CLILNetLE

DIGITAL PRACTICES IN AND OUT OF THE CLIL CLASSROOM: ROMANIA

A Report by CLILNetLE Working Group 4

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NOTE. This country report presents results from the Romanian 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): Romania

1.1. Introduction

The survey was undertaken in the period between April 17-29, 2024. On April 10, we submitted an official request to the Research Unit in Education, National Center for Policy and Evaluation in Education, within the Ministry of Education of Romania, to sign an agreement of cooperation with the main purpose of assisting us in applying the survey. The agreement was signed on April 11, under the no. 1471, which provided the opportunity in gathering data. Subsequently, based on the above-mentioned agreement, the Research Unit in Education issued an official request to all school units that have bilingual classes and programs in the country to fill in the survey, so that it was applied in the entire country. Student participants were recruited by their respective teachers during the classes.

The legal framework for intensive and bilingual language instruction in pre-university education, underscoring the nation's commitment to promoting, diversifying, and expanding the study of modern languages across its educational institutions, is provided in the Ministerial Ordinance 4797 issued on August 31, 2017. The number of classes varies from year to year. In the upcoming 2024-2025 academic year, 271 bilingual language instruction classes are offered in the entire country. Key provisions of the ordinance include encouraging schools to maximise their resources for language education, establishing intensive language classes at middle and high school levels, and creating bilingual classes specifically for high schools, where non-linguistic subjects are also taught in a modern language.

Schools are instructed to diversify and extend their language programs, offering both first and second modern language studies with additional instructional hours. Intensive language classes require at least two extra hours per week beyond the standard curriculum, while bilingual classes necessitate at least three extra hours and must include the teaching of non-linguistic subjects in the modern language. These classes are limited to 16 students per group to ensure effective learning environments. The enrolment in these specialised programs is based on written applications from students or their guardians. If applications exceed available spots, a linguistic competency test, aligned with the Common European Framework of Reference for Languages (CEFR), is administered. Students who have previously achieved certification at the required competency levels (A1 for middle school and A2 for high school) are exempt from additional testing, provided the number of applicants matches the available spots. Students in their final year of high school in these programs must pass a professional language certificate exam. The content of this exam is approved by the school's modern language department and adheres to national guidelines, ensuring standardised assessment across institutions.

Teachers in these programs must hold at least a definitive teaching degree and demonstrate linguistic competency at a B2 level. Additionally, native speakers may be involved in teaching,

facilitated through cultural agreements or collaborative programs, to provide authentic language learning experiences.

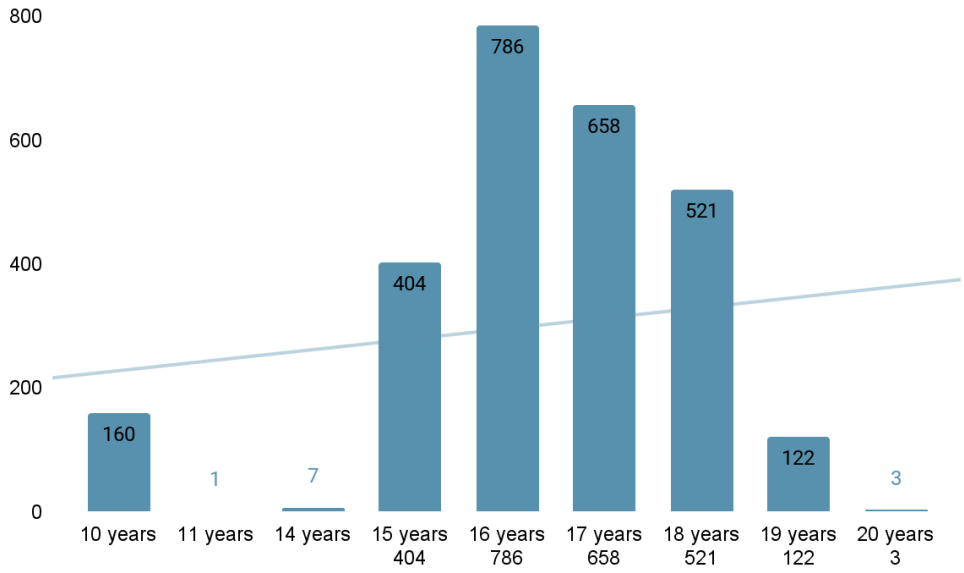
The ordinance encourages schools to establish cultural and educational partnerships with international institutions, fostering student exchanges and offering scholarships to enhance linguistic skills. The General Directorate for Evaluation and Monitoring, the Directorate for Minorities, and local school inspectorates are tasked with enforcing these regulations, ensuring that the framework is effectively implemented across all pre-university educational institutions.

1.2. Summary of main findings

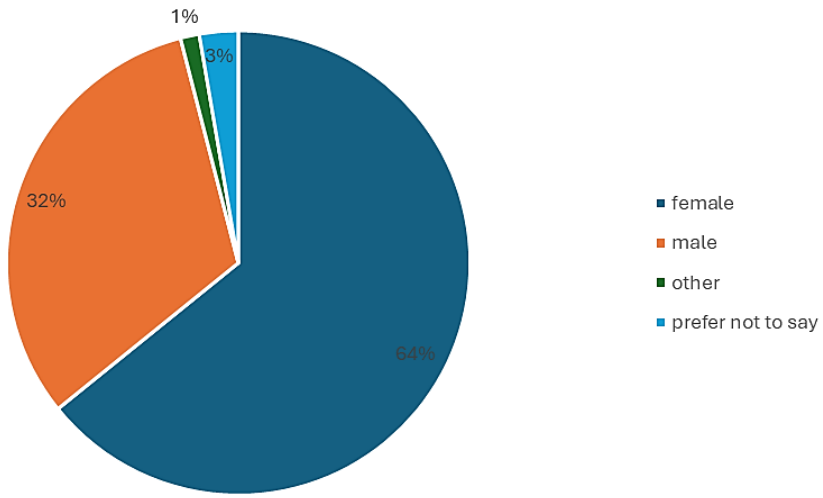
- The majority of the 2967 students surveyed, mostly female, were between 15 and 18 years old, with 16 years being the most common age. In terms of their parents' educational attainment, most of them had completed a postgraduate degree or upper secondary education. Romanian was the predominant language at home and for school, though a quarter of the surveyed population came from a bi/multilingual environment.
- English was overwhelmingly the CLIL language most commonly used. It was the dominant language across all disciplines, significantly outnumbering French and German. Other languages such as Hungarian, Spanish, and Italian were used far less frequently.
- Students perceived the objective of their CLIL lessons to be relatively balanced between language learning and subject content learning
- The survey results highlighted a strong preference for social media platforms as a tool for CLIL learning support, with 65.6% of respondents considering them important for skill development in CLIL subjects.
- Mobile phones were the preferred device for internet access, especially outside the home, at friends' or relatives' places. The most common locations for internet access at home were either in a shared room or a private room.
- Outside of school, mobile phones were used daily by a significantly higher number of respondents (*N*=1808) compared to other devices, which were used much less frequently. Desktop computers also had a substantial user base, with consistent usage patterns, particularly 2-3 times a week (*N*=732 users) and daily (*N*=451 users). At school, mobile phones were the most frequently used device, with *N*=1477 users indicating daily usage, while game consoles were rarely used in an educational context.
- The key challenges identified by participants when using digital technologies were limited internet connectivity at school, school policy and restrictions, and time constraints. Conversely, issues such as limited access to technology and devices out of school, limited internet connectivity out of school, and parents' reluctance to adapt to new technologies were rarely considered problematic. This highlights a clear distinction between school-related and home-related challenges in digital technology usage.

1.3. Participant background

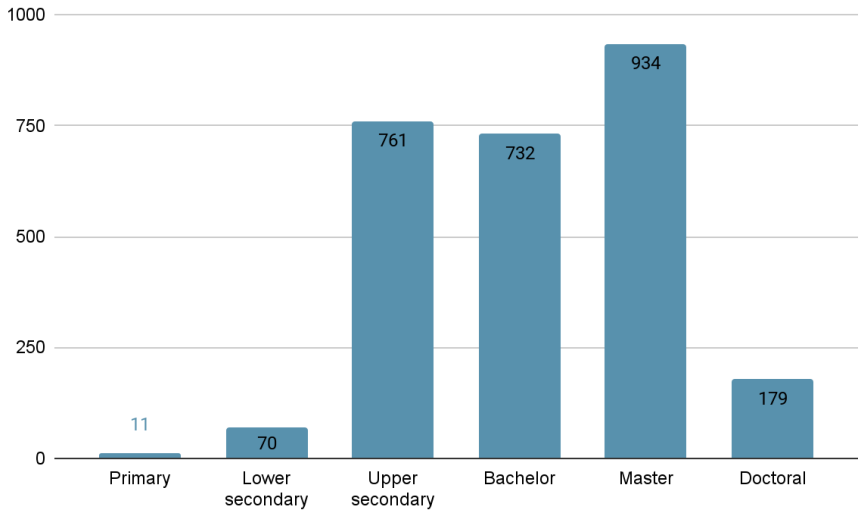
The dataset includes the **age** distribution of 2967 students, with a notable portion of missing data (*N*=305, 10,28%). The graph below illustrated the results of the students whose data is available. As can be seen, that the majority of students were aged between 15 and 18 years, with 16 years being the most prevalent age (*N*=786 students, 26.49%), followed by 17 (*N*=658 students, 22.18%) and 18 years (*N*=521, 17.56%). The dataset shows a gradual increase in the number of students from age 10, peaking at age 16, and then gradually decreasing.



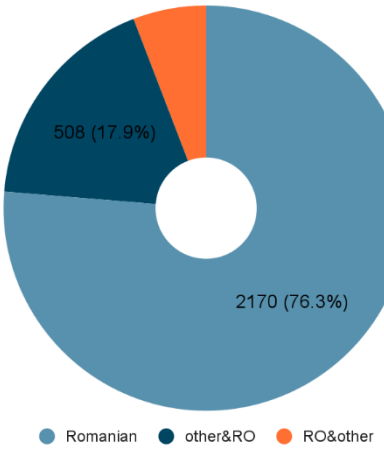
We received a total of 2967 responses, with approximately 64% of the student respondents being female, 32% male, 1.3% other, and 2.7% preferring not to say. The missing 4 responses are not included in the pie chart.

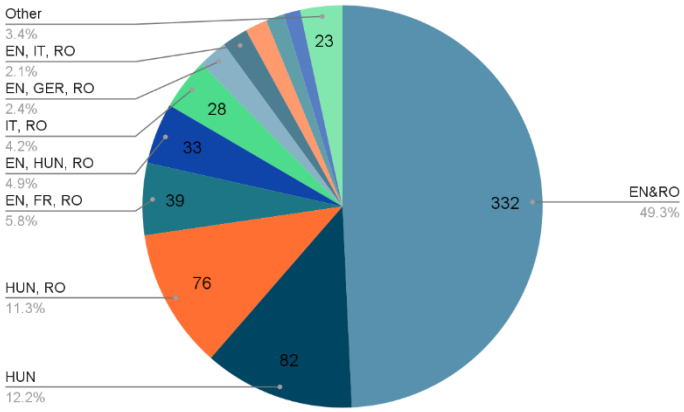


Regarding the **highest level of education attained by parents**, the distribution shows that the largest group (≈35%) had parents with a completed postgraduate degree (Master's), followed by those (≈27%) with an undergraduate degree (Bachelor's), upper secondary education (≈28%), lower secondary education (≈2,6%), primary education, and finally, those whose parents had earned a higher-level postgraduate degree (PhD; ≈6,6%).

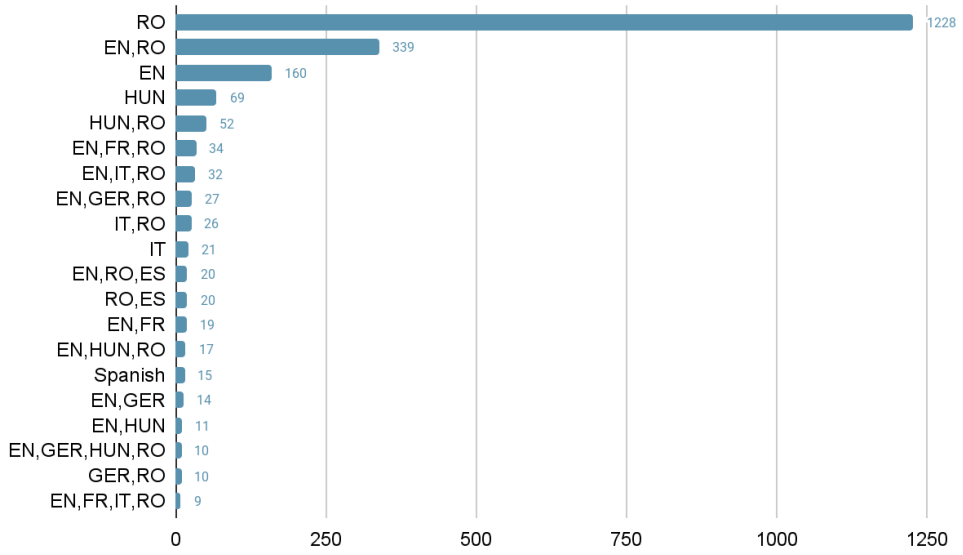


For the question regarding the **languages used at home**, we received 2964 answers (3 missing). Romanian occurred in the majority of responses (*N*=2844) with 76,3% (*N*=2170) of respondents being monolingual, while the rest (*N*=674) were bi/multilingual. As we received a large number of combinations, and many combinations occurred only once or twice, we chose to report combinations that occurred above a certain frequency threshold (more than 10). Thus, we grouped all rare combinations into an 'Other' category.

