DECODE

IO4: Practices, training and skills needs of the digital teachers

National Research: Italy

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NATIONAL REPORT
"PRACTICES, TRAINING AND SKILLS NEEDS OF THE DIGITAL TEACHERS"

Forward

The present report is part of the IO4 of the DECODE PROJECT - DEvelop COmpetences in Digital Era Expertise, best practices and teaching in the XXI century, an Erasmus+ KA2 - Strategic Partnerships in the field of Education.

The IO4 collects and illustrates the outcomes of a comparative research on the motivations, needs and expectations of teachers in relation to the use of new information and communication technologies in teaching and their development and accompaniment needs.

In a first phase, Link Campus University proposed a Codebook for national quantitative research for elaboration and sharing same indicators research aimed at identifying experience, skills and training needs of teachers, in all countries involved. During the Action Learning Set in RO on February 2018, the proposal for a template for processing data and that for the drafting national reports are shared and co-evaluated by all partners. The template aimed:

- to be a reference for all national teams;
- to give a common grid to analyze the collected data;
- to present general guidelines to write and to present the national reports;
- to offer a proposal for the national researches index.

Each country conducted national search through the online survey platform shared to allow the comparison of national trends. The field research involved partner countries from March 2018 to May 2018. The analysis of data concerned complete cases only, i.e. consider only questionnaires totally filled in. This has to be done in order to make all statistics comparable across questions.

In a second phase, the data collected in the national reports, are analysed comparatively. The comparative report aims:

- to detect experiences, skills and training needs of teachers with the aim of detecting strengths, areas for improvement and development prospects;
- to reconstruct the digital innovation trend in educational agencies (meso level), supporting the accompanying demands of educational agencies.

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Introduction

The central research questions, therefore, can be summarized as follows:

- What is the daily practice of teaching in relation to the technological equipment provided by the school?
- How does the use of technologies and personal resources in daily professional practice and teaching work?
- What is the state of the experience and skills most widely used today among our teachers?
- What are the most relevant experiments carried out?

Following the shared index and the methodological hints for analysing data, the Italian National Report is articulated in five section.

The first chapter describe the sample involved in the survey and the sample distribution by age, gender, order of school, teaching matter, institutional role, etc.

The second chapter is devoted to the presentation of research results through reconstruction of the practices that have been identified.

The third chapter focuses on updating teachers and their training needs. We therefore dwell on:

- the updated experiences of teachers;
- the self-assessment of digital skills according to DigCompEdu Framework 2017 and
- the representation of the "digital teacher" in the national context as emerges from the portrait depicted regards needs expressed in relation to digital technologies in professional and didactic practice.

The fourth chapter illustrates teachers' personal views regarding using digital technologies (beliefs and motivations).

Finally, the last chapter describes the identikit of the 'digital teacher' highlighting aspects of career and career profiles, and aims to intercept the teacher as a 'change agent', his propensity to innovate, the use of digital resources in class, the use of social networks.

The conclusions give an overview of the whole research.

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1. Sample description

In this paragraph, results of section 1 and 2 of the Questionnaire are presented.

The survey was carried out through the administration of a structured questionnaire, aimed at school teachers of all levels. In the analysis we consider only questionnaires totally filled in, which are 776. This has to be done in order to make all statistics comparable across questions.

The 36.1% of teachers report having taken part in the online questionnaire voluntarily, the 28.1% responded to the survey invitation as a new full teacher, the 32.7% on suggestion of their own headmaster, and finally 3.1% upon receipt of a letter of invitation for extraction through random sampling.

Teachers participating in the survey is concentrated in the segment of the secondary school degree (65.2%), of these the 27.7% teach in the first level of secondary school (11-14 years) and the 37.5% in the second level of secondary school (14-19 years). There is also a good participation in the online survey of the primary school's teachers (28.0%), confirming the existing openness in the experimentation of innovative teaching solutions. Less participation can be observed among the teachers of the Early Years school (5.9%), which tend to prefer activities such as symbolic play, manipulation of materials, psychomotor and creative activities (Tab.1.1)[1].

Geographical participation appears not so equally distributed: with the 54,5% teachers in the Centre; the 20,7% in Northern Italy and the 24,7% in the South and Isles. Compared to the national geographical distribution[2], there was a high participation by teachers of Central Italy and a lower participation of Northern and Southern teachers (Tab. 1.2). It is possible that the location of the researchers contributes to this result, due to their greater presence on this territory.

The analysis of distribution by age groups confirms the Italian teaching staff as one of the oldest in Europe: according to official sources[3] and field research (Capogna, Cocozza, Cianfriglia, 2018), 52% of the over 700,000 tenured professors are at least 50 years old, 45% belongs to the age group that it goes from 31 to 49 years and only 3% is under 30 years old. The survey confirms this trend: among respondents, the age group ranging from 41 to 50 years (38.0%) and from 51 to 60 years (33.1%) are the most represented, age groups that literature labelling digital retard or digital immigrants (Prensky, 2001) (Tab.1.3).

The gender distribution confirms scientific literature, showing the significant majority of women (80.7%), compared to men (19.3%) who have participated in the online research. This figure is substantially in line with the official statistics: women represent 88,6% of the entire teaching staff (about 800 thousand teachers)[4]. The gender distribution is very unbalanced. This is reflected in the study disciplines chosen by the students: 90% of the graduates in the teaching field are female (Tab.1.4).

[1] Tables can be consulted in the annex Appendix tables.

[2] The 39,7 % of teachers teach in schools in Northern Italy, the 19.9% teach in schools in Central and the 40,4% teach in South Italy (Source: elaboration on MIUR data - Statistics and Studies Office, 2017).

[3] TALIS 2013

[4] OECD (2018), Women teachers (indicator). Doi: 10.1787/ee964f55-en (Accessed on 03 August 2018)

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The distribution of respondents with respect to the disciplinary areas of teaching has a high presence of teachers belonging to the following four areas: Literacy (30.7%), Numeracy (29.1%), Science (29.6%) and History (24.9%). Special education teachers with 17.1% confirming the attendance rate at the national level (15.9%)[5]. This willingness to participate may be related to the interest aroused by digital technologies such as compensatory devices with regard to various disabilities, representing a valuable aid for inclusion and learning support for students with cognitive delays or special educational needs. There is a lower participation in the questionnaire by teachers of Modern Foreign Language (17.1%), Art (13.3%), Music (13.7%) and Physical Education (12.2%) (Tab. 1.5). Among them, for foreign language teachers, ICT could represent a significant opportunity to exercise the different skills required in the acquisition of a foreign language, consider the possibility of expanding the range of learning stimuli through multimedia resources; already with the Council Resolution of 1995 [6] reference is made to the promotion of innovative teaching methods aimed at promoting foreign language teaching "by immersion".

Almost all of the sample has a permanent teaching contract (95.4%) (Tab. 1.6). Only the 4.6% of respondents have a temporary contract: a very low percentage compared to the national figure, which stands at 18.5%[7]. The low participation in the survey by precarious teachers may be due to poor motivation and the absence of continuity in teaching.

The 18.0% of teachers declare that they take on a leadership role in the school, while 32.2% assume a management role. Despite the managerial and organizational roles, almost all of the sample also plays a teaching role (97.3%) (Tab.1.7). Gender does not seem to have a particular impact on the role played by teachers. The percentage of men who occupy a leadership role (23.6%) or a management role (23.2%) is 4 percentage points higher than the sample distribution by gender (19.3%). Instead, the age affects more the position held in the school. Approximately 44% of those aged between 51 and 60 are in the leadership or management role. The percentage is lowered for those aged between 41 and 50 (respectively with 35.0% and 39.2%), until it becomes very low for teachers under 40 (respectively with 6.4% and 8.4%).

The positions of responsibility are concentrated among older teachers, for a series of reasons ranging from stabilization to more experience: the young, often precarious, are subject to constant changes, which contrasts their involvement in functions organizational - management, regardless of their personal availability and motivation. It should be added that, in a profession with a strong gender characterization, with a prevalence of women, the age group under 40 is often involved in family care functions, with young children, factors that can negatively weigh on the possibility of investing resources and energies in the working dimension. But this theme invests the wider issue of a re-signification of recruitment policies, career paths, new diversity management tools to rethink the school also in relation to the transformations of welfare systems with which all the advanced countries are currently measured.

[5] MIUR 2017

[6] Council Resolution of 31 March 1995 on improving and diversifying language learning and teaching within the education systems of the European Union, Council of the European Union, 95/C 207/01

[7] MIUR 2017

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Only 29.8% of respondents to the questionnaire are designated as ICT coordinator in the school. Therefore, 70% of the respondents to the survey are teachers who do not have the task of coordinating and promoting digital technologies in teaching. This gives us a less distorted overview, more responsive to the reality experienced by Italian teachers (Tab.1.8) Among those who said they were ICT coordinator, 44% were between 51 and 60, and 37.2% were between 41 and 51 years old. The figure confirms the seniority of the teaching staff.

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2. Teachers' personal views regarding using digital technologies

In this chapter, results of section 5 of the Questionnaire are analysed.

2.1 Beliefs on uses and benefits of digital teaching tools

66% of respondents is agree on the usefulness of use of technologies to draw and organize educational materials. 32,5% is strongly agree, 1,6% is not agree.

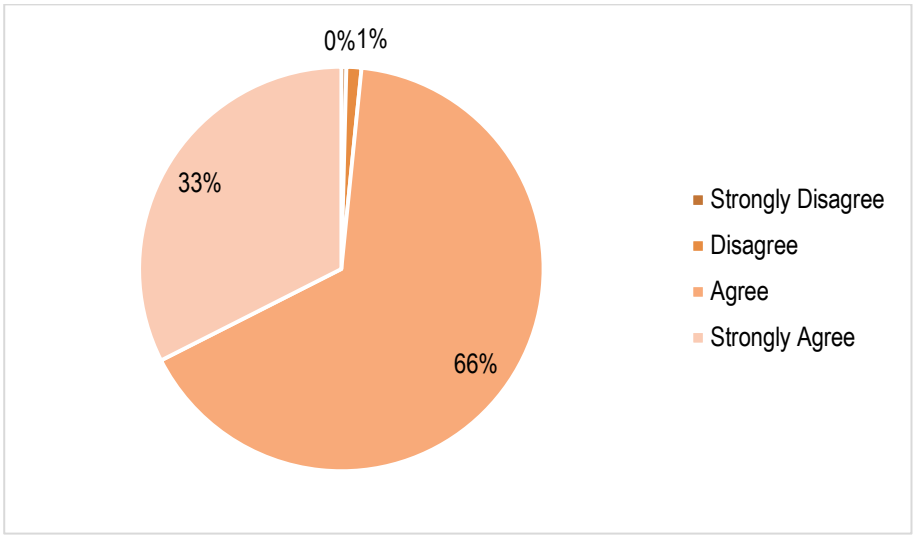

Chart 2.1 - The use of digital technologies helps when designing and organizing educational materials

Using digital technology fosters basic skills development (reading, writing, understanding) 57% of respondents agreed, 14% strongly agree, 25% disagreed and 4% totally disagreed.

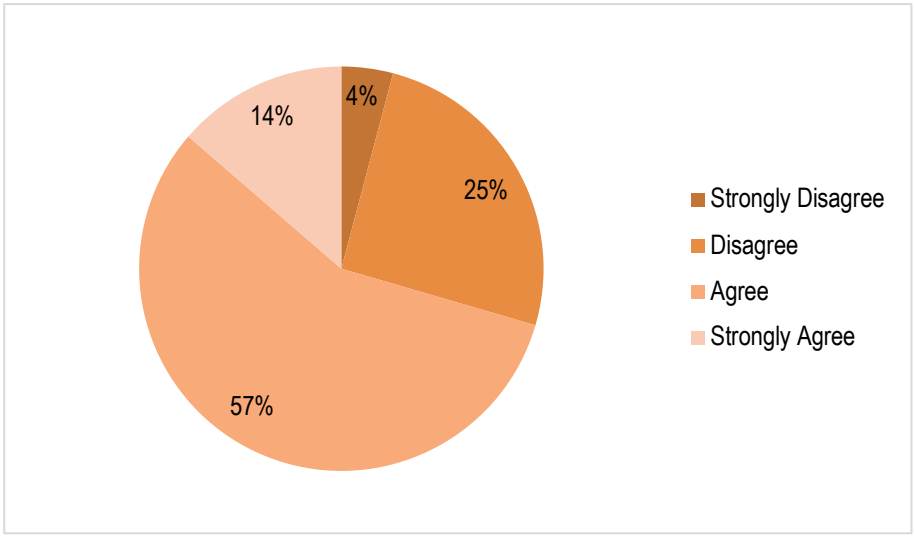

Chart 2.2 - The use of digital technologies promotes the development of basic skills

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Digital technology fosters responsible media and digital skills 60% of respondents agreed, 33% totally agreed, 7% disagreed for the question.

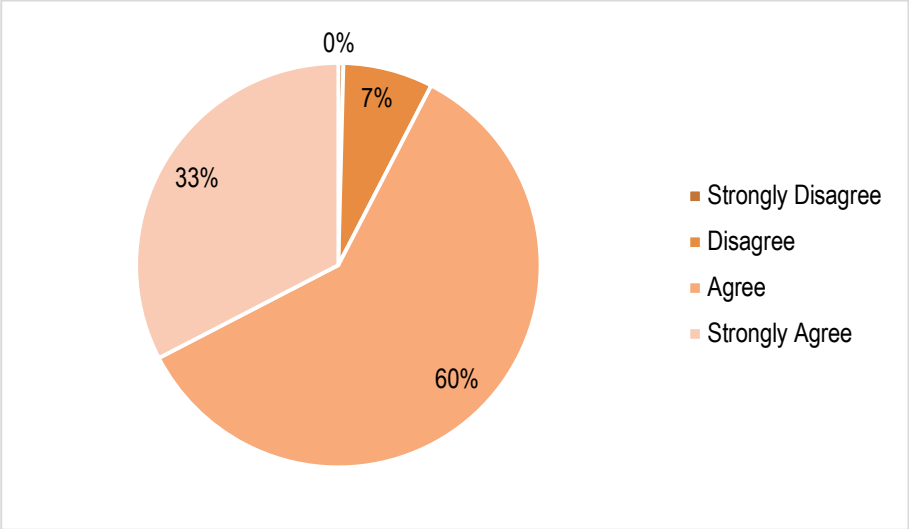

Chart 2.3 - The use of digital technologies promotes the development of responsible media and digital skills

65% of respondents is agree with the use positive learning outcomes created by the use if technologies, 17% is disagree, 16% is strongly agreed, only 2% is strongly disagree.

