using technology to solve problems	4.0	1.0
Discuss the principles of copyright, piracy	3.0	1.0
Encourage students to reflect on their own digital skills.	4.0	1.0

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