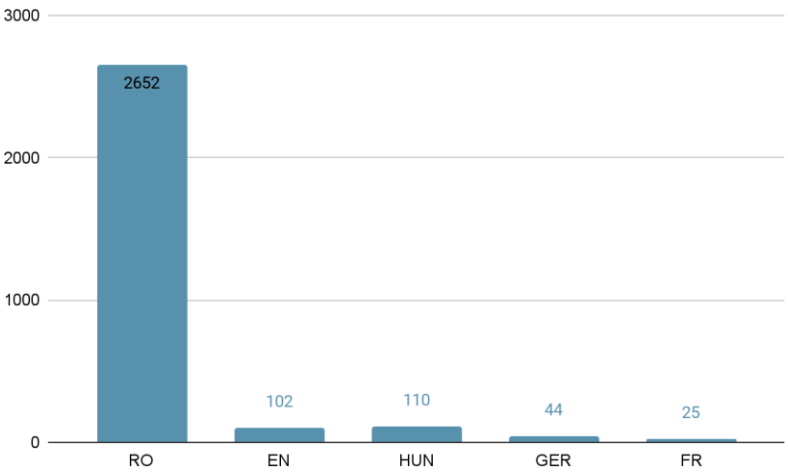




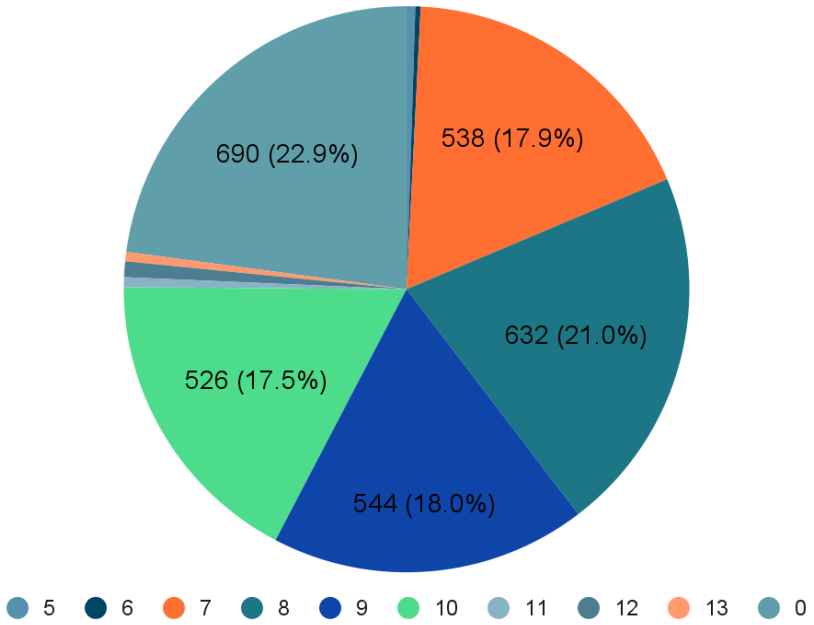
We used the same approach to report answers to the question concerning the **language(s)** that participants **used with family/relatives who live elsewhere**. The vast majority (*N*=1228, 41,5%) communicated in Romanian with family and relatives, a significant number of respondents (*N*=633, 21,3%) didn't use another language. English and Romanian (*N*=339, 11,4%) was the next most frequent combination. And English (*N*=160, 5,4%) was also highly frequent, appearing in many combinations with other languages. Hungarian, Italian, German, and French appeared less frequently but still made significant appearances in combination with Romanian and English.



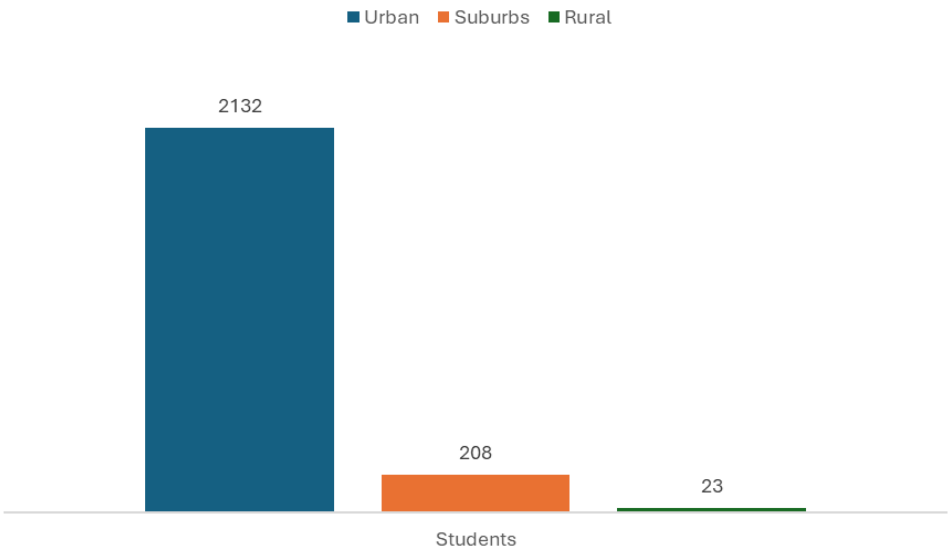
Romanian (*N*=2652, 89,8%) was generally selected as the **main language of schooling**, followed by Hungarian (*N*=110, 3,7%), English (*N*=102, 3,4%), and German (*N*=25, 0,8%). Other languages mentioned were Italian and Spanish, but due to their single occurrences, these cases were not included in the graph below.



For the '**School year**' question, there were 2324 valid responses, and 643 missing responses (0 in the chart). Most students were in or around the 8th grade, with the mean (8.369 years of schooling) being slightly above the median (8.000 years of schooling), which suggests a slight skew towards higher grades. The spread of grades was moderate, with most students within 1.481 school years of the mean (*SD*) or within 2 school years of each other (*IQR*).



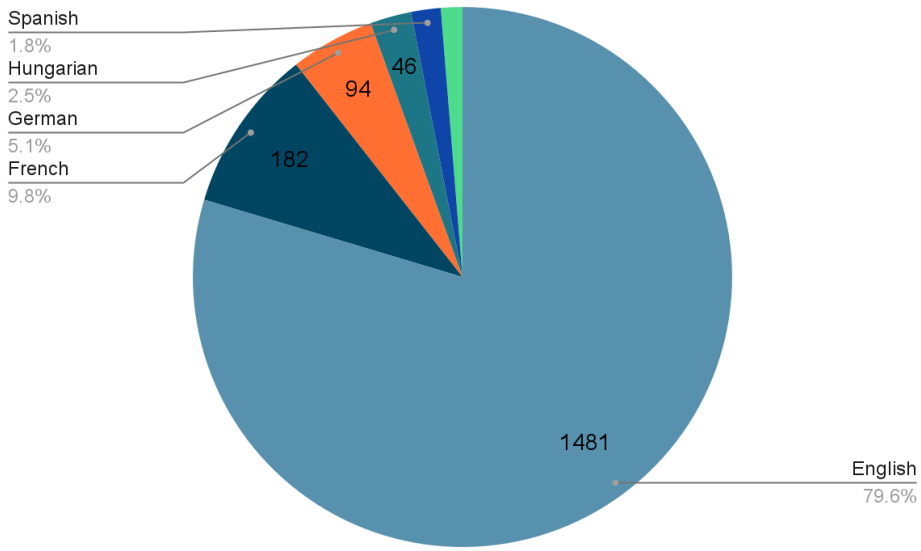
Generally, about the **schools' geographical locations**, schools with CLIL classes were located in urban areas (*N*=2132, 90,2%), while there were ten times fewer responses from students schooled in the suburbs (N=208, 8,8%) and even fewer (N=23, 1%) from rural areas.



1.4. Participants' CLIL learning experience

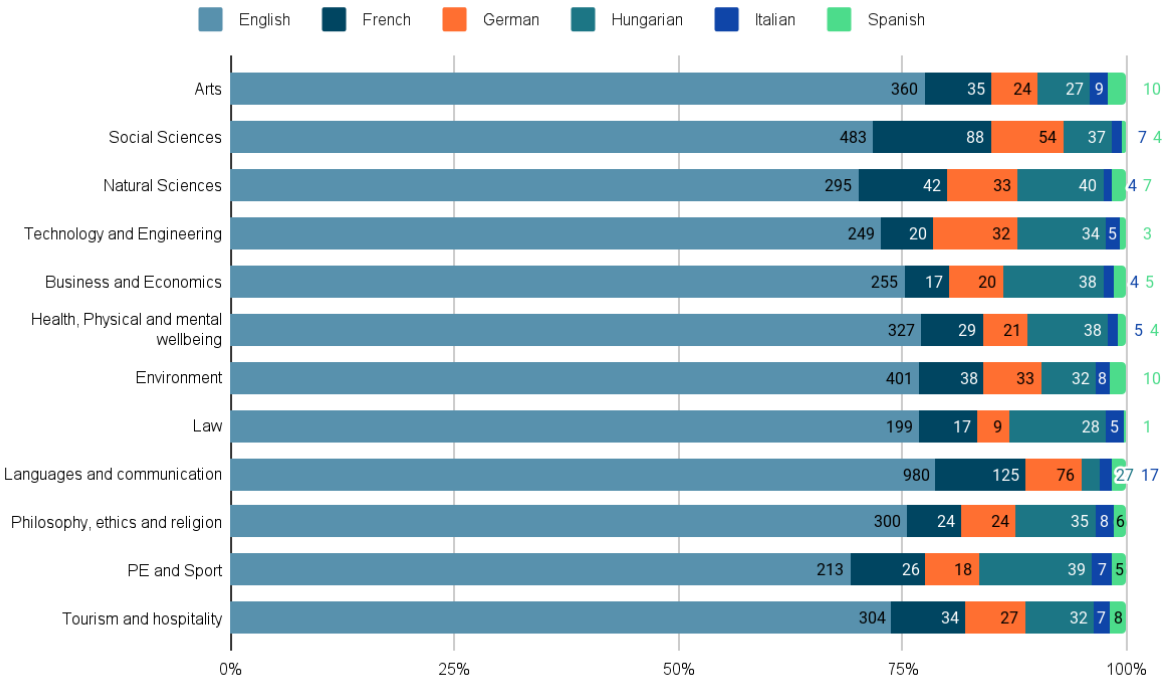
To gain a deeper understanding of students' CLIL experiences, we inquired about the primary CLIL language used, the main subjects taught through CLIL, the perceived objective of their CLIL lessons, and the extent of CLIL language use in their learning environment.

English was the most commonly used **CLIL language**, with 1481 students indicating it as their main language. French (182 students) and German (94 students) were also notable CLIL languages, though used by fewer students compared to English and Romanian. Hungarian (46 students), Spanish (33 students), and Italian (24 students) were less frequently reported as the main CLIL language.



The data in the stacked bar graph below shows that English was the most **dominant language** across all **disciplines**, with the highest number of occurrences in each category. French and German were the next most commonly used languages after English, but their usage was significantly lower. Hungarian showed a moderate presence in several disciplines, while Italian and Spanish had relatively low usage across all fields.

In Languages and Communication, all six languages were used more frequently compared to other disciplines. In Social Sciences, English dominated but there was also notable usage of French and German. In STEM-related fields like Natural Sciences and Technology and Engineering, English remained dominant, but there was a more balanced distribution among the other languages compared to other fields. Certain disciplines, like Law and Business and Economics, showed lower usage of all non-English languages.



To learn more about the primary **objective of CLIL lessons**, students were asked to use a slider bar to indicate whether they believe the main aim of their CLIL lessons was more focused on language learning or on subject content learning. The descriptive statistics below indicate that students perceive CLIL lessons in different ways. The mean and median values are close, suggesting a relatively balanced view of language and subject content learning. However, the high standard deviation shows substantial variability in responses, indicating a wide range of perceptions among students, emphasised also by the interquartile range.

Aim of CLIL lessons	
Valid	2180
Missing	787
Median	46.000
Mean	45.611
Std. Deviation	32.596
IQR	57.000
Minimum	0.000
Maximum	100.000

Next, students were asked to what extent is the **CLIL language typically used in CLIL lessons**. The data from the descriptive statistics indicates a broad range in the extent to which

CLIL language was used, with an average usage just above the midpoint (51.8%). The high standard deviation and IQR reflect diverse experiences among respondents, ranging from no use to complete use of CLIL language. The median being slightly above 50 suggests a slight skew towards higher usage. However, there was a substantial number of missing responses (*N*=901).

Extend of CLIL language use	
Valid	2066
Missing	901
Median	54.000
Mean	51.808
Std. Deviation	34.550
IQR	64.000
Minimum	0.000
Maximum	100.000

1.5. Focus on spare time

In order to determine the relevance of various **digital activities** for skill development in CLIL subjects within the CLIL language, students were asked to reflect on the digital activities they engaged in almost daily during their free time and to assess how important each activity was for their skill development in CLIL subjects, ranking them from the most to the least important within each category.