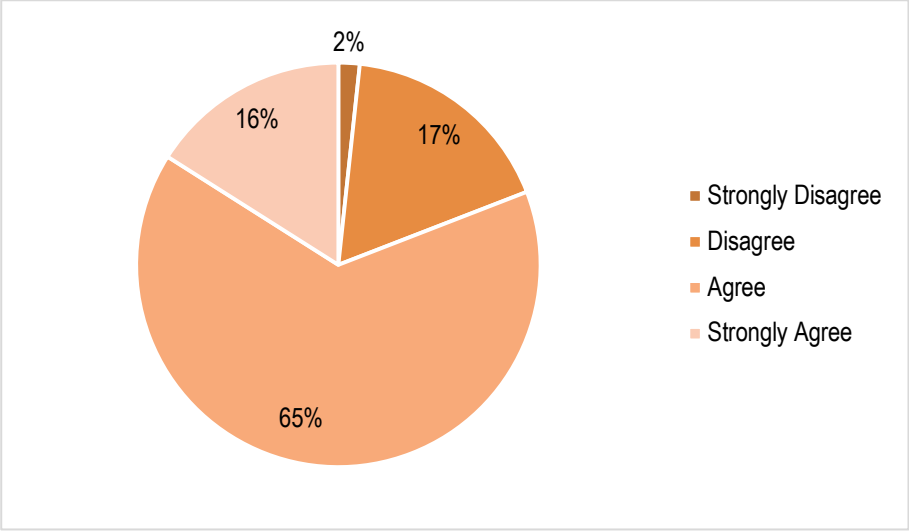

Chart 2.4 - The use of digital technologies creates positive learning outcomes by influencing how learnes behave

58% says that the use if technologies should not replace the traditional teaching method, 28% is strongly agree, only 12% is not agree and 2% strongly disagree.

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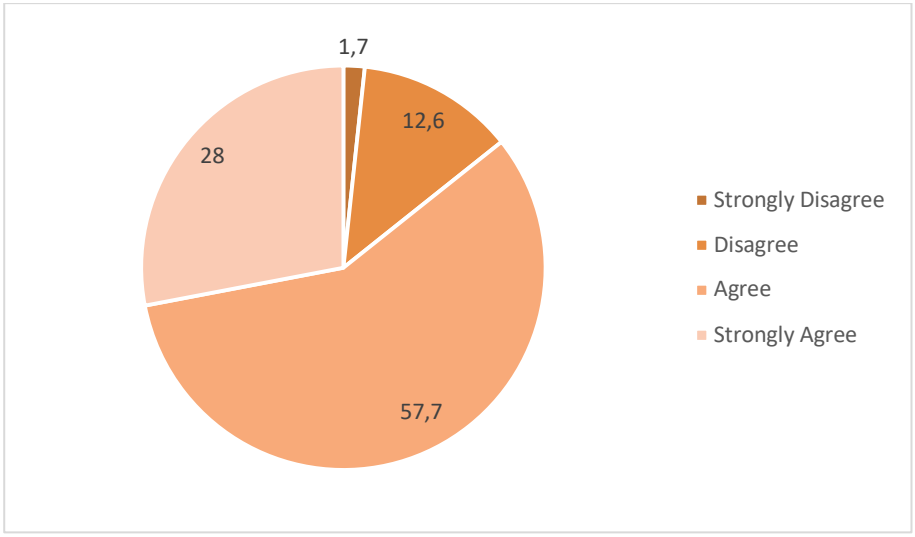

Chart 2.5 - The use of digital technologies should not replace traditional teaching method

59% says that the use of digital technology encourages the self-assessment in students, while 29,3% is not agree.

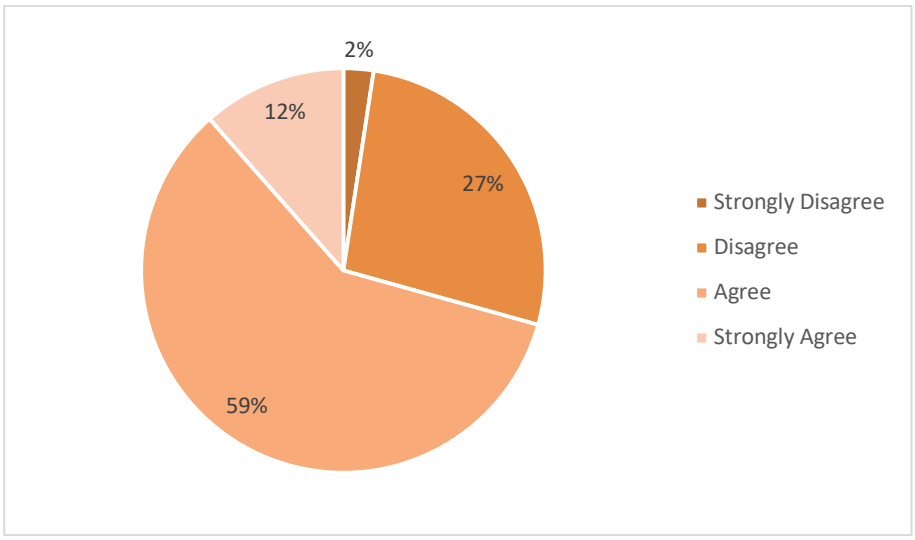

Chart 2.6 - The use of digital technologies encourages self-assessment among students

The majority of 53% do not agree on the increase of cyberbullying caused by digital technologies, while 40,8% is disagree.

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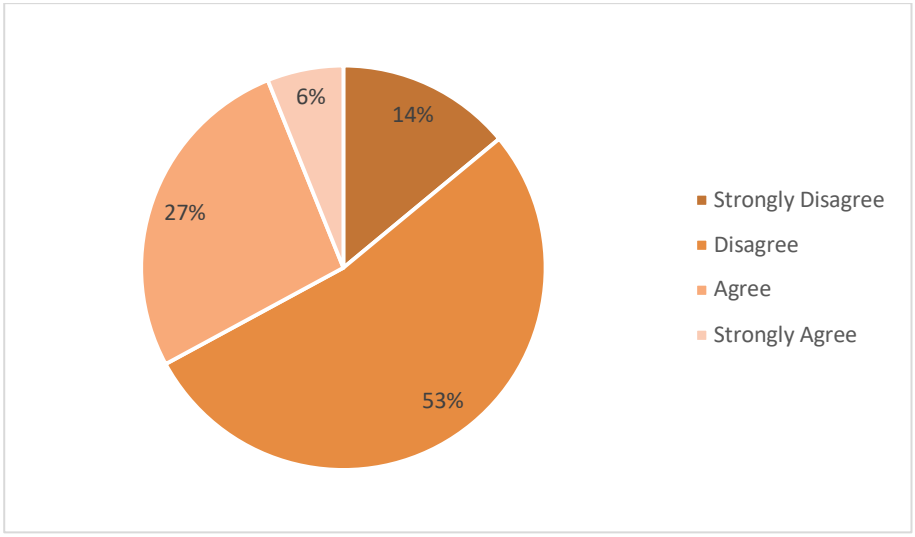

Chart 2.7 - The use of digital technologies increases the level of cyberbullying

More than half (77%) of respondents asserts that the use of digital technologies is not a distractions for student, while 23% believe that technologies sources of distraction for students.

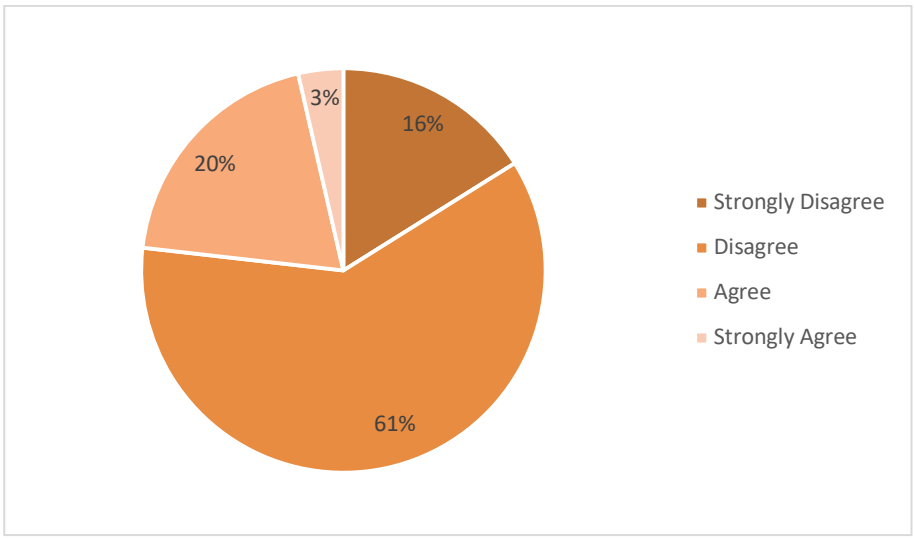

Chart 2.8 - The use of digital technologies is a distraction for students

It is shared opinion among teachers (62% agreed and 31% totally agreed) that is necessary to integrate and complement the traditional teaching in the classroom, also learning paths that provide activities and learning. Only 7% is believed in disagreement with this vision.

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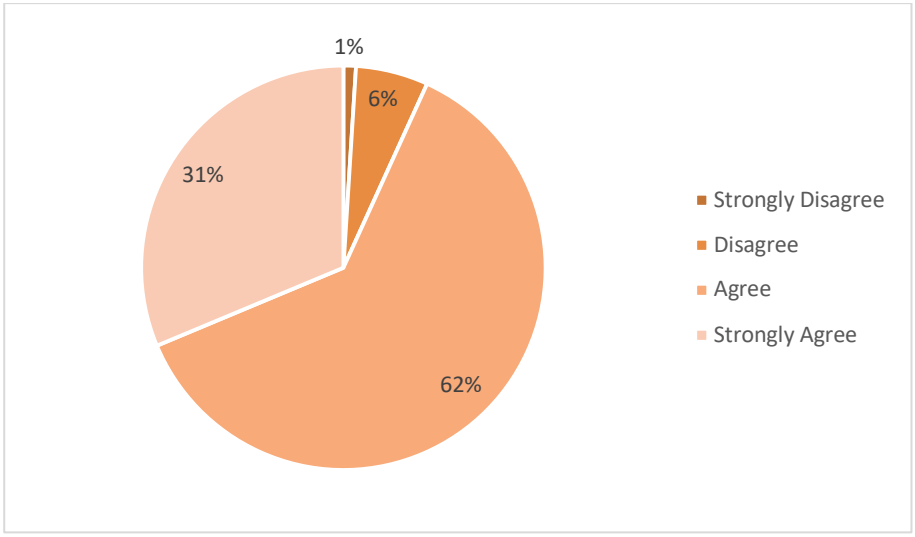

Chart 2.9 - It is necessary to integrate e-learning into teaching activities, alongside traditional classroom-based teaching methods

2.2 Use of digital instruments in didactic and professional practice

One of the research team interests has been to understand how often digital technologies are used in some different scenarios (q0024): social networking, professional networking, personal and professional growth, leisure (culture, hobbies, entertainment, travel, etc.).

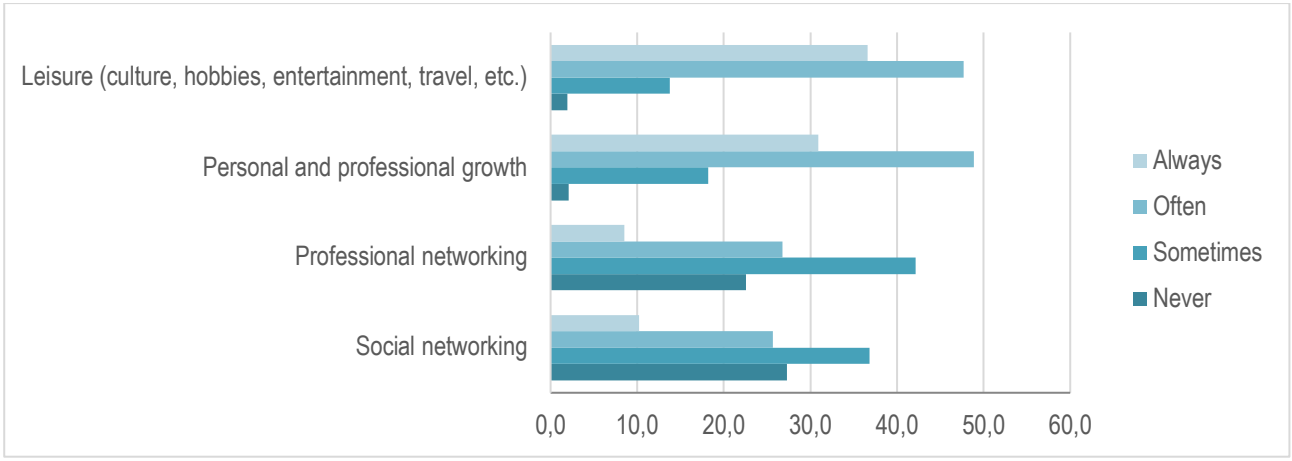

Chart 2.10 - Use of digital instruments in didactic and professional practice (%)

For social networking, 36,9% use sometimes digital technologies and 27,3% never; 25,6% often (Tab. 2.12).