The survey results shown in the table below revealed significant trends in digital engagement. The findings indicated a dominant preference for social media platforms, with 65.6% of respondents considering them important for CLIL learning support. Online video sharing and consumption, such as YouTube and Vimeo, were also highly valued by 64% of respondents, emphasising a strong inclination towards video content. Moreover, instant messaging apps were deemed important by 62% of participants, highlighting their essential role in communication. Online research and virtual learning platforms were essential to 58% of respondents, demonstrating a growing reliance on digital resources for education. Furthermore, over 50% of respondents valued video streaming services, mobile phone-based applications, and e-book readers and digital book platforms, reflecting a high preference for digital entertainment and reading. Our findings also underlined moderate importance placed on online shopping and e-commerce platforms, with 40% of respondents considering them important. Moreover, AI-based technologies like chatbots and free educational apps and games were important for nearly 50% of respondents, illustrating a growing interest in AI-driven interactions and digital tools for learning. Virtual reality (VR) and augmented reality (AR) experiences had limited appeal, with only 28% of respondents considering them important, indicating their niche status compared to other digital activities.

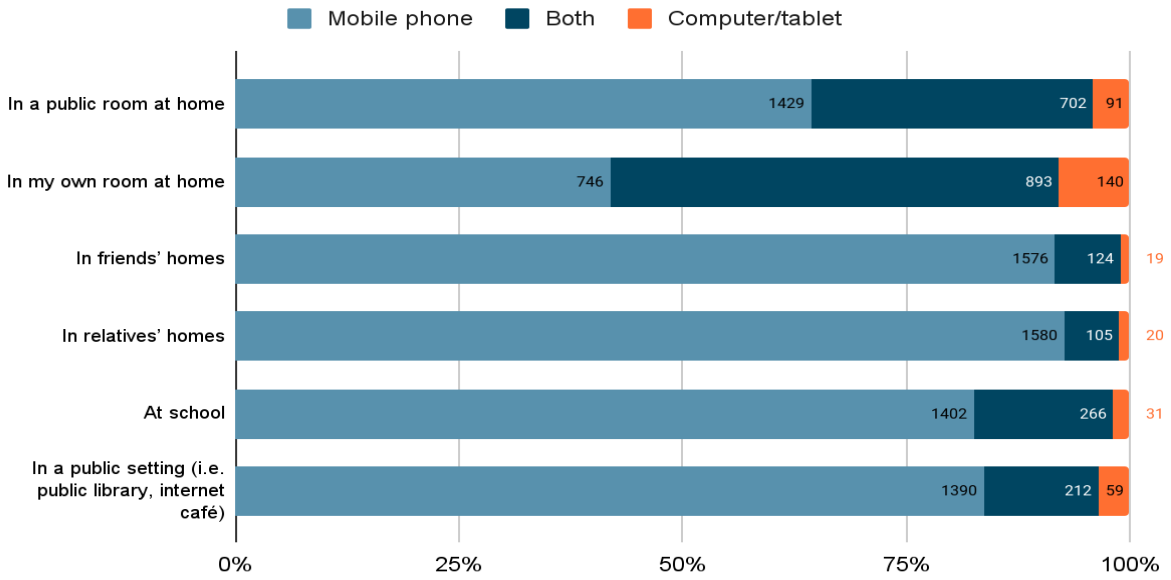
	Important		Moderately important		Not important	
	N	**%**	**N**	**%**	**N**	**%**
Social media platforms	1091	65.6	473	28.4	100	6
Multiplayer gaming	352	41,5	307	36,2	189	22,3
Instant messaging apps	795	62	409	32	78	6
Video streaming	587	58	320	32	101	10
Mobile Phone apps	790	57	475	34	113	8
Online video	775	64	345	29	88	7
Online research and virtual learning	456	58	264	34	64	8
VR and AR	112	28	139	35	151	38
Online shopping	275	40	251	37	154	23
Mobile photography	410	41	369	37	220	22
Digital storytelling	377	53	242	34	91	13
Online forums	285	44	245	38	123	19
Free Educational apps	243	49	173	35	84	17
Paid educational apps	218	46	148	31	112	23
Online music	748	60	366	30	122	10
E-book readers	315	61	141	27	62	12
AI-based technologies	325	49	244	37	89	16
E-textbooks	207	50	128	31	78	19
Digital projectors and interactive whiteboards	159	41	143	36	90	23
Single-player gaming	306	46	223	33	141	21
Online courses	182	49	125	33	68	18
Digital reading devices	274	59	123	27	65	14
Online shopping	251	43	189	33	138	24

1.6. Access to digital devices in and out of school

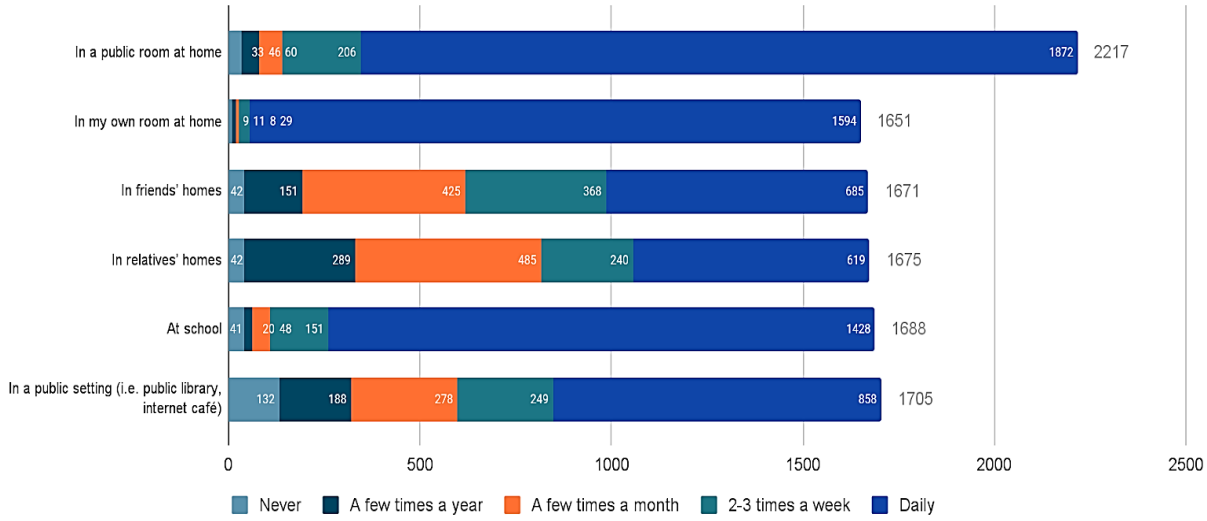
To better understand the various ways students connected to the internet across different environments, we asked participants about their **primary means of accessing the internet** in six specific locations. For each location, participants could choose between accessing the internet via a mobile phone, a computer/tablet, or not accessing the internet at all. The locations considered were:

- In a public room at home.
- In my own room at home.
- In friends' homes.
- In relatives' homes.
- At school.
- In a public setting (i.e., public library, internet café).

By examining the preferred devices for internet access in these places, we can see in the chart below that the preferred device was the mobile phone, and it was used mainly outside their home, at friends' or relatives' places.

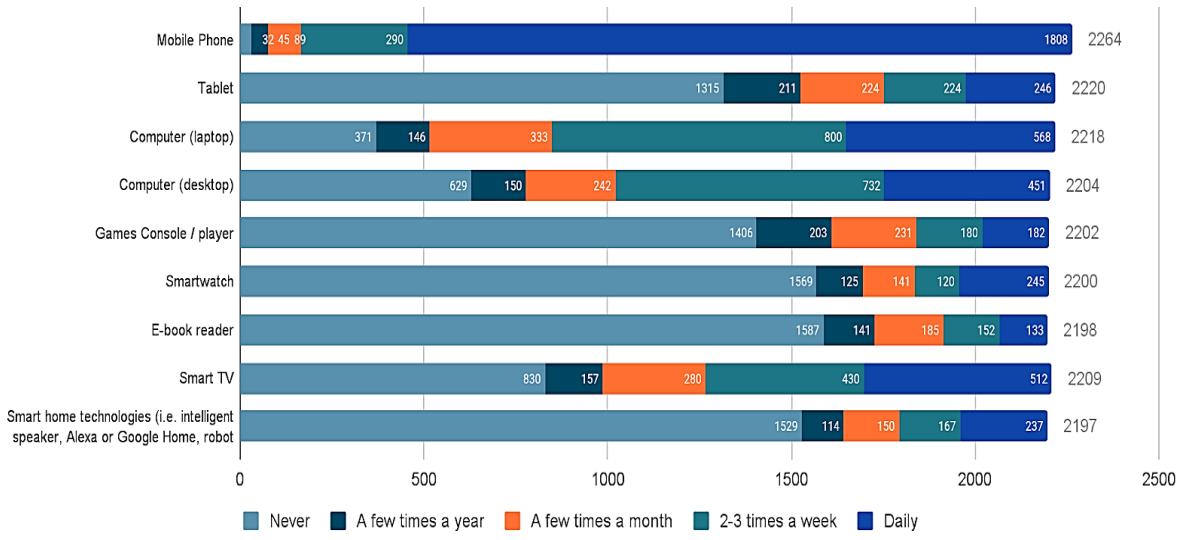


To further explore the **patterns of internet usage**, participants were asked to indicate how often they accessed the internet in the same six locations from the previous question. The frequency options ranged from 'Never' to 'Daily'. From the results illustrated in the graph below we can identify that the most common location was their home, whether in a shared room or in their private room, followed by the school. And the least common locations to access the internet were friends' and relatives' houses.



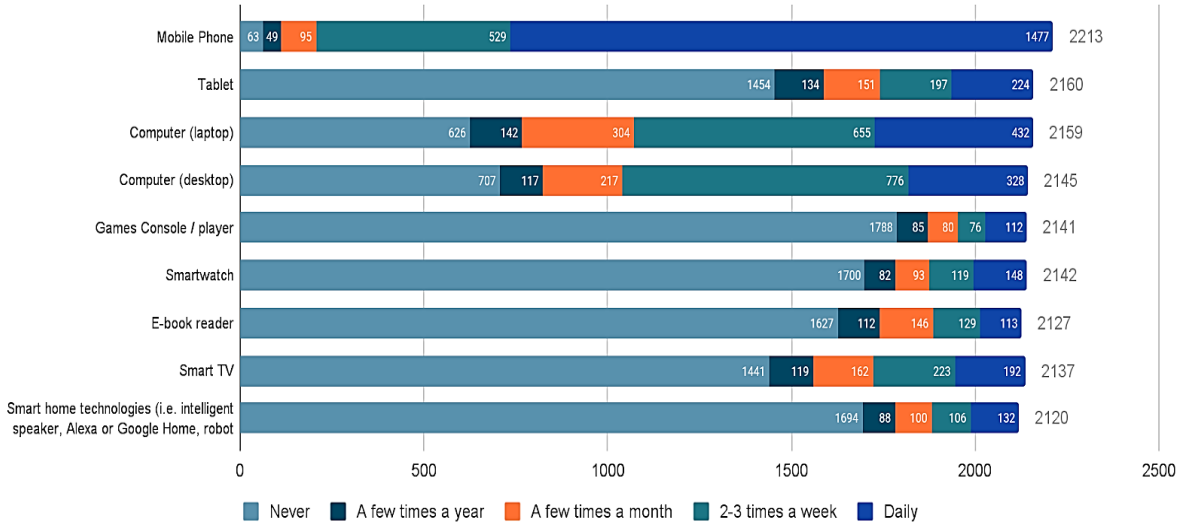
To complement the findings related to the frequency of internet access across various locations and the primary methods of internet access in different environments, we examined the **frequency of device usage outside of school**, to better understand digital engagement beyond the academic context.

Participants reported how often they used devices such as mobile phones, tablets, computers, gaming consoles, and smart home technologies. These results are illustrated in the chart below. As the chart shows, mobile phones were used daily by a significantly higher number of respondents (*N*=1808) compared to other devices. Tablets, smartwatches, e-book readers, and smart home technologies were primarily used either 'never' or only 'a few times a year', indicating a significant less frequent usage. Desktop computers had a substantial user base that used them '2-3 times a week' (*N*=732) and 'daily' (*N*=451), showing consistent usage patterns.



Following our exploration of device usage outside of school, the next question focused on understanding how these technologies are utilized within an **educational context** and examining the frequency with which various devices were employed as part of the learning process at school. Participants were asked to indicate how often they used different devices, such as mobile phones, tablets, computers, and other tech tools, during their educational activities.

The results showed that mobile phones were the most frequently used device at school, with 1477 users indicating 'daily' usage, which is significantly higher than any other device. On the contrary, game consoles show the least daily usage, with only 112 users indicating they use them 'daily' in an educational environment, compared to the majority of respondents (*N*=1788) who reported 'never' using a game console at school. Usage patterns for laptops and desktops vary considerably, showing a more balanced distribution across different frequencies, whereas desktops showed a notable peak in the '2-3 times a week' category with 776 users, suggesting a preference for more intermittent use.

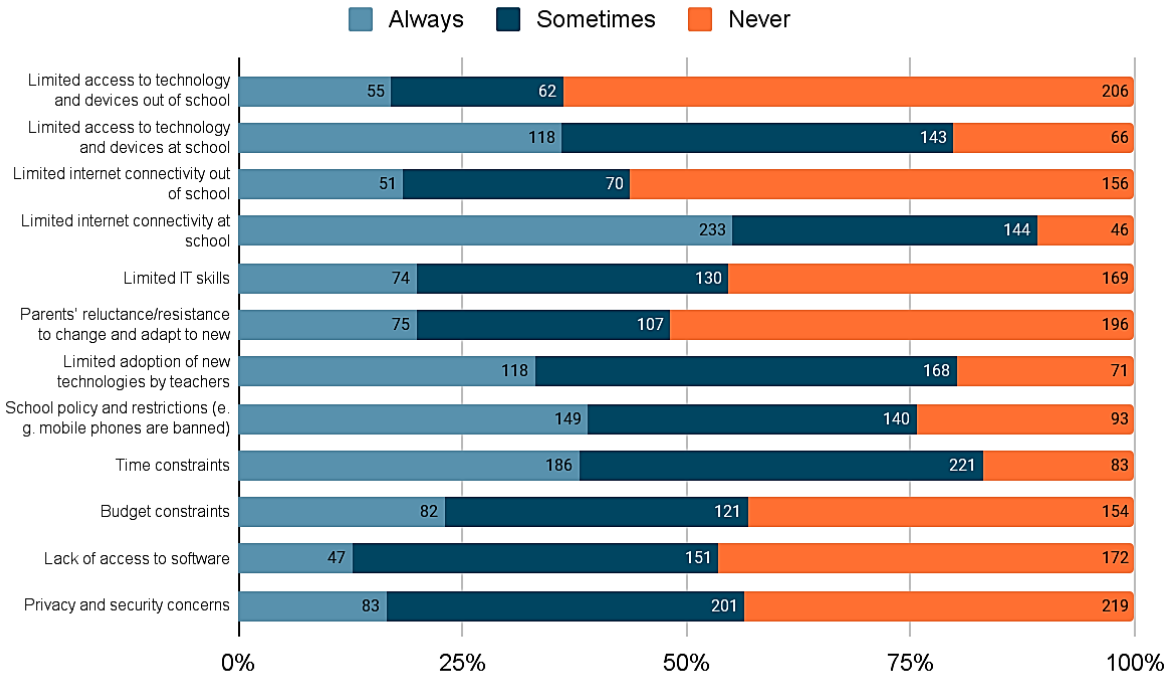


1.7. Challenges when using digital technologies

To gain a comprehensive understanding of challenges when using digital tools, participants were asked to identify the specific **problems** they faced when using digital technologies. Participants were asked to categorise each problem based on its frequency of occurrence: whether it was 'always a problem', 'sometimes a problem', or 'never a problem'. Furthermore, within each category, participants were requested to rank the issues from 'most problematic' to 'least problematic'. In the following paragraph and chart, we discuss the findings about the first questions, without delving into the ranking within each category.

The following chart presents a visual representation of the data. The areas where digital technology users experienced most often difficulties were related to limited internet connectivity at school, school policy and restrictions, or time constraints. On the other hand,

limited access to technology and devices out of school, limited internet connectivity out of school, and parents' reluctance/resistance to change and adapt to new technologies were never an issue.



2. Digital Literacies Teacher Survey (DLTS): Romania

2.1. Introduction

The survey was conducted between April 17 and April 29, 2024, with the support of the Research Unit in Education at the National Center for Policy and Evaluation in Education, under the Ministry of Education of Romania and we gathered insights from 325 educators in Romania.

The legal framework for intensive and bilingual language instruction in pre-university education is outlined in Ministerial Ordinance No. 4797, issued on August 31, 2017 by the Ministry of National Education. The number of bilingual classes varies annually, for the upcoming 2024-2025 academic year, for instance, 271 bilingual language instruction classes are offered nationwide. Teachers in these programs must hold at least a definitive teaching degree and demonstrate linguistic competency at a B2 level. Additionally, native speakers may be involved in teaching through cultural agreements or collaborative programs, providing authentic language learning experiences.

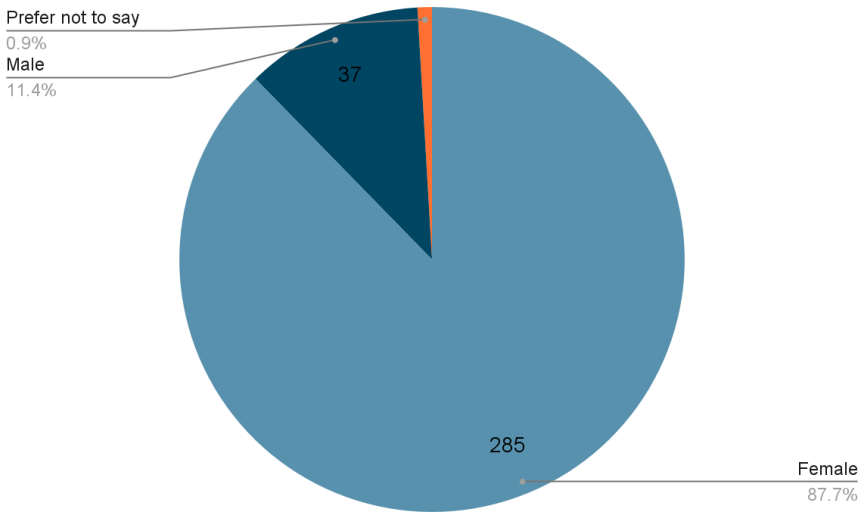
2.2. Summary of main findings

- Participants' background:
  - The survey gathered insights from 325 educators in Romania.
  - The majority of teachers were monolingual, with Romanian as their most common first language. Among multilingual teachers, English was the most frequently mentioned second language.
  - Language & Communication was the most widely taught subject across all age ranges, especially in the 13-16 and 17-21 age groups.
  - English was the main language used for CLIL, followed by Romanian, French, German, and Spanish. 4
  - 1.3% of the respondents taught foreign languages, predominantly English, followed by French, German, Italian, and Spanish. Some teachers also taught multiple languages.
  - Most teachers had extensive experience, with over 16 years in the field.
  - Nearly half of the respondents had CLIL training, but 51.08% lacked formal training, highlighting the need for professional development programs to better equip educators with CLIL methodologies.
- Participants' CLIL teaching experience: Language and Communication was the most commonly taught subject in a CLIL context, with 183 teachers reporting it. History and Geography followed, with 38 and 35 teachers respectively. The main CLIL language was English, followed by French, German, Italian and Spanish.

- Participants' school environment: Nearly 90% of schools had bi-/multilingual students, indicating a diverse linguistic environment.
- Use of Digital Tools
  - Laptops and mobile phones were the most frequently integrated devices for both personal and professional use among respondents, followed by desktop computers and tablets.
  - Most respondents used digital technologies moderately and consistently in CLIL classrooms, with half using these tools for at least 20 minutes per lesson.
- Teachers' competences and challenges: an overwhelming number of 202 teachers reported experiencing challenges when implementing digital technologies in their teaching contexts.
- Teachers' perceptions of digital technologies in CLIL: there was a strong positive consensus on the motivational benefits of technology in integrating language and content in CLIL classes.
- Teachers' perceptions regarding students' digital competences: there was significant variability in teachers' engagement levels regarding integrating technology discussions with student learning in CLIL classrooms.
- Teachers' perceptions regarding students' extramural use of digital technologies: the 13-16 age group is expected to have the highest engagement across most technology-based activities, with usage peaking in areas such as social media, online gaming, and video streaming. This engagement perceptions slightly decreased but remained high in the 17-21 age group, while for the youngest group (9-12) teachers expected the least engagement across all activities.
- There was a relatively low level of awareness among teachers regarding their students' Critical Digital Literacies, with only about 22.84% of teachers being aware of these literacies, while around 60.49% were not.

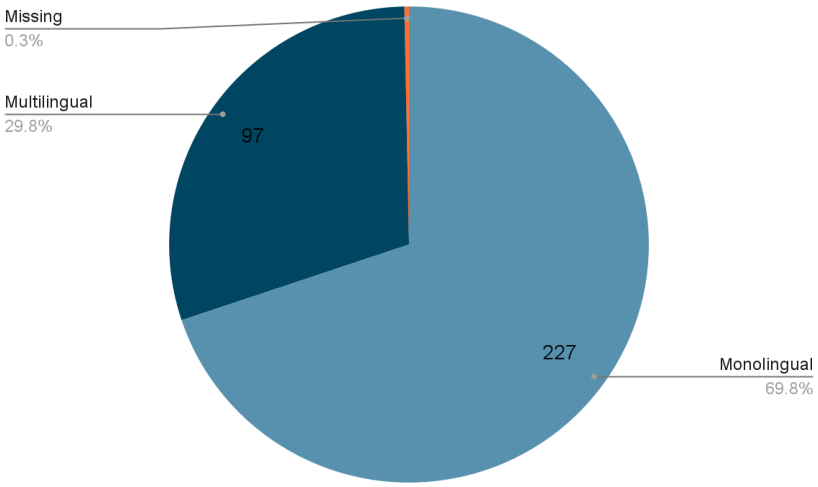
2.3. Participant background

The survey gathered insights from 325 educators across Romania. This group, predominantly female (*N*=285 respondents, 87,7%), with only 11,4% (*N*=37) male participants and a few (*N*=3, 0,9%) preferring not to disclose their gender, provided a comprehensive overview of current practices and emerging trends in integrating digital tools and resources into Content and Language Integrated Learning (CLIL). The study explored strategies used by teachers to foster disciplinary literacies and the impact of students' extramural technology use on their content and language learning within the CLIL framework.



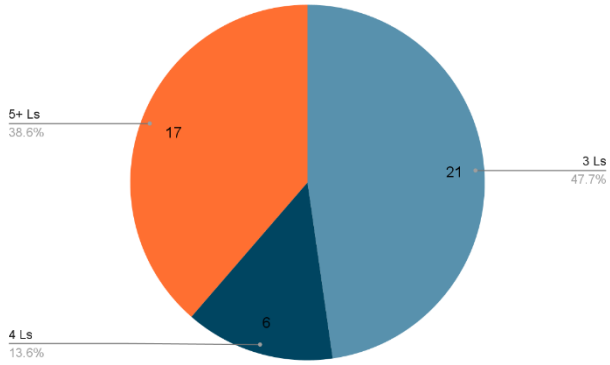
Out of the 325 respondents, 227 teachers (69,8%) indicated as their **L1** a single language (monolingual), while 97 teachers (29,8%) reported having more than one La (multilingual).

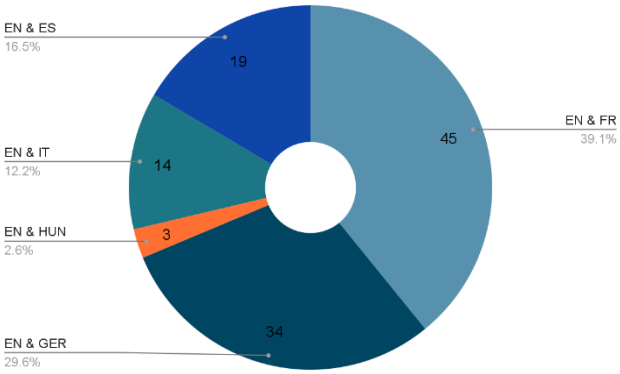
Monolingual teachers predominantly used Romanian (*N*=144), making it the most common L1 among this group. Other languages chosen by monolingual teachers included English (*N*=60), French (*N*=11), Hungarian (*N*=5), German (*N*=3), Italian (*N*=2), and Spanish (*N*=2). This monolingual cohort represents a substantial portion of the surveyed population and reflects a range of linguistic backgrounds, with a strong representation of Romanian.



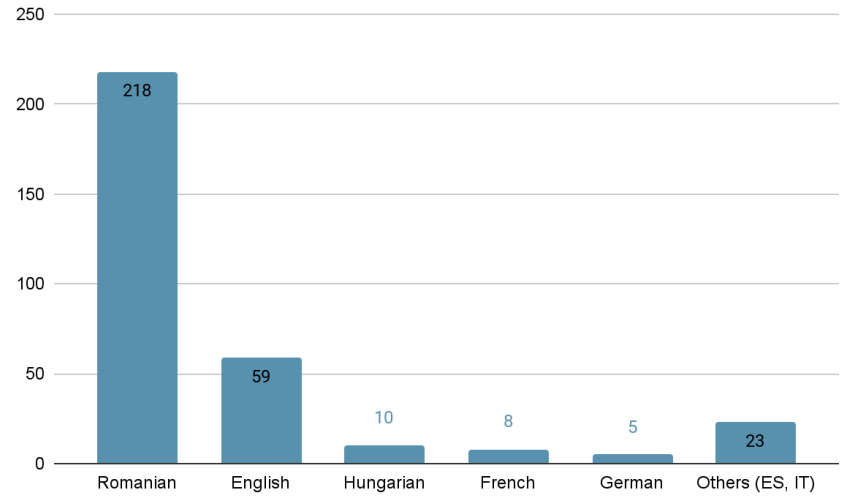
On the other hand, the 97 multilingual teachers indicated a significant presence of educators who operated in more than one linguistic context. 52 respondents were bilingual, with English being the most frequent language, 21 mentioned three languages, while 6 chose a combination of four languages. Overall, the most frequent pairs of languages were English

and French (*N*=45), English and German (*N*=34), English and Spanish (*N*=19), English and Italian (*N*=14), and English and Hungarian (*N*=3). The multilingual group demonstrates the diverse linguistic capabilities that can enrich the CLIL teaching environment. Their ability to navigate multiple languages enhances the variety of approaches to integrating digital tools and resources for disciplinary literacies. The comparison between monolingual and multilingual teachers reflects the rich linguistic diversity among CLIL educators in Romania. While monolingual teachers provide depth in their single-language expertise, multilingual teachers contribute a breadth of linguistic experience, enhancing the overall pedagogical landscape.