For professional networking, 42,1% use them sometimes and 26,8% often; 22,6% never (Tab. 2.13).

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For personal and professional growth, 48,8% use them often and 30,9% always; 18,2% sometimes (Tab. 2.14).

For leisure, 47,7% use often digital technologies and 36,6% always; 13,8% sometimes (Tab. 2.15). There are not other significant identified scenarios.

It is interesting to see how much teachers prefer to use digital technologies for personal and professional growth and for leisure, less for social and professional networking. In private life, new technologies are practically always used, while for social and professional dimension development they are considered less necessary.

2.3 Perception of the utility of digital tools and technologies

With regard to the utility of digital tool and technologies for different purposes (q0013), the perception of participants is that digital tools and technologies usefully support the majority of the dimensions taken into account.

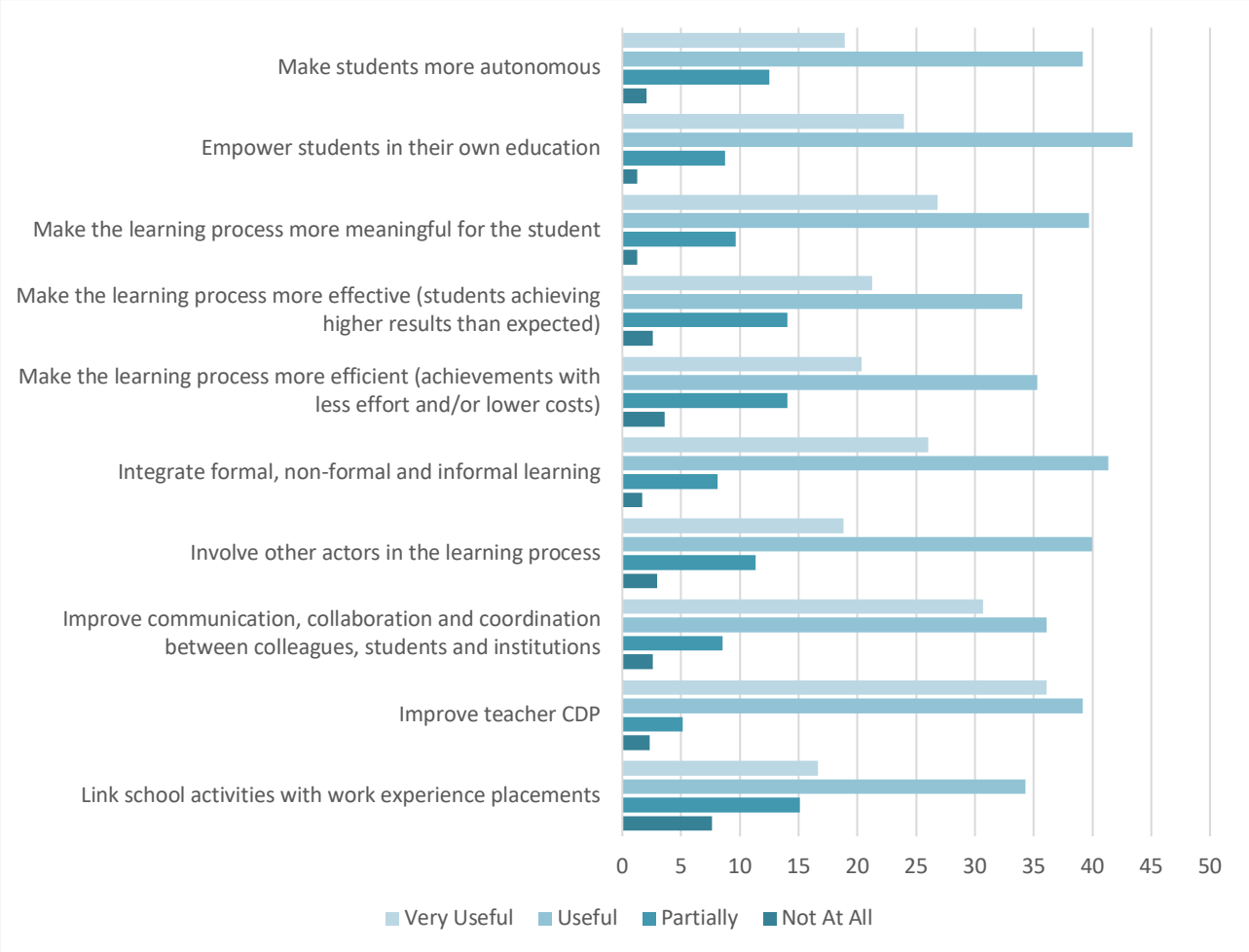

Chart 2.11 - To what extent do digital tools and technologies support the following (%)

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More precisely, the aspects where digital technologies seems to be more useful are: the improvement of teacher CDP (Continuing Professional Development), the empowering of students in their own education, the integration of formal, non-formal and informal learning. Digital tools are perceived to be useful also for more meaningful learning process and improved communication and collaboration between colleagues, students and institutions.

On the contrary, digital tools and technologies are perceived slightly less useful in linking school activities with work experience and in the efficacy and effectiveness of the learning process.

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3. Teaching practice in ICT

In this chapter, results of Section 3 of the Questionnaire are analysed.

3.1 Use of digital tools and technologies

- **Frequency of use of digital resources in the classroom for teaching activities (q0009)**

In investigating the use of technologies in teaching, the first question of interest is obviously the type of applications most frequently used by teachers. The respondents' statements show that they are well acquainted with the now widespread applications of office automation. More than 80%, out of the total of 776 validly completed questionnaires, report a use made always or often.

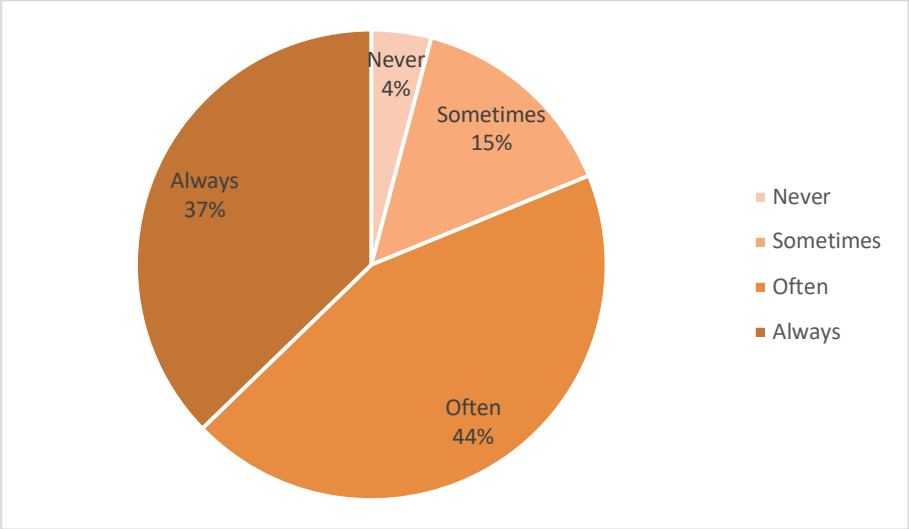

Chart 3.1 - Use of Office and similar package for text, numeracy, presentations etc.

Slightly less frequent the use of software for downloading audio / video files, often used by 43% of respondents and always by 17%. Therefore, 40% of teachers of the investigated population remain, making little use of such applications and this seems to denote an elementary use of the technologies and little familiarity with the instruments that enrich the lessons in a multimedia way.

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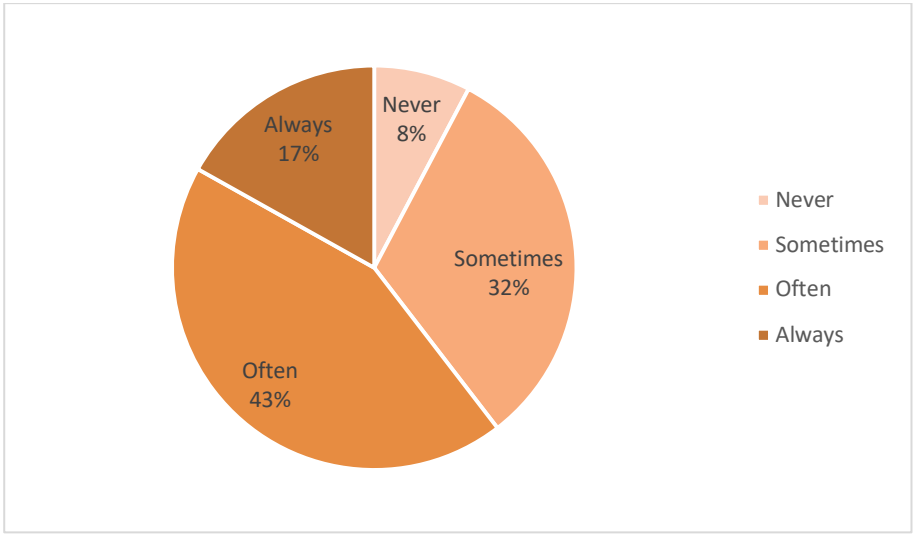

Chart 3.2 - Use of software for downloading audio/video files

Teachers seem to make extensive use of search engines, only 11% say they use it rarely or not at all. Online resources, therefore, are a source of information not only for the children of our schools, but also for their teachers.

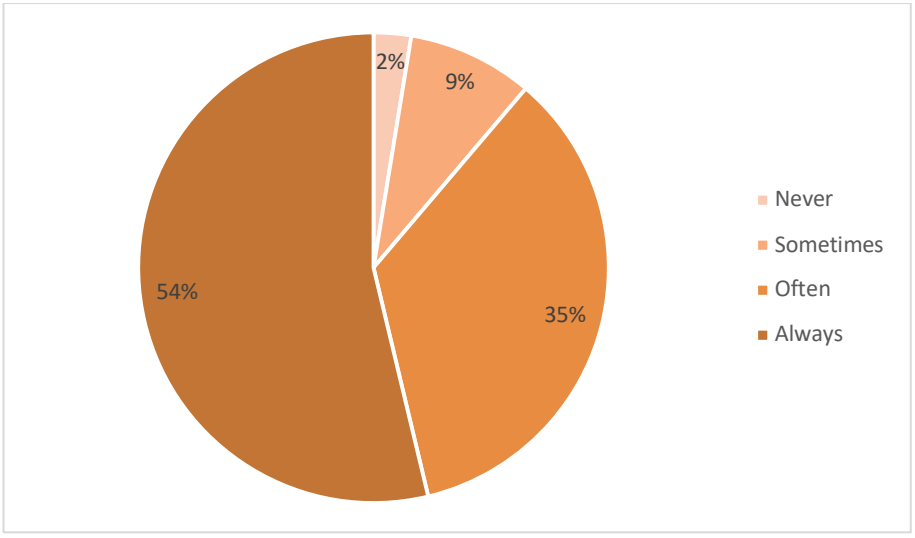

Chart 3.3 - Use of search tools

The use of applications for creating or editing educational content in the form of audio, video or graphics requires higher digital skills and this leads to greater variability in the responses given to this questionnaire item. The graph that follows, in fact, shows an almost equal percentage distribution of use among those who claim to make use of them occasionally (51%) and those who use them regularly (49%), with a slight prevalence of the former over the latter.

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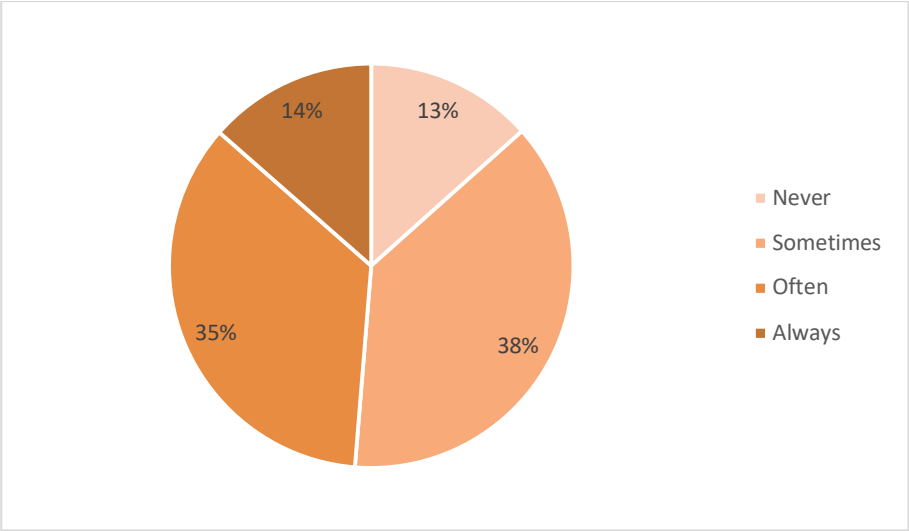

Chart 3.4 - Use of resources for creating/editing audio, video and graphics content

In the comparison of the frequencies of use of the main digital applications and technologies available for teaching, there is clear evidence of the lack of use of tools for creating multimedia resources, as well as the lack of familiarity declared by coding teachers (out of 776 respondents, almost 80% say they use it rarely or not at all). On the other hand, the percentage of about 52% is very interesting, declaring to use digital environments for learning, sharing, communication and online collaboration. This last data allows us to outline a progressive and virtuous process of approaching the Italian school to educational models in which the learning environment is rich and diversified and uses all the resources made available by digital environments also in the cloud.

- ***Familiarity with the main teaching practices in use (q0010)***

The knowledge and mastery of a wide variety of methods of use of technological tools is certainly a strategic factor for the ability to innovate teaching. More than 77% of the teachers reached by questionnaire declared to use collaborative methods, followed by a frequency of use the Problem based learning (59%). Just over half use project-based teaching, the other methods are used by lower percentages of teachers and this shows the need to intervene through training to improve the situation detected.