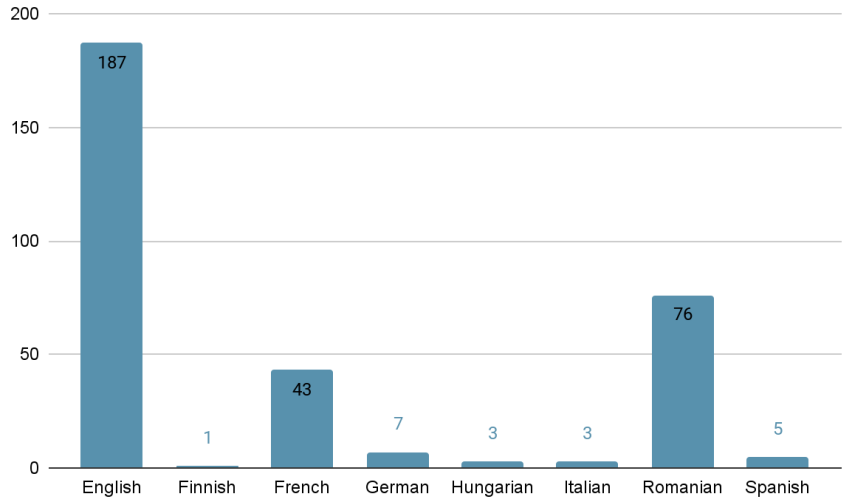


Regarding the data concerning the **official language of schooling**, out of 323 answers (2 values were missing), Romanian was mentioned 218 times, followed by English (*N*=59), Hungarian (*N*=10), French (*N*=8), German (*N*=5), and others (*N*=23, including Spanish, Italian and other languages).

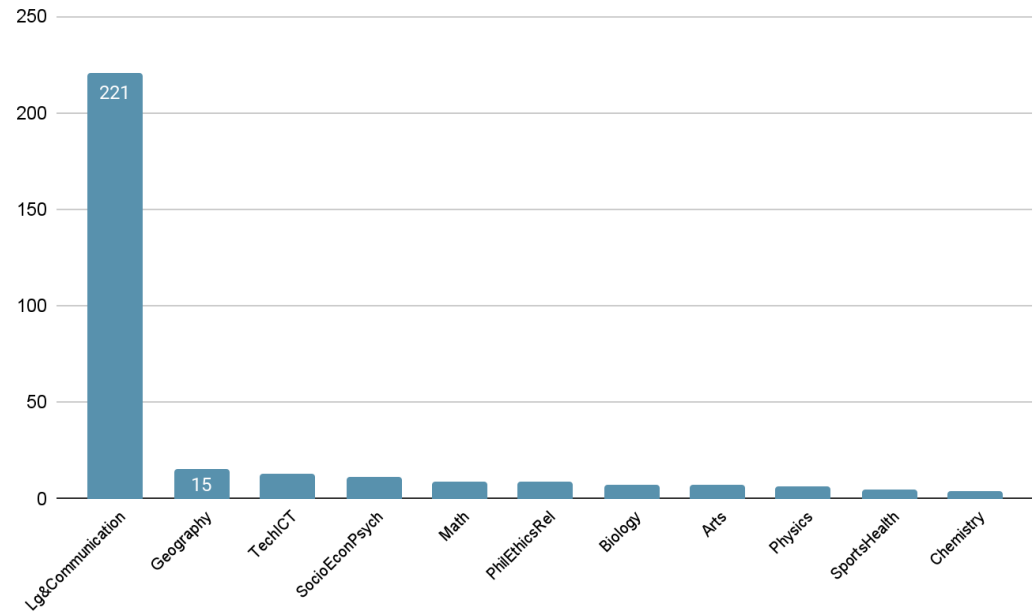


The survey results also shed light on the **main CLIL languages** used by educators, emphasising the prominence of English which emerged as the principal CLIL language, with 187 teachers indicating its use. Romanian was the second most common CLIL language, used by 76 teachers. This was consistent with the high number of respondents identifying Romanian

as their L1. French was the main CLIL language for 43 teachers, underscoring its importance in bilingual education in certain regions. German was used by 7 teachers as the primary language for CLIL instruction, and Spanish by 5 teachers, indicating their use in some CLIL settings. Hungarian and Italian were each used by 3 teachers, showing their presence in a few educational environments. Finnish was the primary CLIL language for 1 teacher.

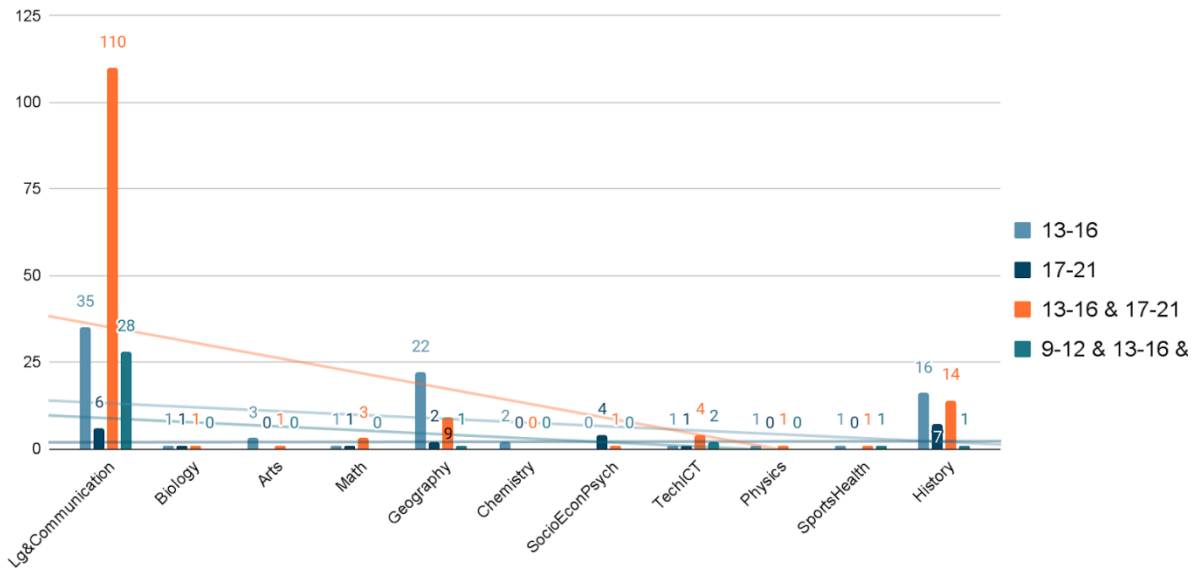


The survey results offered a detailed snapshot of the **disciplines** in which teachers applied CLIL methodologies, revealing the main concentration in Languages and Communication. This category overwhelmingly leads in CLIL instruction, highlighting the natural synergy between language learning and communication skills. CLIL's focus on language development makes it particularly well-suited for this discipline, where teachers can seamlessly integrate content learning with language acquisition. Some teachers indicated that along with this subject area, they also taught Geography and History (*N*=21), while a few others taught Philosophy, Ethics or Religion and Arts.



Language & Communication emerged as the most widely taught **subject across all age ranges**, notably in the 13-16 & 17-21 groups. Geography and History also showed significant use of CLIL, particularly with 13-16-year-olds. Other subjects like Biology, Chemistry, and Arts had a more limited and specific age group focus, reflecting varied approaches to integrating CLIL across different disciplines and educational stages. Other subjects like Socio-Economic and Psychology were more concentrated in the 17-21 age group. Tech/ICT and Sports & Health displayed a balanced distribution across different age groups, indicating a versatile application of CLIL.

Thus, the survey results revealed distinct patterns in the age range groups for CLIL classes across various disciplines. Overall, the 13-16 age group emerged as a focal point for many disciplines, with varying degrees of integration for older and younger students.



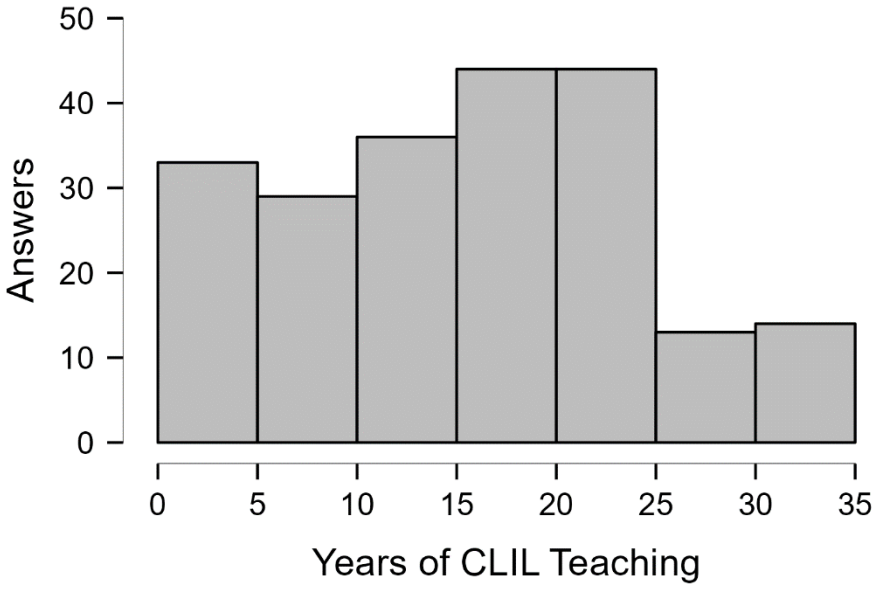
The survey results revealed a wide range of **teaching expertise** among the respondents. The majority of teachers had substantial experience, with 163 educators reporting 16-25 years of teaching, and 105 teachers indicating 26-35 years of experience. Only 54 teachers fell within the 1-15 years range, suggesting that most educators were seasoned professionals, but also indicating ongoing growth and interest in teaching. The median teaching experience was 23 years, and the mean was approximately 22.6 years, indicating a relatively symmetrical distribution of teaching experience. The range of experience spanned from 1 to 35 years, illustrating a wide spectrum of teaching backgrounds among the respondents, with many having over two decades of teaching experience, suggesting a wealth of pedagogical knowledge and practical expertise.

Teaching experience	
Valid	322
Median	23.000
Mean	22.571
Std. Deviation	7.496
IQR	9.000
Minimum	1.000
Maximum	35.000

Many teachers had long teaching careers, with most having over 16 years of experience. Although many teachers had substantial **CLIL-specific teaching experience**, this was generally shorter than general teaching experience, indicating that they adopted CLIL methodologies later in their careers. Thus, these results suggest that CLIL may have been a relatively newer pedagogical approach for many experienced teachers, who had incorporated it into their practice within the past two decades. This also reflected a growing trend and interest in CLIL, aligning with broader educational innovations and changes over recent years.

Comparing the teaching experience with the CLIL experience, the median and mean years of general teaching experience were 23 and 22.571 years, respectively, while for CLIL-specific teaching experience, the median and mean years were 17 and 16.465 years. This suggests that CLIL teaching experience is generally shorter, indicating relatively later involvement in CLIL specifically. The standard deviation for CLIL teaching experience was higher than that of general teaching experience, indicating greater variability among teachers' CLIL-specific experience compared to their overall teaching careers. Both general and CLIL teaching experience had the same minimum and maximum range of 1 to 35 years, but the difference in the mean and median emphasised the relatively more recent adoption of CLIL teaching among educators.

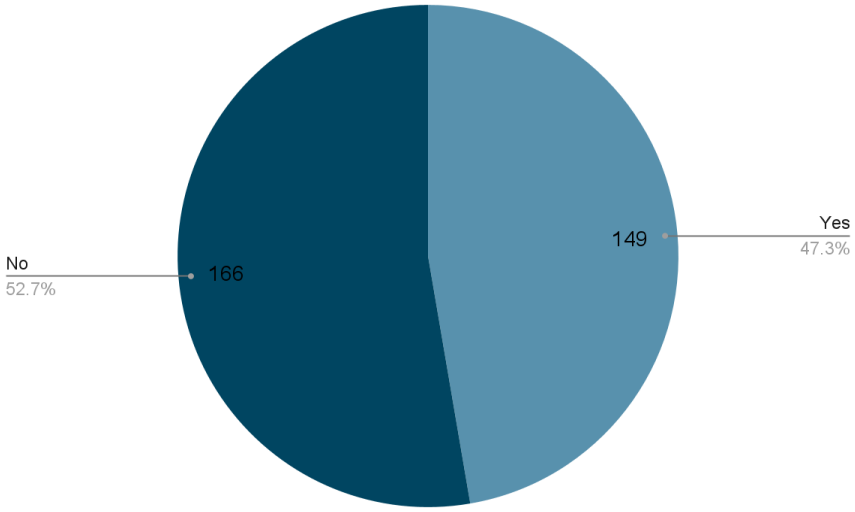
Teaching experience	
Valid	213
Median	17.000
Mean	16.465
Std. Deviation	8.956
IQR	13.000
Minimum	1.000
Maximum	35.000



Regarding **CLIL-specific training**, the responses revealed a split among educators:

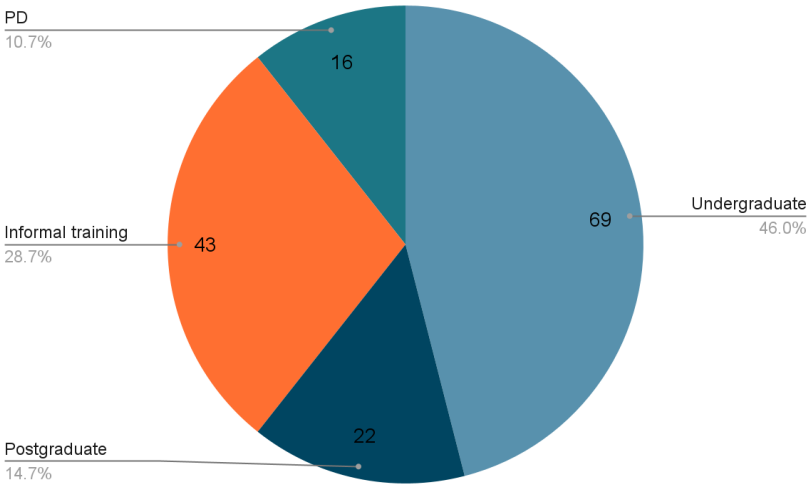
- 149 teachers (45.846%) reported having received CLIL training.
- 166 teachers (51.077%) indicated not having received any CLIL training.

This reflected that nearly half of the educators had undergone formal CLIL training, which was crucial for effectively implementing CLIL methodologies. However, a slight majority had yet to have such training, suggesting potential areas for professional development and capacity building.



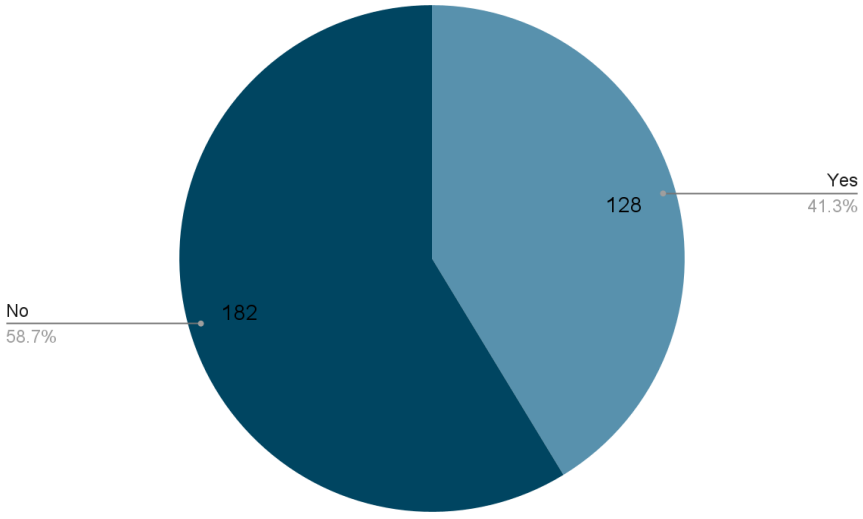
Among those who answered that had received **CLIL training**, teachers obtained it in a variety of degrees. In most cases, they received training through undergraduate courses. Within the

group of respondents that chose this answer, only 19 chose it as such, while 50 combined this type of qualification with all other three. Of 22 teachers who declared a postgraduate qualification, 9 also benefited from informal training and PD.



Among the respondents, 41,3% (*N*=128) were also **foreign language teachers**.

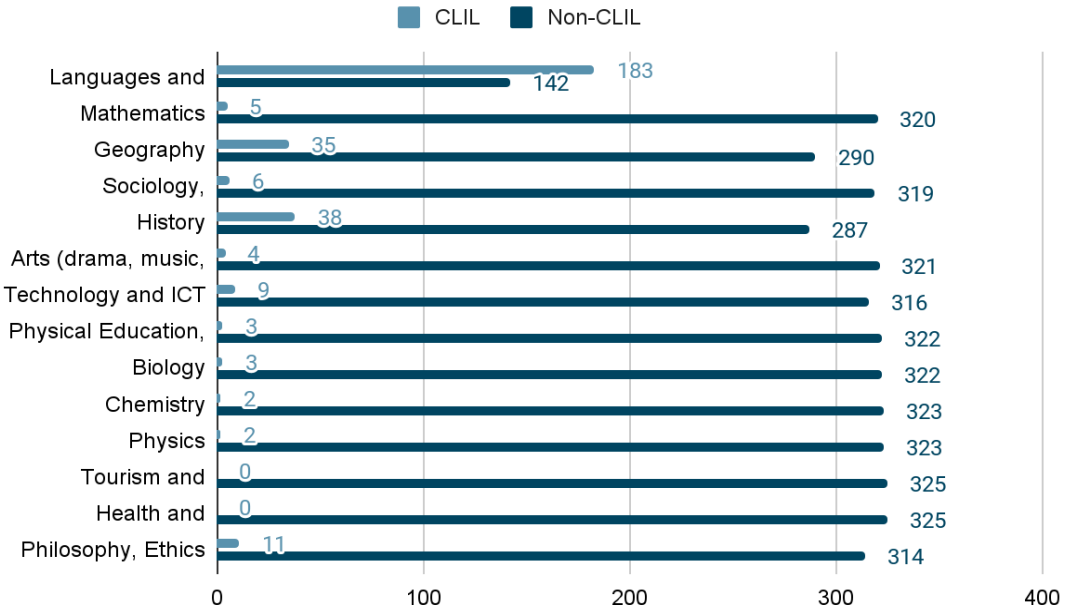
Of these 128 who indicated they also did foreign language teaching, 126 specified the language and the vast majority taught English (*N*=99), followed by French (*N*=14), German (*N*=1), Italian (*N*=1) and Spanish (*N*=1). Some teachers taught two languages, like English and French (*N*=3), English and German (*N*=2), English and Italian (*N*=1), or English and Spanish (*N*=3). While English was paired with different languages, only one pair of languages was mentioned with French, French and Spanish (*N*=1).



2.4. Participants' CLIL teaching experience

Next, we looked at the **subject areas that** the participating teachers taught, both in the CLIL and in the non-CLIL context.

In line with the previous answers, the majority of teachers (N=183) stated that they mainly taught Language and Communication in a CLIL context. History (*N*=38) and Geography (*N*=35) were the subjects that followed with significant responses.



Next, teachers were asked which subject areas they taught through their main CLIL language. The most common answer was Language and Communication in English, (*N*=135), followed by French (*N*=22), German and Spanish (*N*=4), and Italian (*N*=3). History was mainly taught in English (24) and French (4), which in percentages, were roughly the same proportion as for the Language and Communication subject (English 76% and French 12.3% for Language and Communication, and English 75% and French 12.5% for History).

When asked to describe the **objectives of their CLIL teaching and learning** in the classroom, most of the answers favoured content teaching, rather than language teaching. As shown in the table below, both the median and the mean were very close to each other, suggesting that the distribution of responses is fairly symmetrical around this central point. The SD and IQR indicated there is significant variability in the responses. This implied that while there was a general trend towards content teaching, there was also a substantial number of teachers who either balanced both aspects equally, or focused more on language teaching.

TgAims_Lg-Content	
Valid	266
Missing	59
Median	59.500
Mean	58.105
Std. Deviation	28.795
IQR	46.750
Minimum	0.000
Maximum	35.000

Further on, teachers were asked to describe their **language use in CLIL lessons**. Both the previous and the following table have similar valid and missing response counts, with 266 valid and 59 missing for teaching objectives, and 274 valid and 51 missing for language use, indicating a consistent response rate across both questions.

The median and the mean for language use were higher compared to the teaching objectives, suggesting a stronger emphasis on the use of the target language in the classroom. This is supported by the IQR, which is smaller for language use than that for teaching objectives, indicating that the responses for language use were more concentrated around the median compared to the teaching objectives.

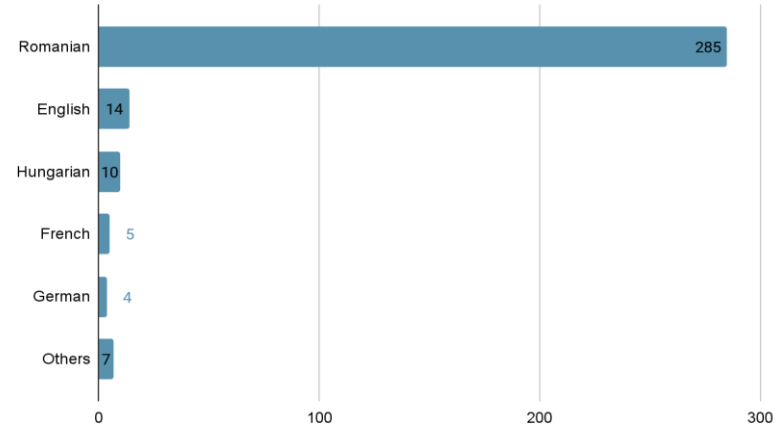
LginCLIL_Biling-TargetLg	
Valid	274
Missing	51
Median	83.000
Mean	73.069
Std. Deviation	28.116
IQR	34.750
Minimum	0.000
Maximum	100.000

While the objectives of CLIL teaching leaned slightly towards content teaching, the actual use of language in the classroom showed a stronger emphasis on using the target language, as indicated by higher median and mean values, underlining the strong focus on language in CLIL classrooms, despite a content-focused approach.

2.5. Participants' school environment

Our results showed that the majority of schools (92.26%) involved were located in urban centres, with a smaller percentage in urban suburbs (6.81%), and rural areas (0.93%). Most schools had a mixed-gender student population (98.41%), with only a small number of boys-only (0.32%) and girls-only (1.27%) schools. Nearly 90% of schools had bi-/multilingual students, indicating a diverse linguistic environment. The schools were administered under various authorities, with nationally administered schools forming the largest group (51.58%).

The **main language of schooling** was Romanian (*N*=285), followed by English (*N*=14) and Hungarian (*N*=10), as seen in the graph below.

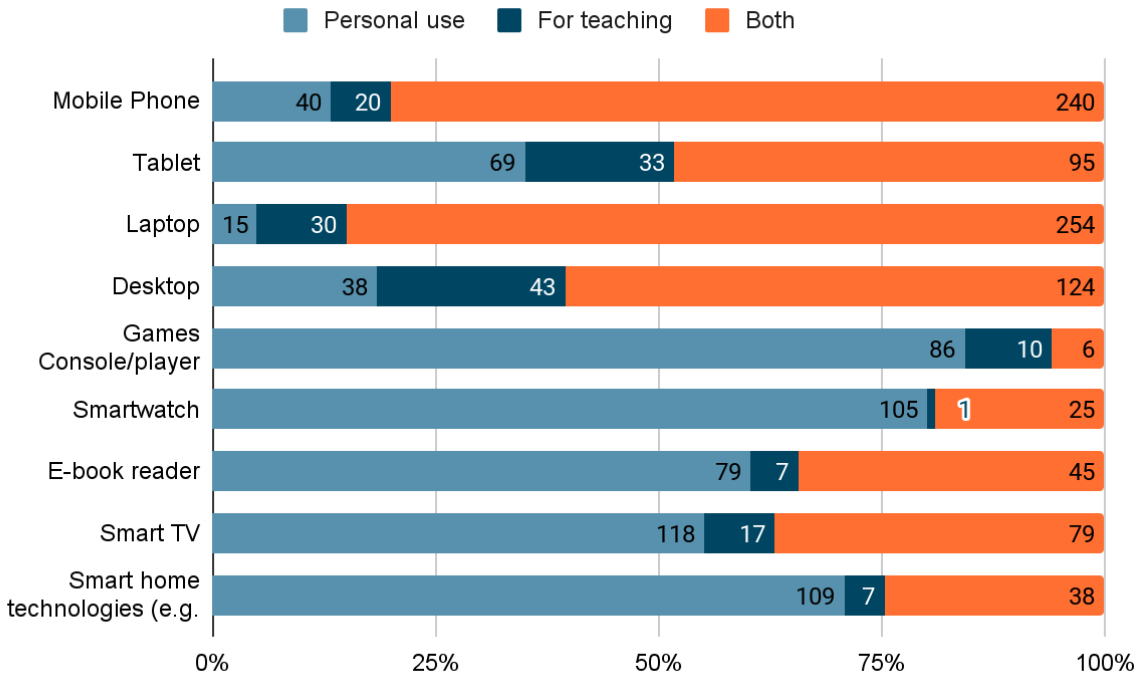


Concerning the **percentage of bi-/multilingual students**, the table below shows diverse linguistic compositions within the school populations, with nearly 40% of students in these schools being bilingual or multilingual. The significant presence of bi-/multilingual students was indicated by the median value, suggesting that half of the schools had at least 26% of their student population composed by bi-/multilingual children. The IQR of 60.000% further emphasises the widespread bilingualism percentages, indicating that some students were also non-multilingual.

BiMultilingStudents	
Valid	251
Missing	74
Median	26.000
Mean	39.554
Std. Deviation	34.009
MAD	22.000
IQR	60.000

2.6. Use of digital tools in CLIL

The following results pertain to the question of **technology usage** among respondents, specifically focusing on the regular use of various devices. Participants were asked to categorise each device according to its use: for personal use, for teaching, or for both personal and teaching purposes. The devices in question included mobile phones, tablets, laptops, desktops, game consoles, smartwatches, e-book readers, smart TVs, and smart home technologies. The responses showed that the laptops and the mobile phones were most frequently integrated into personal and professional activities, followed by the desktop computers and the tablets.