If the reading of the data is deepened, non-negligible quotas emerge from those who declare the non-knowledge of the teaching methodologies proposed: they are teachers who most likely adopt traditional teaching and transmission practices in an exclusive way and who have not felt the need to update in the over the years their teaching skills. It reassures, however, that even the least used methodology in general, Case based learning, is known by a considerable percentage of teachers, who could therefore be motivated and encouraged to use it with lean training measures.

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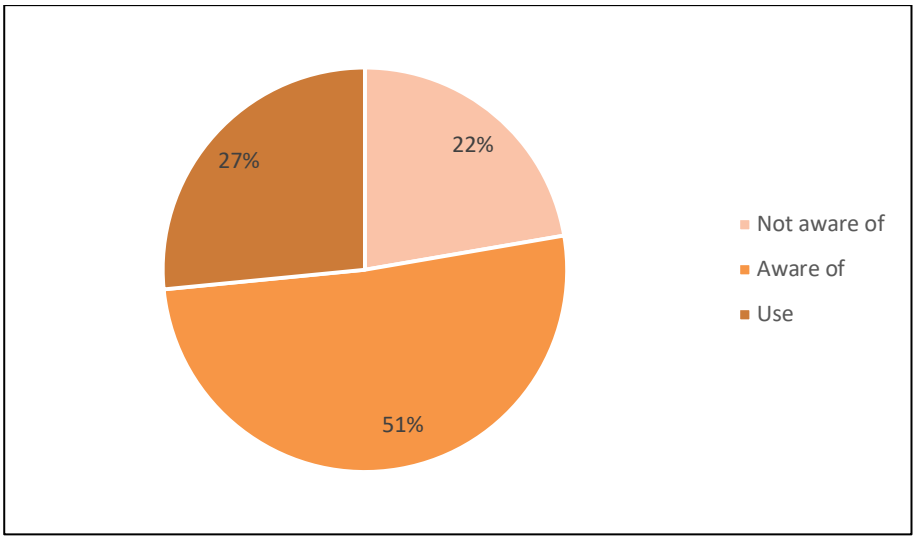

Chart 3.5 - Case based learning

- ***Use of digital technologies for assessment methods (q0011)***

Digital technologies are still little used as a tool for evaluating student learning. The concept maps and the methods of self-evaluation and peer evaluation denote the highest frequency of use, with a value that is about 40% of the number of cases (the question admitted more than one answer). Approximately 25% refers to the use of evaluation columns and slightly less than 21% to the portfolio. A rather high percentage of cases (22.3%) corresponds to the non-use of any digital technology for evaluation.

- ***Frequency of activities as part of teaching (q0012)***

We have asked teachers how often during the last two years they have included a series of activities in teaching practices that involve the use of innovative and collaborative tools and techniques.

The online assessment of students is the practice indicated as never used by the highest number of respondents (almost 74% of respondents said to use them only sporadically or not at all, with a high percentage of 53.1% who do not use it). Moreover, the percentage declaring that students are only occasionally involved in online collaborative work is high, but in this case the total of about 76% that responds in this way is distributed in a more balanced way among those who do not propose at all these activities for students (43.2) and those who do it occasionally (32.7). A considerable share (37%) of teachers keeps in touch with the students through online communication tools, a percentage that rises to almost 64% if we also take into account those who do it in a discontinuous way. The percentages of those who stimulate the creative work of students through online applications are very interesting (40.3% say they do it occasionally, 34.3% often or always). In fact, the processes of creativity development can certainly be greatly favored by the use of digital technologies and are a highly useful challenge in the modern educational systems.

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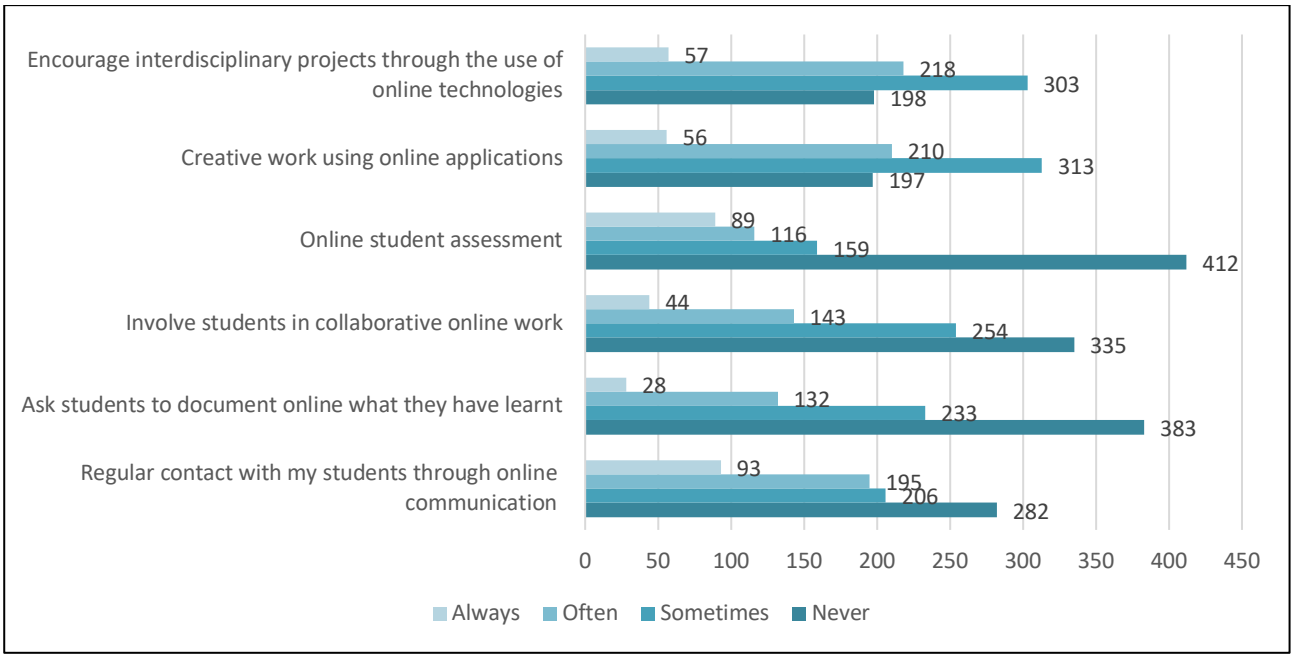

Chart 3.6 - Frequency of activities as part of teaching

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4. Training needs of teachers

In this chapter, results of Section 4 of the Questionnaire are analysed.

4.1 Training and updating

- ***Training attended around using digital technologies in education (q0014)***

About training, 56% of teachers indicate to have attended organized, guided learning in a formal (certified) or non-formal way, while the practice without any recognition is widespread among a quarter of respondents. The online training is preferred by 50% of teachers, only in a small percentage have chosen the frontal mode.

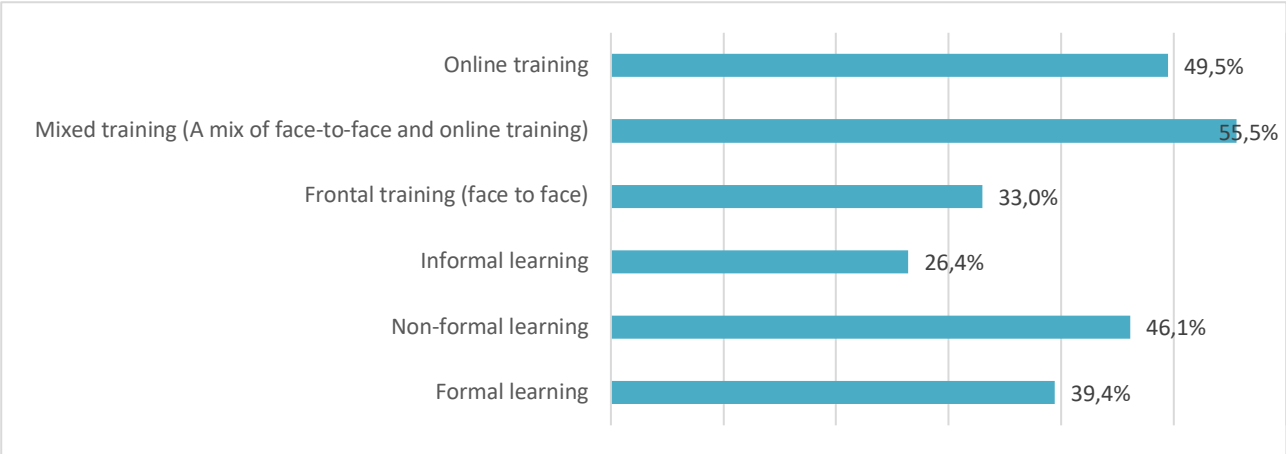

Chart 4.1 - Training attended

4.2 Self-assessment of digital skills of teachers according to DigCompEdu

Self-Evaluation of the digital competency level of teachers (DigCompEdu) (q0015-q0020)[8]

- ***Professional engagement (q0015)***

Use of functional technologies to enhance communication with students and families, and to develop collaborative and organizational strategies, is practiced by a majority of teachers in an effective and creative

[8] Possible scenarios are:

- A1 = Making little use. Being Unsure - Very limited knowledge; little usage
- A2 = Being aware. Basic tools use - Limited knowledge; basic usage
- B1 = Effective use; responsible use, experimentation - functional knowledge; effective usage
- B2 = Structured, Creative, Responsive, Transparent, Reflective practice - Good knowledge; creative usage
- C1 = Critically, Strategically, Evaluating, Discussing, Reflecting - Excellent knowledge; strategic usage
- C2 = Re designing, Innovating - Expert knowledge; innovative usage

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way demonstrating good skills. Teachers use technologies in the professional community to share and exchange knowledge and experience in teaching practices with some differences in expertise, which reaches higher levels for a quarter of teachers at expert proficiency levels (C1).

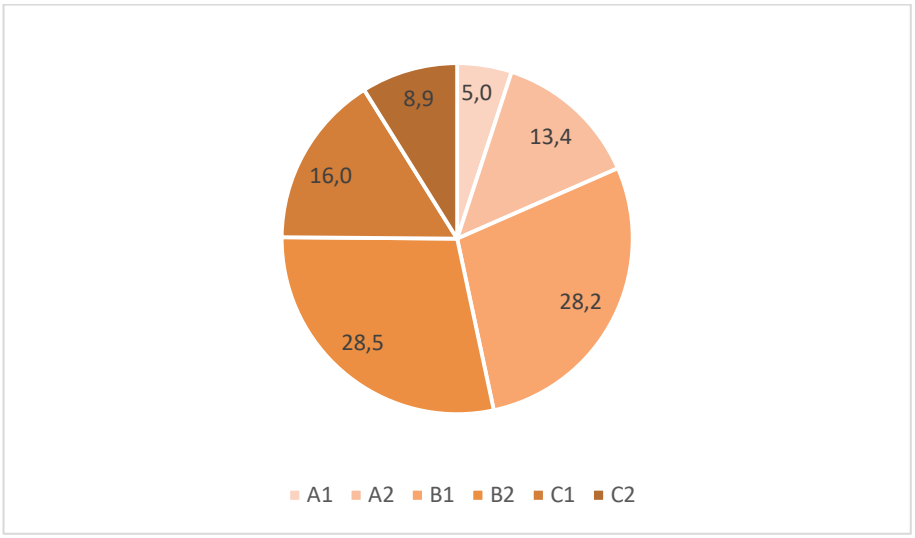

Chart 4.2 - Organizational collaboration with students, families

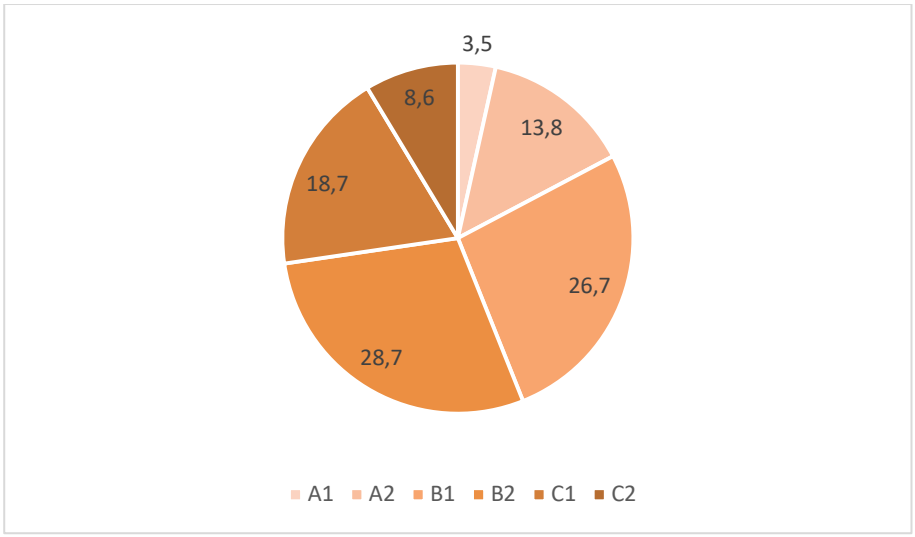

Chart 4.3 - Professional collaboration with other educators

About individually and collectively reflective practice on critically assess and actively develop digital pedagogical practice, 53% of teachers rate their own knowledge at B1/B2 level. That means that they have functional, good knowledge and such as 20%, at C1 and C2 level, they use ICT to innovate own's digital pedagogical practice in the educational community.