The following results address the question regarding the **use of technologies in CLIL classes** to foster bi/multilingual disciplinary literacies. Participants were asked to report the frequency of their use of various technologies in their CLIL subjects, taught through their main CLIL language. The technologies in question encompassed social media platforms, multiplayer online gaming, instant messaging apps, video streaming services, mobile applications, online video sharing, virtual learning platforms, VR and AR experiences, e-commerce platforms, mobile photography, digital storytelling tools, online forums, educational apps and games, music streaming services, e-book readers, AI-based technologies, e-textbooks, digital projectors, single-player online gaming, online courses, digital reading devices, and online shopping. The response options ranged from ‘Never’ to ‘Every lesson,’ providing a detailed picture of the integration of these technologies in the educational practices within CLIL classrooms. The table below shows that none of these devices were used in all subjects (‘5’) and some - were never used at all (‘1’).

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

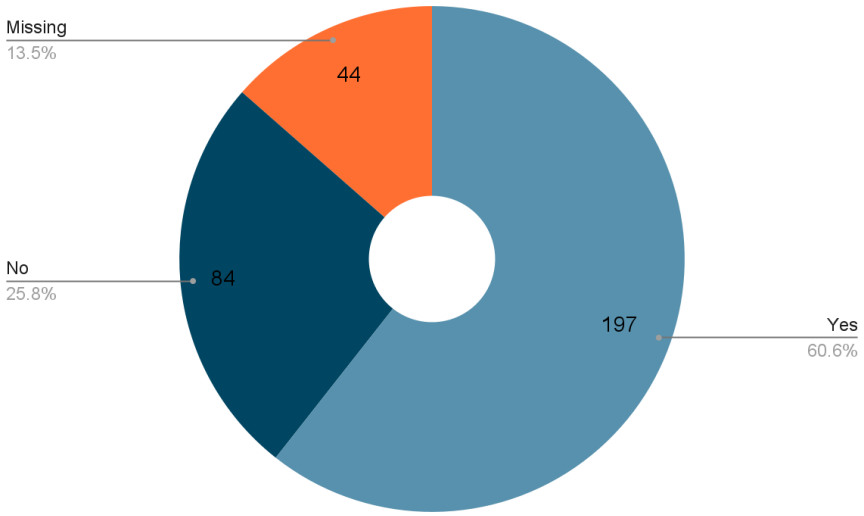
The following results focused on the frequency of technology usage when teaching CLIL subjects through the languages selected in a previous question. Participants were asked to indicate how often they employed various technologies to develop bi-/multilingual disciplinary literacies. These literacies involve thinking, knowledge building, and communicating multilingually and multimodally, appropriate to the CLIL subject area and the learners' age. Technologies considered included those that supported multilingual and multimodal communication, such as graphs, tables, graphic organisers, and other visual aids. The response options ranged from 'Never' to 'Every lesson', offering insights into the regularity and integration of these technologies in enhancing the educational experience in CLIL classrooms.

The table below revealed that most respondents used digital technologies moderately and consistently, with half of them using these technologies at least 20 minutes per CLIL lesson.

The data showed a moderate and relatively consistent integration of digital technologies in CLIL classrooms among respondents, with the majority falling within a narrow range of 17.5 to 22.5 minutes of usage.

BiMultilingStudents	
Valid	286
Missing	39
Median	20.000
Mean	18.427
Std. Deviation	7.760
MAD	5.000
IQR	5.000

197 (60,6%) respondents also **teach non-CLIL classes**, as illustrated in the chart below.



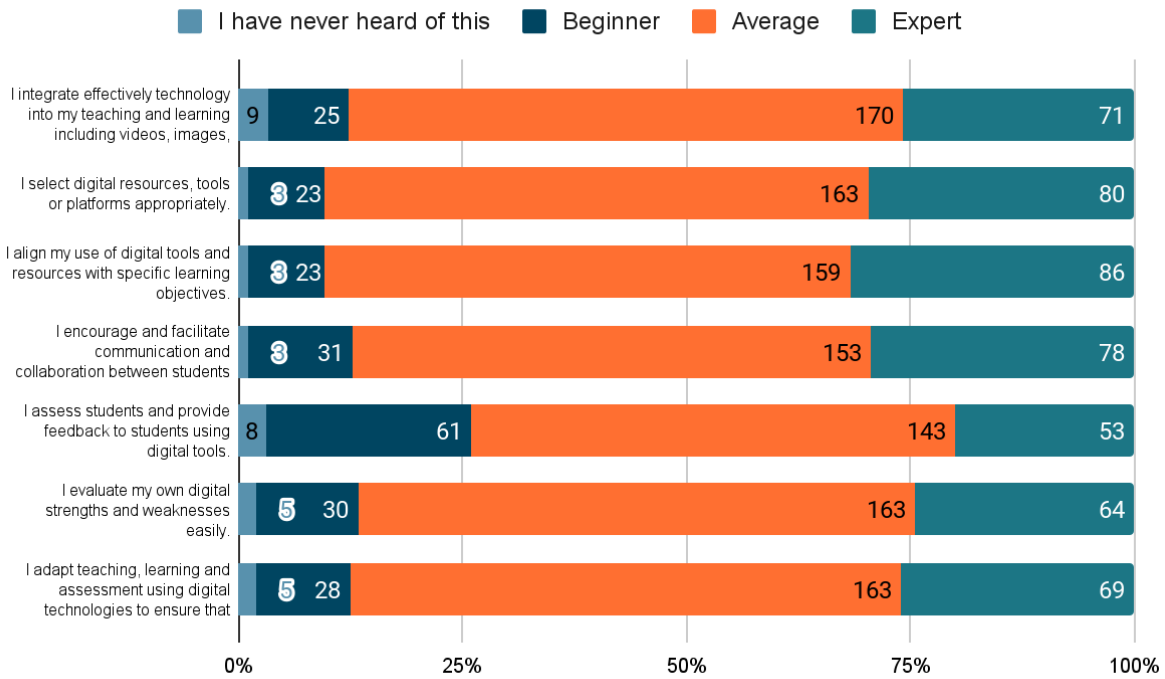
Subsequently, those who answered that they do teach non-CLIL classes were asked to reflect on their digital technology usage in CLIL vs non-CLIL. As results indicate, only 133 teachers out of 197 who stated they teach non-CLIL classes answered this question.

The descriptive statistics indicated that respondents had varied perceptions regarding the **difference in digital technology use between their CLIL and non-CLIL classes**. While some teachers saw little to no difference, others noticed some substantial differences in their use of technology. The median and mean values suggested that, on average, there was a moderate difference, but the variability indicated diverse experiences among teachers.

BiMultilingStudents	
Valid	133
Missing	192
Median	48.000
Mean	43.000
Std. Deviation	24.262
MAD	7.000
IQR	18.000

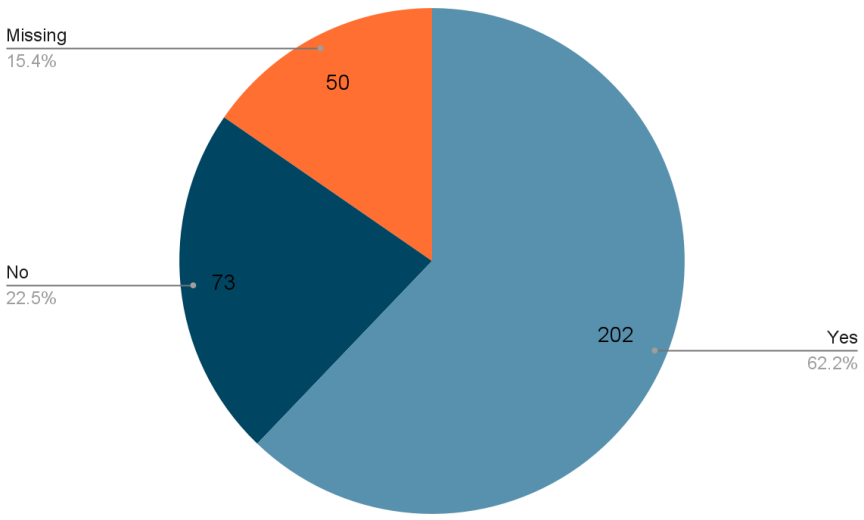
2.7. Teachers' competences and challenges

The following question focused on the **digital tools and strategies** that teachers used to provide feedback to their students. Respondents were asked to drag and drop each statement into the box that best described their level of competence, ranging from 'I have never heard of this' to 'Expert'. The chart below shows a visual and detailed image of how teachers self-evaluated their confidence in using digital tools and the descriptive statistic table provides numerical summaries, reflecting the average level of teachers' confidence in using digital competence.



Statement	Median	IQR
I integrate effectively technology into my teaching and learning including videos, images, interactive elements.	3.000	1.000
I select digital resources, tools or platforms appropriately.	3.000	1.000
I align my use of digital tools and resources with specific learning objectives.	3.000	1.000
I encourage and facilitate communication and collaboration between students using digital technologies.	3.000	1.000
I assess students and provide feedback to students using digital tools.	3.000	1.000
I evaluate my own digital strengths and weaknesses easily.	3.000	0.000
I adapt teaching, learning and assessment using digital technologies to ensure that learning experiences are inclusive.	3.000	1.000

When asked if they experienced any **challenges** when using digital technologies in their context, an overwhelming number of 202 teachers replied affirmatively.



2.8. Teachers' perceptions of digital technologies in CLIL

To measure the teachers' **perception of the digital technologies used in CLIL classes**, they were asked to provide their opinion (on a five-point scale, ranging from 'strongly disagree' to 'strongly agree') with regard to three statements:

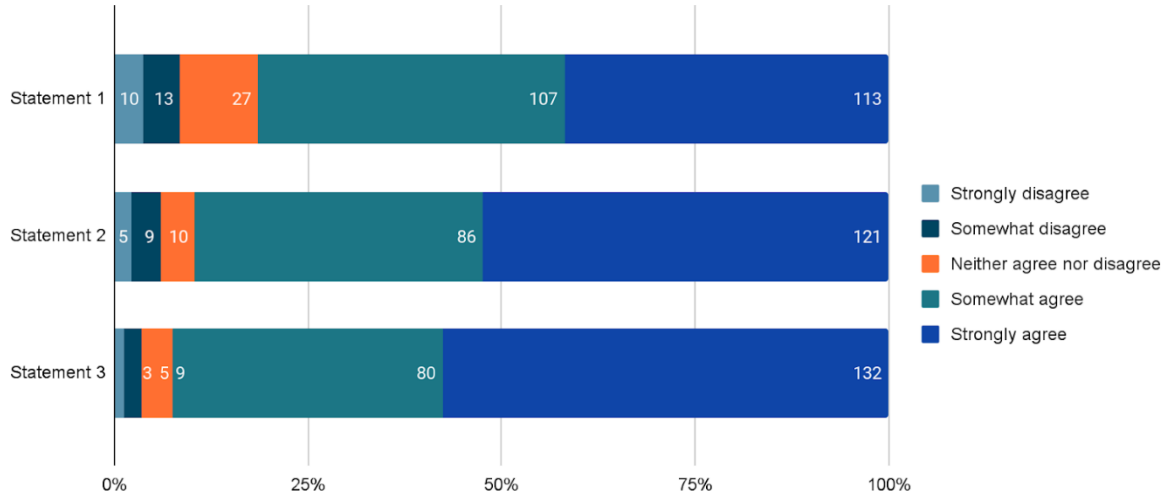
- **Statement 1**, Students' disciplinary literacy skills improve when incorporating technology into CLIL learning.

- **Statement 2**, Using technology encourages students to be more multilingual in their learning.
- **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.

From the responses, it is evident that Statement 3 received the highest number of 'Strongly Agree' responses, indicating a strong positive consensus among teachers regarding the motivational benefits of technology in integrating language and content. Statement 2 also garnered strong support, particularly in promoting multilingualism, although it had slightly fewer 'Strongly Agree' responses compared to Statement 3. Statement 1 received significant support for the role of technology in improving disciplinary literacy skills, but also had the highest levels of disagreement and neutrality, suggesting some reservations among teachers.

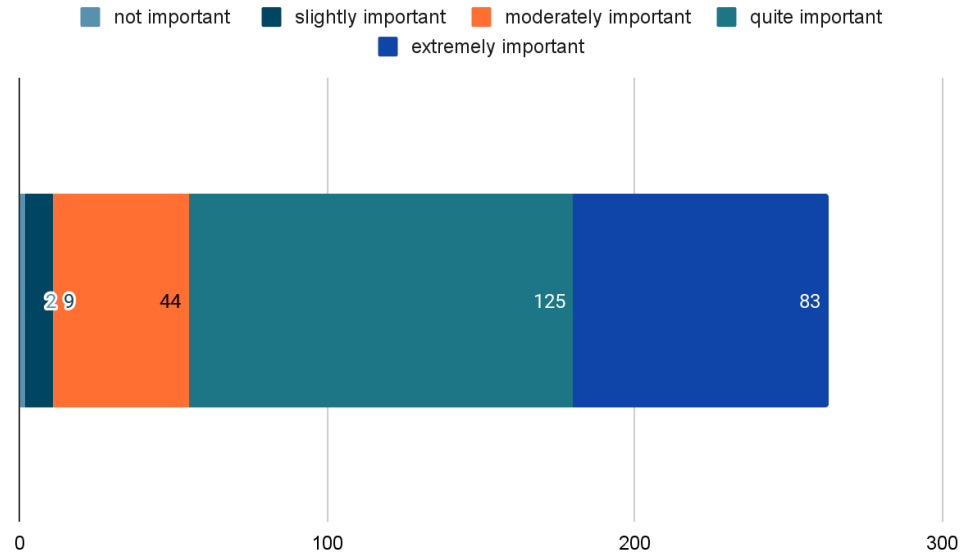
In conclusion, while all three statements received substantial positive feedback, the degree of consensus varied, with the motivational aspect of technology (Statement 3) being the most strongly endorsed, followed by the encouragement of multilingualism (Statement 2), and finally the improvement of disciplinary literacy skills (Statement 1).