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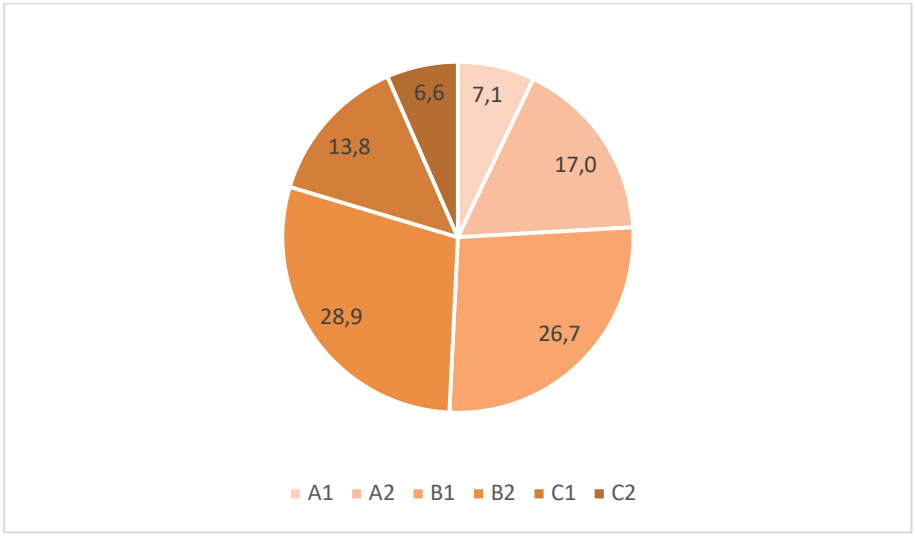

Chart 4.4 - Reflective practices

Use of digital sources and resources is a conscious practice and shared by the great majority of teachers in a structured and strategic way. In particular, 52% at B1 and B2 levels; 34% at the most advanced and innovative level.

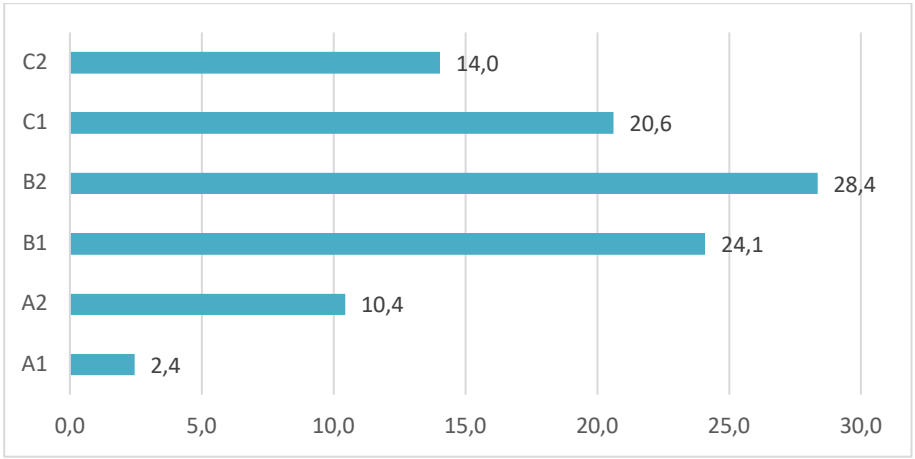

Chart 4.5 - Digital continuous professional development

- ***Digital resources (q0016)***

About skills in selecting digital resources for teaching and learning, considering specific learning objective, pedagogical approach, 32% of teachers have quite expert knowledge in creating and publishing. More than 50% declare advanced and good knowledge.

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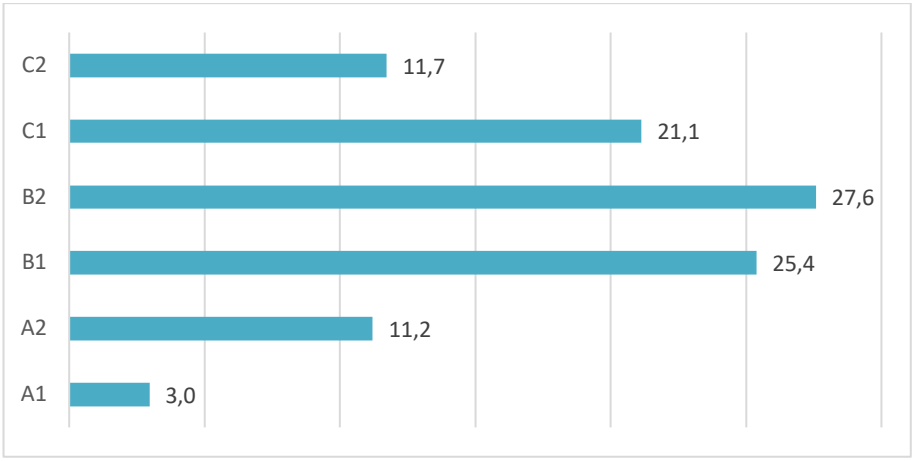

Chart 4.6 - Skills for teaching with ICT

About creating and modifying digital resources, to modify and build on existing openly-licensed resources and other resources, to create or co-create new digital educational resources, teacher's skills are equally distributed at low - medium level (20% A1, 22% B1, 22% B2); anyway more than 20% of teachers declare to be expert.

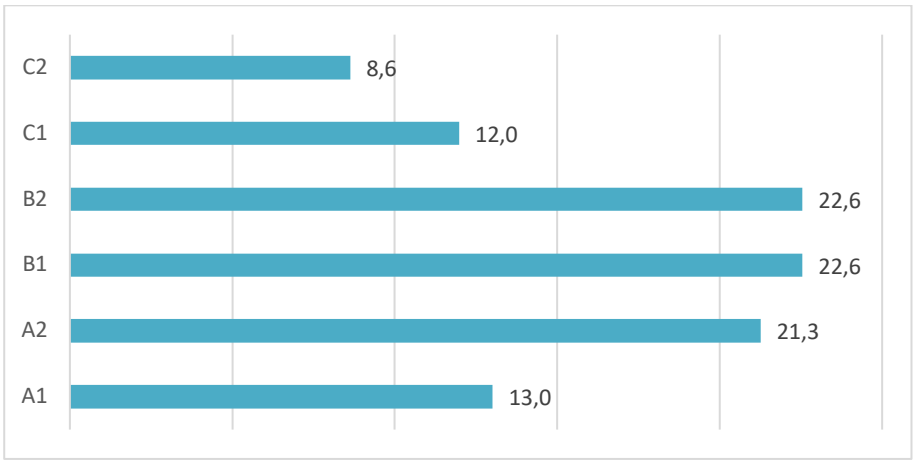

Chart 4.7 - Creating and modifying digital resources

Knowledge in organizing digital content to make it accessible to other educators, students and families, data protection skills, conscious and respectful use of privacy and licenses open also for educational use, are equally distributed from level A2 to level B2. A small minority declare to be at an advanced C2 level (7%).

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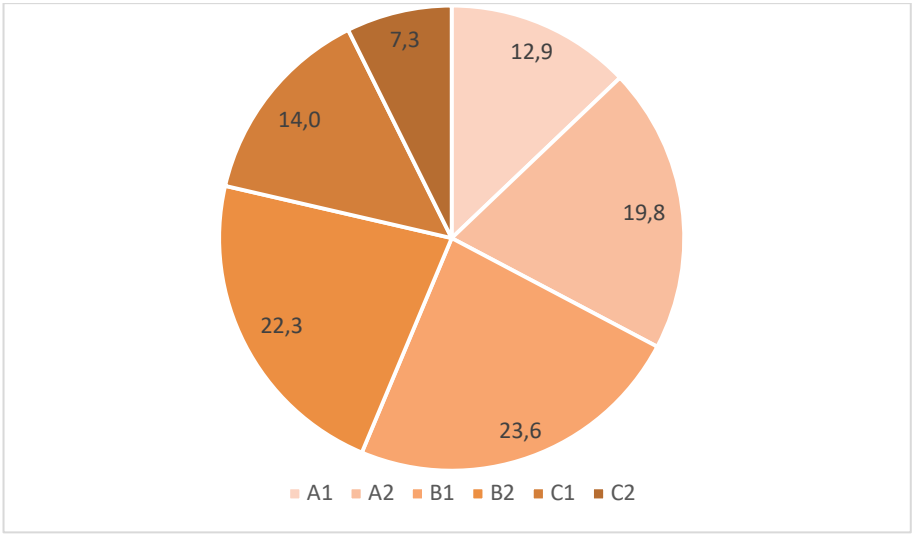

Chart 4.8 - Managing, protecting, sharing

- ***Teaching and learning (q0017)***

Just a 7% of teachers use ICT with high expertise but 13%, at level C2, orchestrate and adapt in a flexible way their own skills to implement digital devices and resources in the teaching process, to enhance the effectiveness of teaching interventions, to manage and orchestrate digital teaching interventions, and develop new formats and pedagogical methods for instruction. 24% declare to manage ICT with good knowledge. The same percentage in using digital technologies to foster and enhance learner collaboration, to enable learners to use digital technologies as part of collaborative assignments, to enhance communication, collaboration and collaborative knowledge creation.

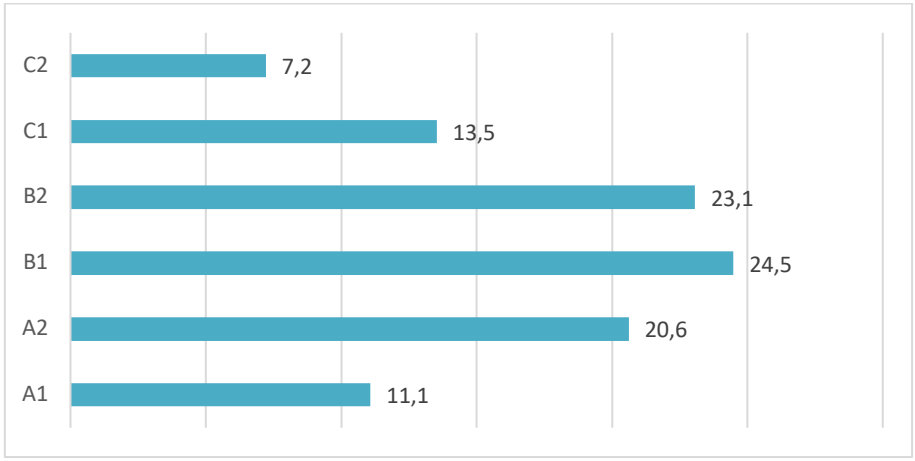

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Chart 4.9 -Teaching with digital devices

Teachers have limited knowledge in using digital technologies to improve meta cognitive skills, to support self-regulated learning processes, to enable learners to plan, monitor and reflect on their own learning, provide evidence of progress. 27% declare functional knowledge, while just a small 5% is expert.

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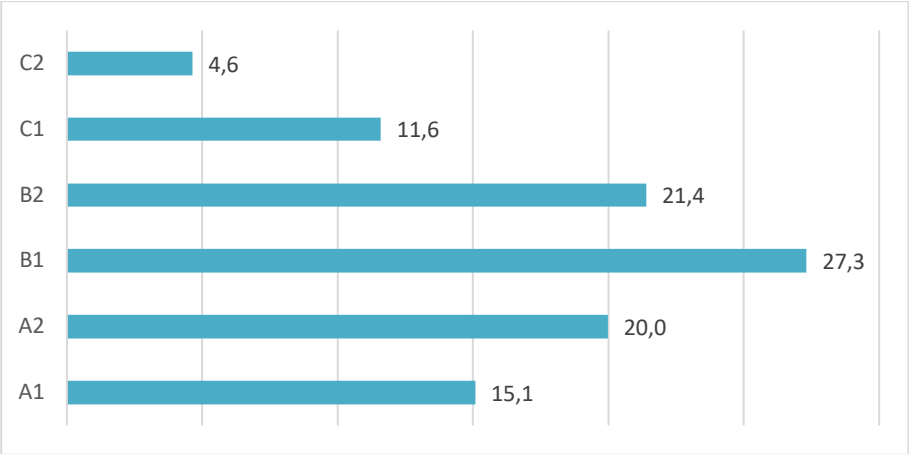

Chart 4.10 - Self regulated learning

- ***Digital assessments (q0018)***

Competences of teachers in using digital technologies for assessment, analyses of evidence, to generate, select, critically analyse and interpret digital evidence on learner activity, performance and progress, in order to inform teaching and learning, to enhance the diversity and suitability of assessment formats and approaches settle on a low-medium level.

The same distribuition low-medium level, in using digital technologies to provide targeted and timely feedback to learners, to adapt teaching strategies and to provide targeted support, to enable learners and parents to understand the evidence provided by digital technologies and use it for decision making.

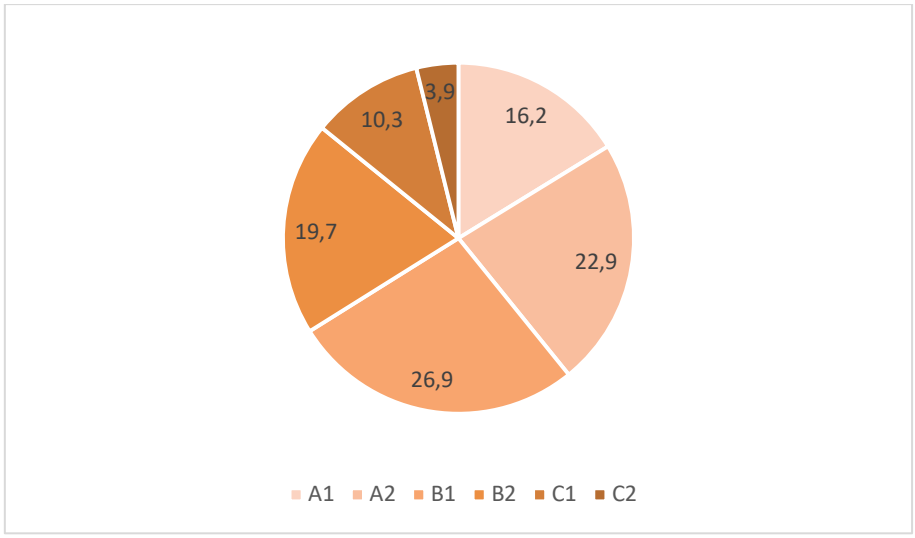

Chart 4.11 - Assessments strategies and analyzing evidence

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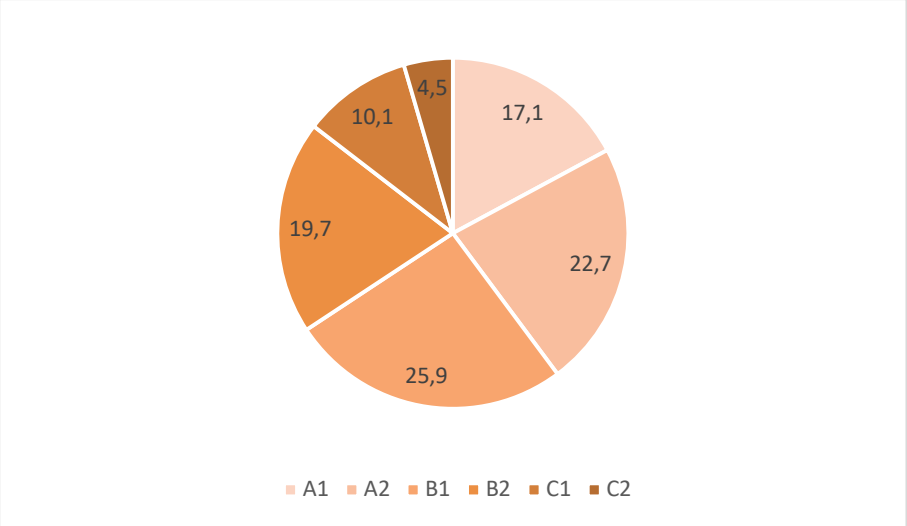

Chart 4.12 - Analyzing evidence

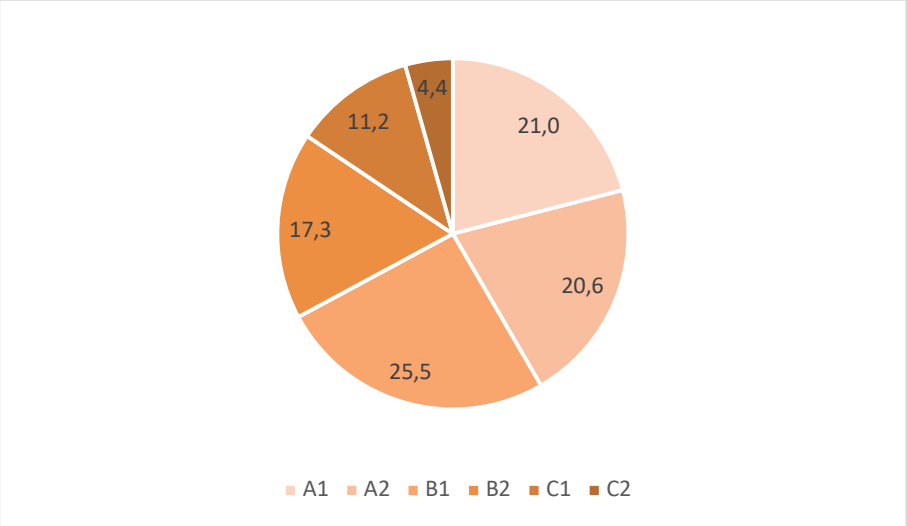

Chart 4.13 - Feedback and planning

- ***Empowering learners (q0019)***

Teacher's competences to ensure accessibility to learning resources and activities, for all learners, including those with special needs, are at functional-good level, equally distributed, even in responding to learner's digital expectations, abilities and misconceptions. Just a small percentage declares high competences. The same result about abilities in differentiation and personalisation, like using digital technologies to address learners diverse learning needs, by allowing learners to advance at different levels and speeds, and to follow individual learning pathways and objectives.

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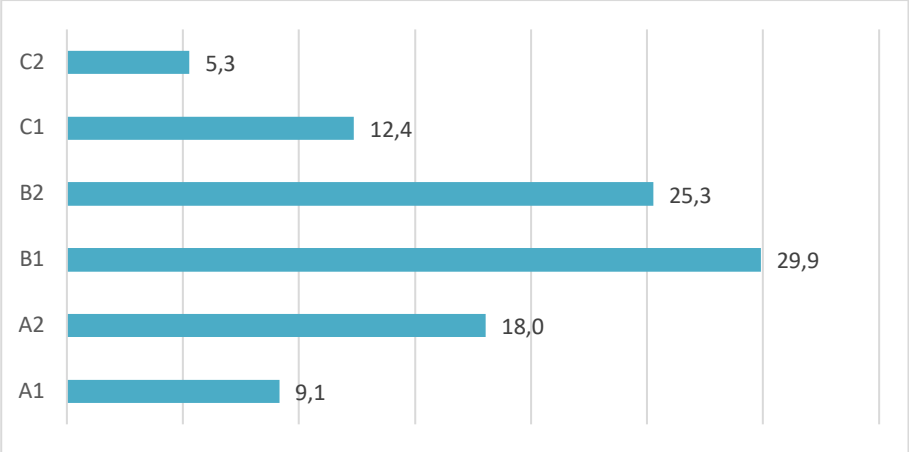

Chart 4.14 - Accessibility and inclusion

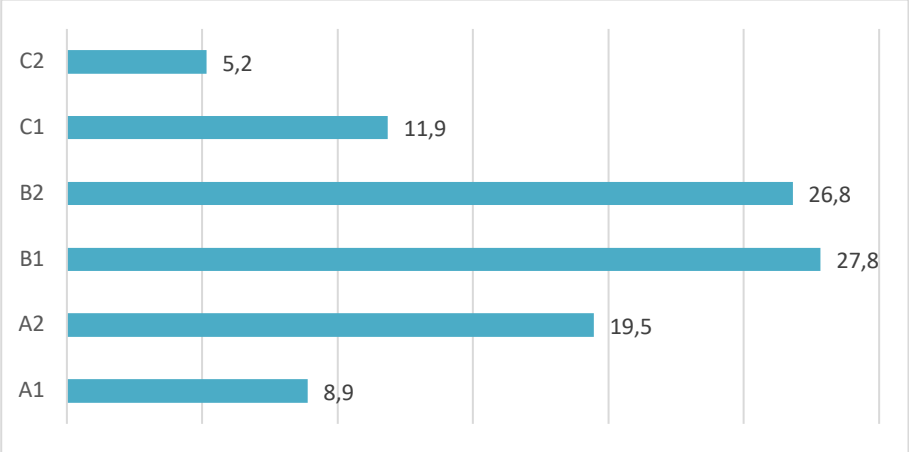

Chart 4.15 - Differentiation and personalization

Teachers declare medium-good competences in using digital technologies to foster learners active and creative engagement, within pedagogic strategies to improve learners transversal skills, deep thinking and creative expression, involving students themselves in hands-on activities, scientific investigation, problem solving, to open up learning to new.

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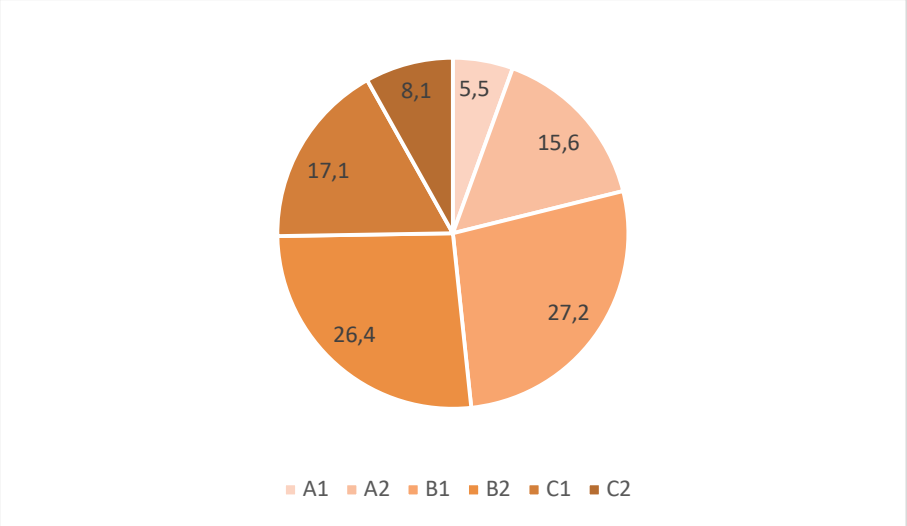

Chart 4.16 - Engaging learners

- ***Facilitating Learners' Digital Competence (q0020)***

About information and media literacy, requiring teaching to incorporate learning activities, assignments and assessments articulating information needs, to find information and resources in digital environments, to organise, process, analyse and critically evaluate the credibility of information and its sources, 30% of teachers answer to implement activities with functional knowledge, while the 22% use a range of strategies at a higher level. The same distribution about teachers' competence in improving learners' skills in responsible use of digital technologies for communication, collaboration and civic participation.

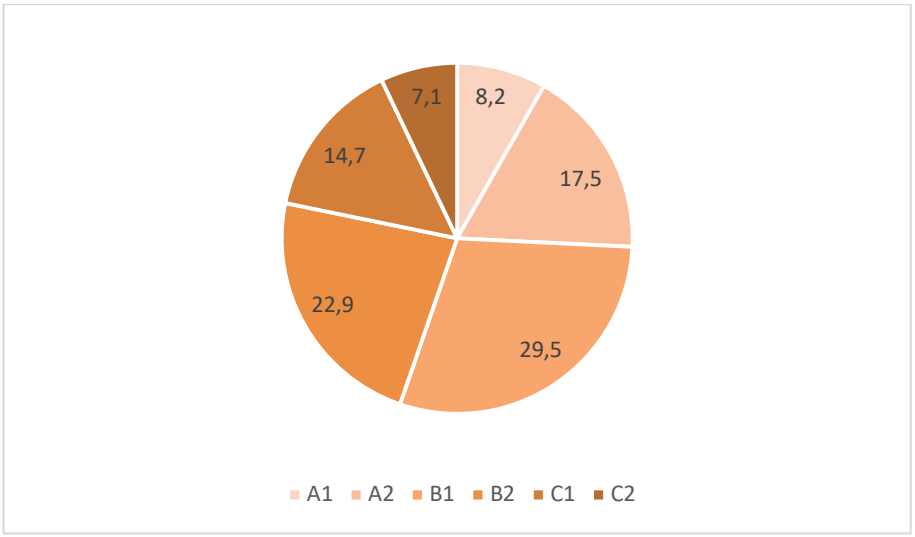

Chart 4.17 - Information and media literacy

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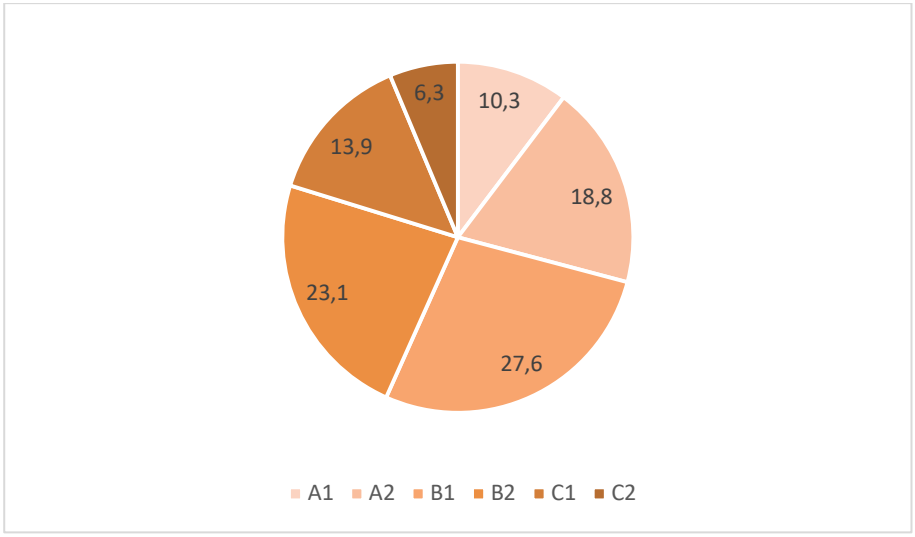

Chart 4.18 - Responsible use of technologies

Teachers have medium/good competences in proposing learning activities, which require learners to express themselves through digital means, to modify, to create digital contents in different formats and in teaching learners how copyright and licence apply to digital contents (25% B1 - 20 % B2).

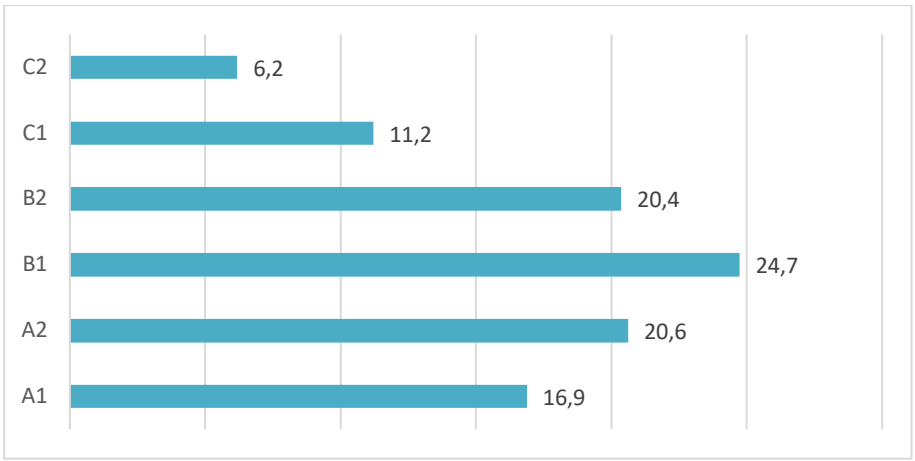

Chart 4.19 - Digital contents creation

Responsible use means too to take measures to ensure learners physical, psychological and social wellbeing while using digital technologies. Teachers answer they have medium-good knowledge to empower learners to manage risks and use digital technologies safely and responsibly.