	Students' disciplinary literacy skills improve when incorporating technology into CLIL learning	Using technology encourages students to be more multilingual in their learning	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
Valid	271	231	229
Median	4.000	5.000	5.000
IQR	1.000	1.000	1.000



A significant majority of teachers, totalling 125, considered the **student's technology use for CLIL lesson planning** 'quite important', underscoring a widespread acknowledgment of the role technology plays in enhancing lesson planning. Additionally, 83 teachers viewed it as 'extremely important', highlighting a substantial belief in the critical impact of technology on the effectiveness and quality of CLIL lesson planning. On the other hand, a smaller group of teachers saw technology use as less critical. More specifically, 44 teachers rated it as 'moderately important', while 9 considered it 'slightly important', and only 2 viewed it as 'not important at all'. This distribution indicates that, while the majority of educators placed a high value on technology for CLIL lesson planning, there was still a portion that was less convinced of its essential role.

Overall, the responses suggest that most teachers recognized and valued the integration of technology in lesson planning for CLIL, with a strong emphasis on its importance. This trend points towards a growing reliance on technology to support and enhance the teaching and learning process in CLIL contexts. However, the varied levels of importance attributed by some teachers also indicate the need for continued dialogue and professional development to address any uncertainties and to promote the effective use of technology in CLIL lesson planning.

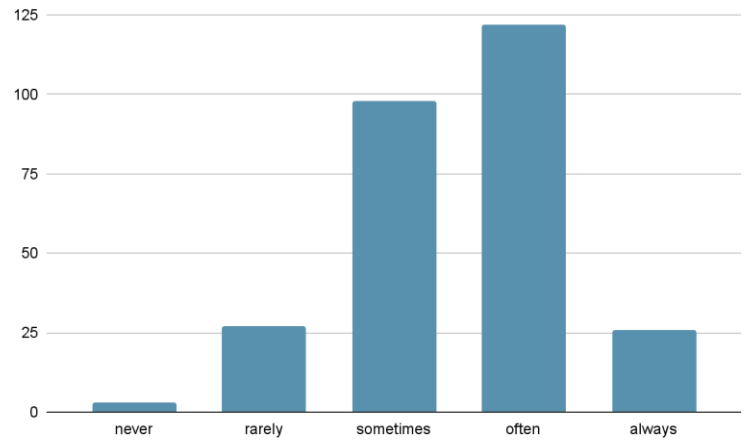


The data gathered from 207 responses regarding the **perceived benefits of students' use of technology outside the classroom for developing disciplinary literacy skills or language skills** suggested that a majority of teachers saw substantial benefits in technology use for skill development with a median value of 73. However, the standard deviation of 25.093 showed noticeable variability in teachers' perceptions, indicating differing views on the extent of these benefits, which was further emphasised by the interquartile range of 37.5. While there was general consensus among many teachers on the positive impact of technology on skill development, the variation in responses suggests a need for further exploration and the possibly more targeted training or resources to help teachers maximise the benefits of technology in developing these skills.

Teval_relevTeachCritDLs+LgSkills	
Valid	207
Missing	73.000
Median	67.010
Mean	25.093
Std. Deviation	37.500
Minimum	0.000
Maximum	100.000

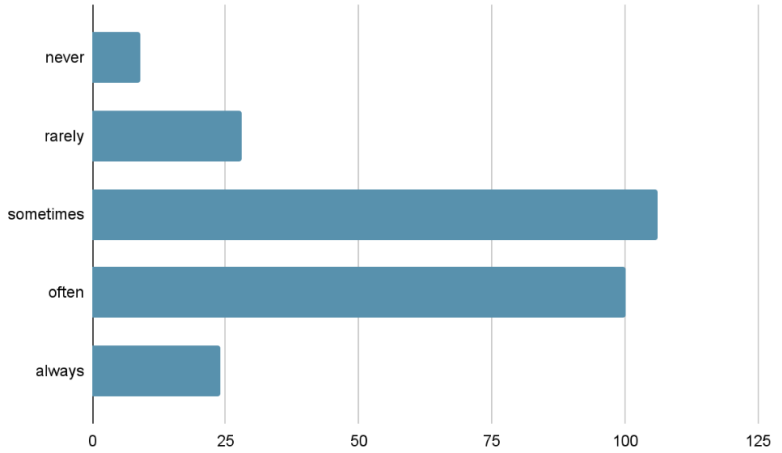
2.9. Students' digital competences: teachers' perceptions

When asked about the frequency of **discussing their students' technology use** outside of school, most teachers indicated they addressed it to some extent. Responses were measured on a 5-point ordinal scale. The median response was 4.0, with an interquartile range of 1.0 and the bar chart below illustrates the distribution of teachers' responses in greater detail. The percentage, without the missing 49 responses, was 35.5% for those who replied 'sometimes' and 44,2% for those who did this 'often' in their classes.

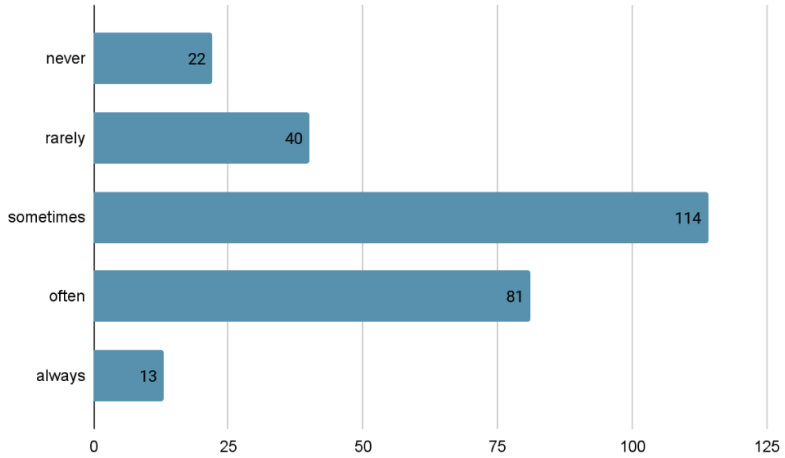


The responses from teachers regarding the **explicit linking** of technology discussions to student learning in the CLIL classroom showed a range of engagement levels. A significant number of teachers (*N*=106) 'sometimes' make these connections, indicating a moderate frequency of integrating technology discussions into their teaching practices. A close number of teachers (*N*=100) 'often' create explicit links, reflecting a strong commitment to connecting technology use with learning outcomes. Additionally, 24 teachers 'always' ensured these connections were made, demonstrating a high level of intentionality in their pedagogical approach. On the lower end of the spectrum, 28 teachers 'rarely' made such connections, and 9 'never' did, suggesting that there was still a portion of educators who may not prioritise or

have the means to integrate technology discussions explicitly into their curriculum. This variability points to the need for more consistent and widespread practices to ensure that technology discussions are effectively tied to learning objectives in the CLIL classroom.



The responses from teachers indicated a varied approach to **providing guidance** on using tools outside of the classroom. A notable portion of teachers (*N*=114) reported that they 'sometimes' offered such guidance, suggesting a moderate level of engagement in this area. Additionally, 81 teachers 'often' provided this guidance, highlighting a substantial commitment to integrating external tools into the learning process. On the other hand, a smaller group, of 13 teachers, consistently offered guidance, demonstrating a high level of dedication to ensuring students knew how to use these tools effectively. Conversely, 40 teachers 'rarely' provided this guidance, and 22 never did so, indicating that a segment of educators either lacked the opportunity, resources, or inclination to extend their support in this area. This diversity underscores the need for consistent strategies and support systems to help teachers effectively guide students in using educational tools outside the classroom.



Guidance extramural use	
Valid	270
Median	3.000
Mean	3.085
Std. Deviation	0.981
Minimum	1.000
Maximum	1.000

2.10. Students' extramural use of digital technologies: teachers' perceptions

According to the teachers' perceptions, it was expected that the 13-16 age group would have the highest engagement across most technology-based activities. This group showed a peak in social media platforms, multiplayer online gaming, instant messaging apps, video streaming services, mobile phone applications, online video sharing, and several other activities, with some of these trends carrying over to the 17-21 age group. However, usage of virtual learning platforms, VR and AR, e-commerce, image editing apps, content creation tools, forums, educational apps, music streaming, e-books, and AI decreased in the 17-21 age group compared to the 13-16 age group. The 17-21 age group maintained high but slightly lower usage levels, compared to the 13-16 group. The youngest group, aged 9-12, showed the least expected engagement across all activities. This trend indicated a significant increase in technology use during early adolescence, which slightly tapers off but remains high in later adolescence and early adulthood.

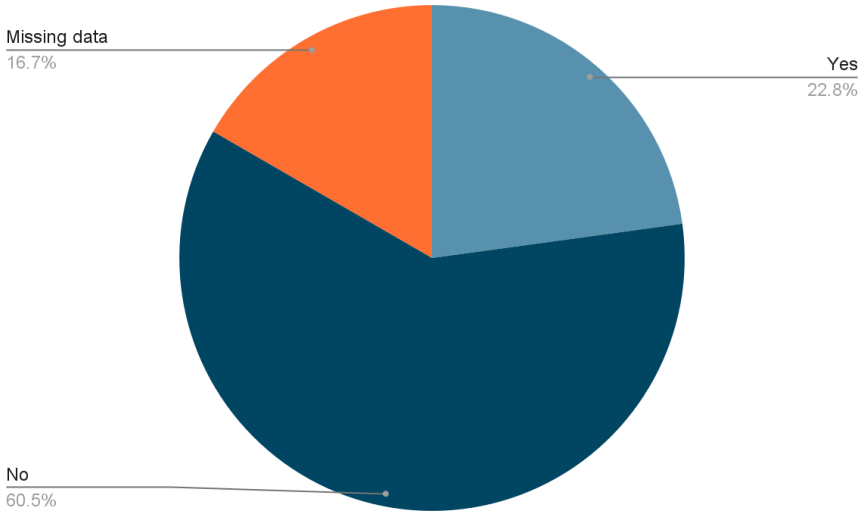
Technology-based activity	Aged 9-12		Aged 13-16		Aged 17-21	
	N	%	N	%	N	%
Social media platforms	26	8%	140	43%	108	33,2%
Multiplayer online gaming	25	7,7%	139	42,7%	94	71
Instant messaging apps	24	7,4%	139	42,7%	107	33
Video streaming services	24	7,4%	134	41,2%	95	29,2
Mobile phone-based applications	26	8%	131	40,3%	98	30
Online video sharing and consumption	20	6,1%	119	36,6%	86	26,4

Online research and virtual learning platforms	13	4%	78	24%	60	18,4
Virtual reality (VR) and augmented reality (AR)	6	1,8%	38	11,6%	32	10
Online shopping and e-commerce platforms	12	3,7%	81	25%	64	19,6
Mobile photography and image editing apps	16	5%	109	33,5%	76	23,3
Digital storytelling and content creation tools	15	4,6%	64	19,6%	52	16
Online forums and discussion boards	8	2,4%	42	13%	42	13
Educational apps and games	19	5,8%	85	26%	62	19
Online music streaming and downloading services	14	4,3%	98	30%	68	21
E-book readers and digital book platforms	7	2,1%	48	14,7%	47	14,4
AI	12	3,7%	77	23,6	63	19,3

2.11. The teaching of Critical Digital Literacies in CLIL

The data suggests that there was a relatively low level of awareness among teachers regarding the Critical Digital Literacies of their students. Only about 22.84% of the teachers were aware what critical digital literacies were, while a significant majority, around 60.49%, were not.

The remaining 16.67% of teachers did not provide an answer, which might also indicate uncertainty or lack of knowledge about the topic. This finding shows a potential area for improvement in teacher training or professional development to better equip educators with the knowledge and skills needed to understand and support their students' digital literacy.



Next, we consider the data of the 22.8% of teachers who indicated being familiar with CDLs in the previous question. In the context of CLIL classes, teachers frequently embedded critical literacies into their teaching and learning activities, as the table below shows. When asked to rate how often they incorporated these CDLs, respondents consistently rated each item with a median score of 4, indicating that they often included these practices in their classrooms.

CDLs	**Median**	**IQR**
Assess the credibility, accuracy and reliability of online information	4.0	1.0
Analyse and interpret media bias, understand persuasive techniques (i.e. photo editing, decontextualized images), examine stereotypes (i.e. stereotypical images of masculinity).	4.0	1.0
Discuss issues related to online privacy, cyberbullying, digital footprint and responsible online behaviour	4.0	1.250
Discuss how to be safe online	4.0	2.0
Use digital technologies to foster communication, collaboration and knowledge sharing	4.0	2.0
Using technology to solve problems	4.0	1.0
Discuss the principles of copyright, piracy	4.0	1.0
Encourage students to reflect on their own digital skills.	4.0	2.0

References

Ministerial Ordinance No. 4797 regarding the Framework Regulation for the organization and functioning of classes with intensive and bilingual modern language teaching in pre-university educational institutions. Ministry of National Education. (2017, August 31). *Official Gazette*, No. 759, September 22, 2017.

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