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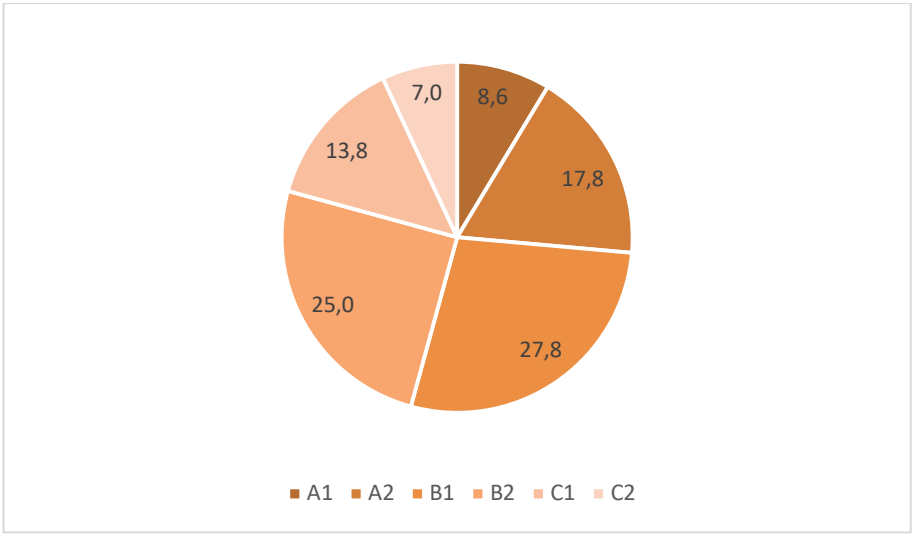

Chart 4.20 - Responsible use of ICT

About digital problem solving teachers seems to have lower skills in incorporating learning activities, assignments and assessments, which require learners to identify and solve technical problems, or to transfer technological knowledge creatively to new situations (23% have limited knowledge A2 or just functional B1).

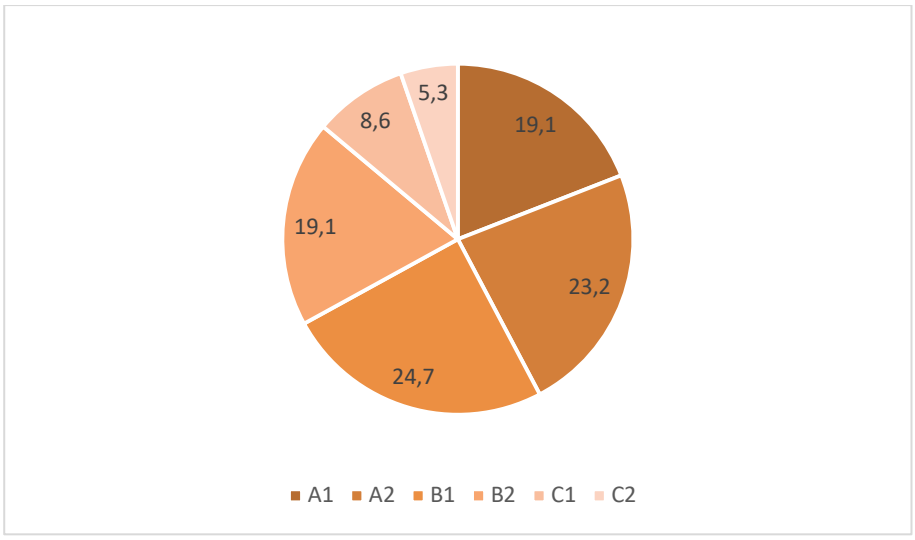

Chart 4.16 - Digital problem solving

4.3 ICT Training Needs

- ***Needs of training to be able to use digital technologies effectively in the classroom (q0021)***

50% of teachers answer they need further training to their own professional development, as well as to communicate, collaborate; create share content and build knowledge in the classroom, but also to facilitate and improve working environments is a priority for more than 30%.

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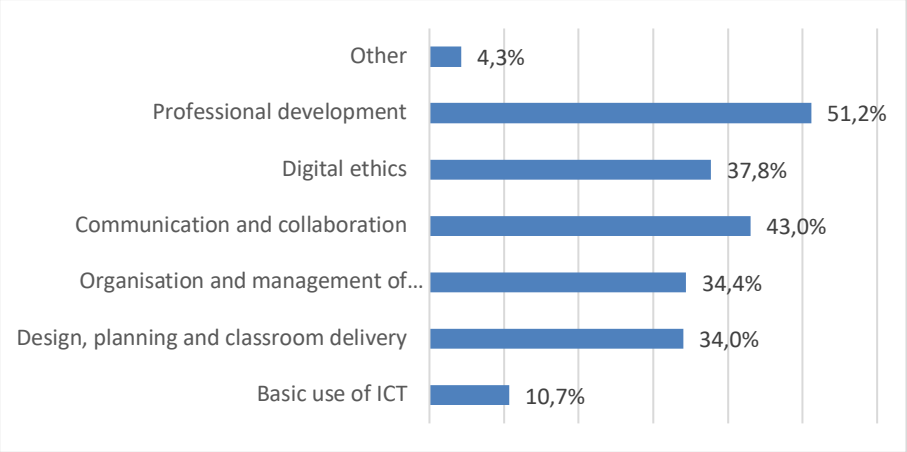

Chart 4.21 - Training needs

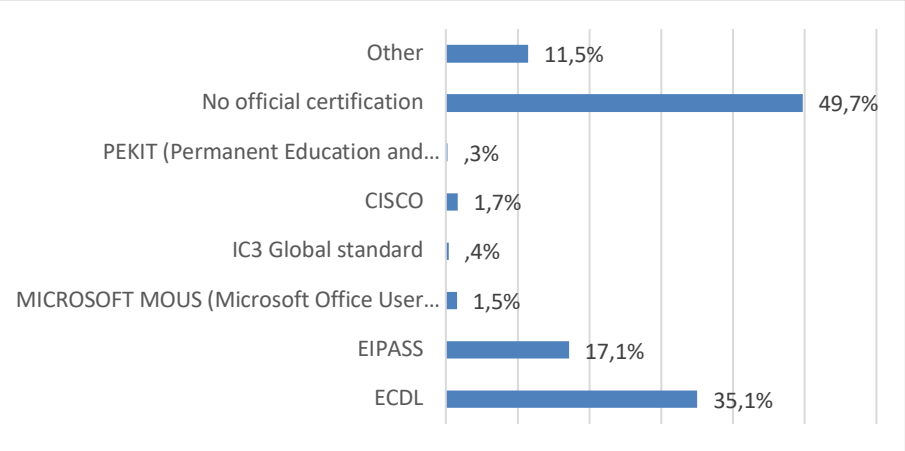

Chart 4.22 – Qualifications

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5. The identikit of the "digital teacher". Personal issues and career profiles

5.1 Personal data and career profiles

The age group most represented is the 41-50 (38%) followed by the class 51-60 and for class 31-40 (18%). Small is the percentage of young teachers between 25 and 30 years old (4.1%)

The higher percentage of teachers is represented by female gender in all disciplines:

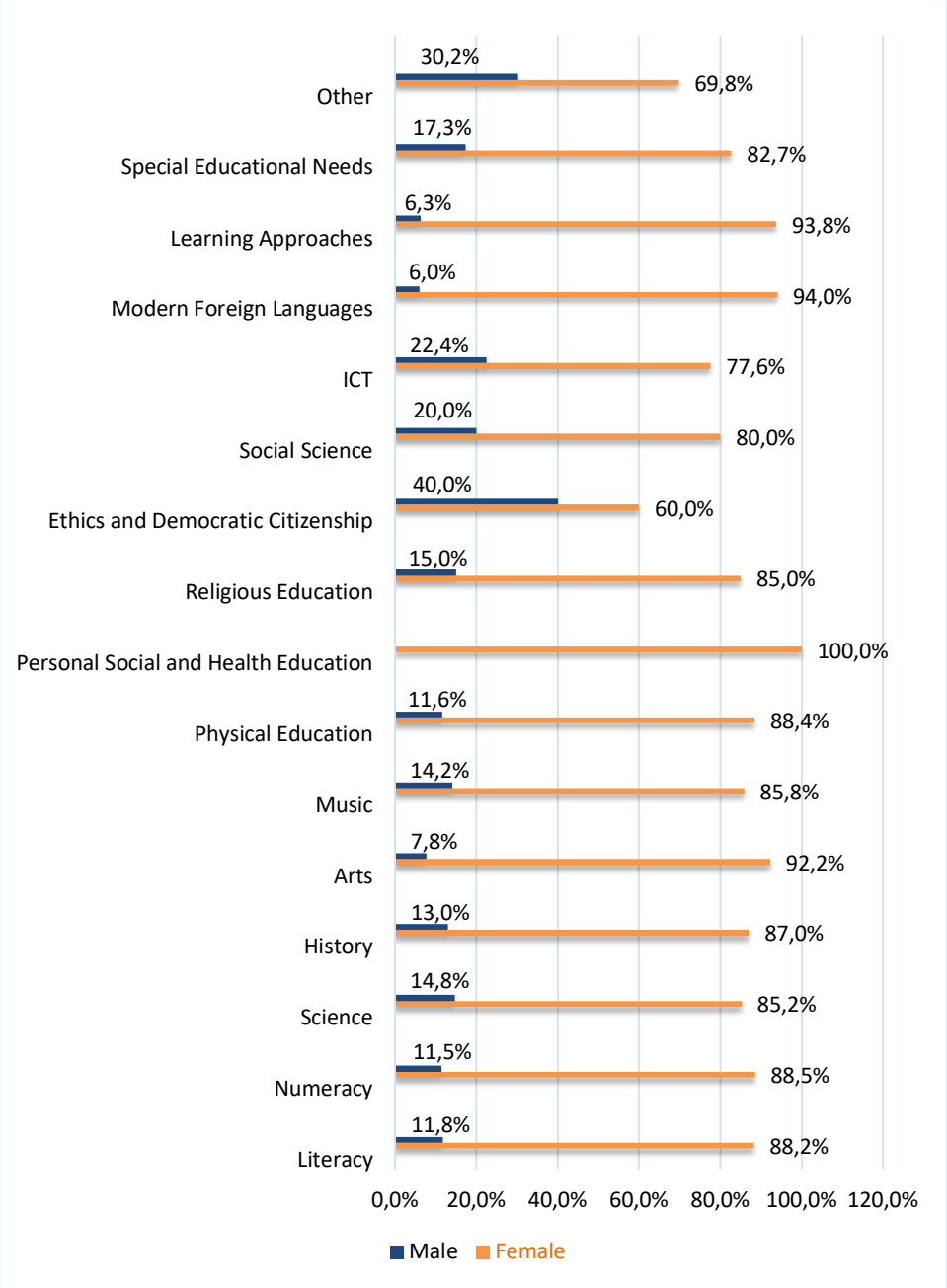

Chart 5.1 - Teaching area by gender

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For those working on a permanent contract, 92,8% are directly involved in teaching,17,7% have leadership responsibilities and 30,9% work in management. For those employed on a temporary contract, 4,5% are directly involved in teaching, 1,3% work in management and 0,4% in leadership.

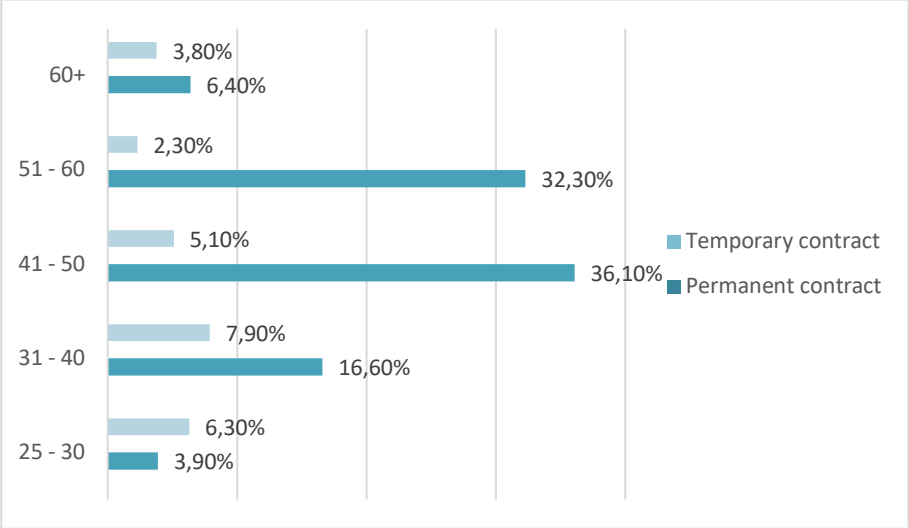

Chart 5.2 - Type of contract by age

36,6% of respondents aged 41-50 years are employed on a permanent contract while 5,1% have temporary contracts. For those aged 31-40 years, 16,6% have permanent contracts while the remaining 7,9% have temporary contracts. For those aged 51-60 years, 32,3% have a permanent contract and only 2,3% have temporary contracts.

Half of those respondents over the age of 60 years are employed on temporary contracts and the other half are employed on a permanent basis. 3,9% of those under the age of 25 years have permanent contracts and 6,3% have temporary contracts. 95.4% of teachers total have a permanent contract, while 4,6% a temporary contracts.

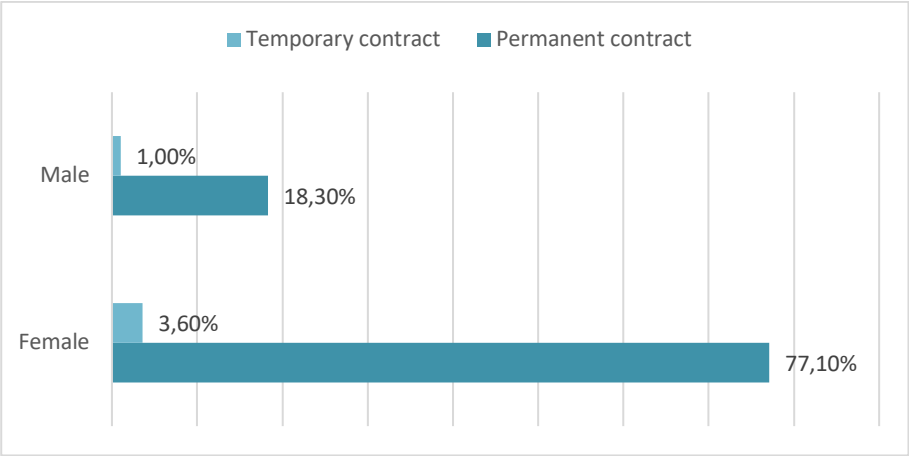

Chart 5.3 - Type of contract by gender

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77% of female respondents are employed on a permanent contract and the remaining 3,6% are employed on a temporary basis. 18,3% of male respondents have permanent contracts while 1% are employed on a temporary contract.

Digital coordinators have a permanent contract in the majority (95.4%).

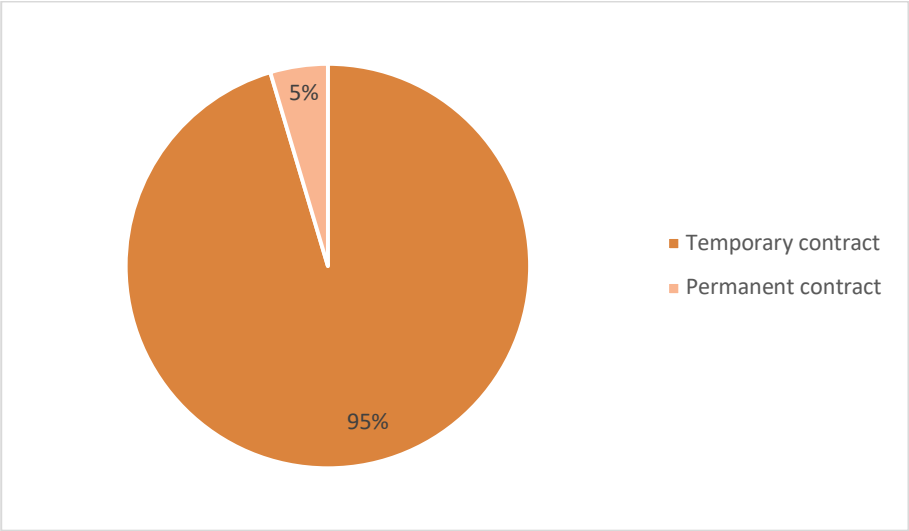

Chart 5.4 - Type of contract in the school as digital coordinator

37,5% of respondents are 41-50 old, 31,3% are 51-60, 18% are 31-40 old. Only 4,10% represents the category of 25-30 years old. With regard to the data on gender prevails the female (93%) component on the male (4,5%)

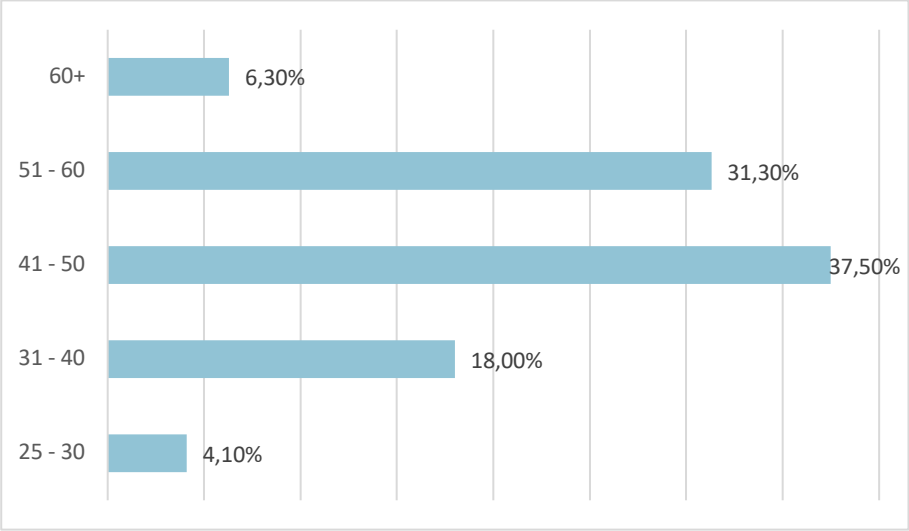

Chart 5.5 - Teaching role covered over the last three years by type of contract in the school

For those respondents who have a role as digital coordinator in their workplace, 16,2% have managerial responsibilities, 11,5% work in leadership position and 28,6% have direct teaching duties.

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With regard to professional role: in all positions, female is the gender most represented.

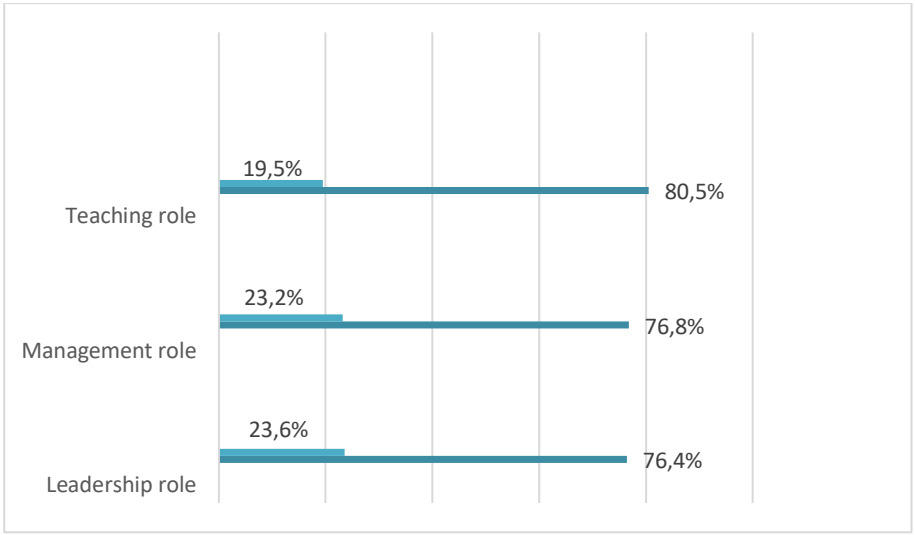

Chart 5.6 - Teaching role covered over the last three years by gender

78% of these technical specialists are female while the remaining 22% are male. 98% of digital coordinator has a permanent contract. 37% of these digital coordinators are aged 41-50 years old and 45% are 51-60 years old. 9% is 60+ years old and 8% is 31-40 years old. Only 1% is 25-30 years old.

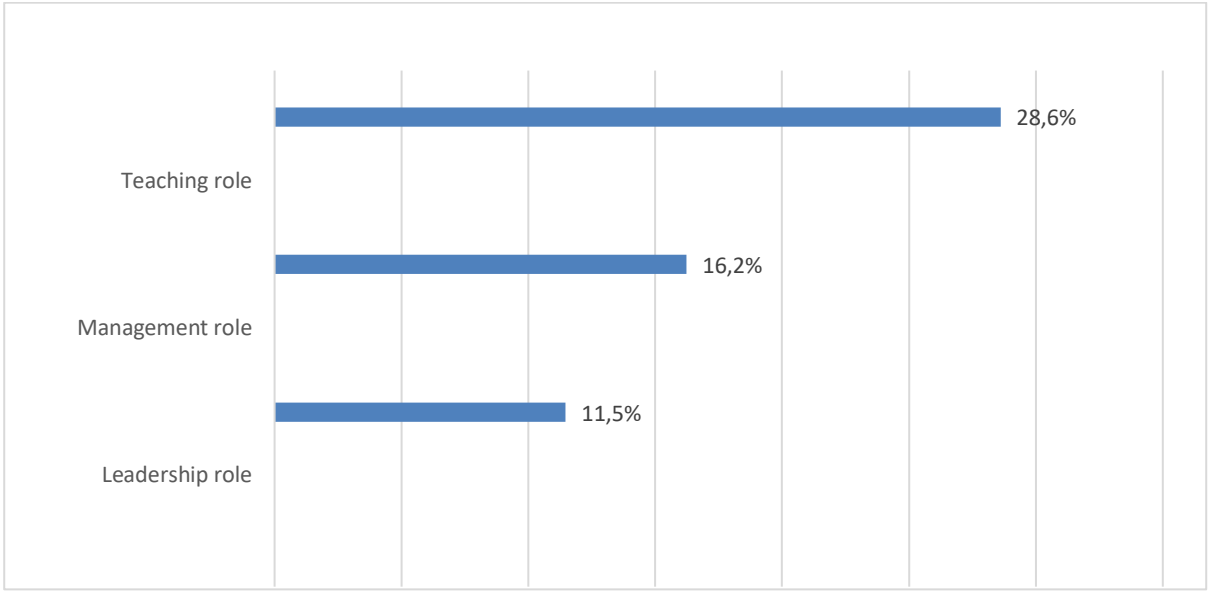

Chart 5.7 - Teaching role covered over the last three years as digital coordinator

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78% of these technical specialists are female while the remaining 22% are male.

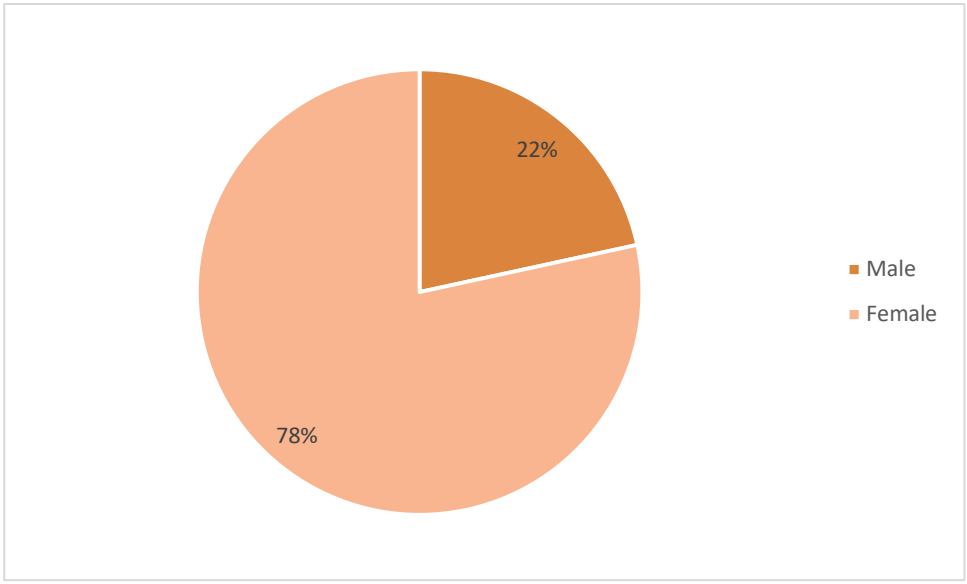

Chart 5.8- Role as digital coordinator by gender

37% of these digital coordinators are aged 41-50 years old and 45% are 51-60 years old.

9% is 60+ years old and 8% is 31-40 years old. Only 1% is 25-30 years old.

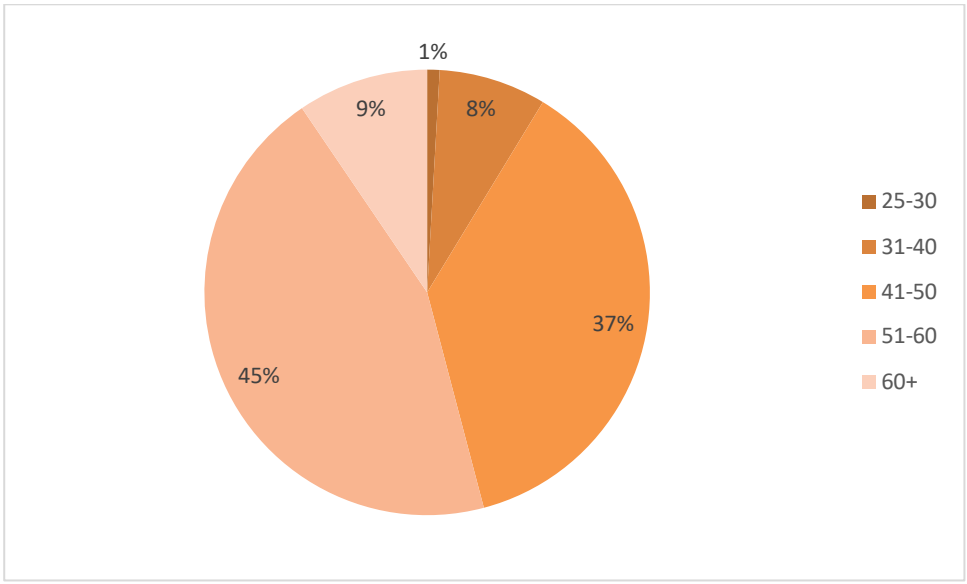

Chart 5.9 - Role as ICT/Digital Coordinator by age

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5.2 Focus on innovation

In this paragraph, a bivariate analysis is presented.

The considered variable is the frequency of use of digital resources in the classroom for teaching activities by school type, age, gender, teaching area, type of contract.

The different types of digital resources considered are:

- Office and similar packages,
- software for downloading audio/video files,
- Search tools,
- resources for creating/editing audio/video content and graphics,
- resources for creating blogs, websites etc.,
- digital environments for learning, sharing, communication and collaborating (online platforms, websites, blogs, social and educational social networks, gamification, edutainment etc.),
- digital educational content and OER (Open Educational Resources),
- multimedia programs relevant for your discipline,
- coding - computational thinking.

5.2.1 Frequency of use of digital resources in the classroom for teaching activities by school type, age, gender, teaching area, type of contract

- ***Frequency of use of digital resources in the classroom for teaching activities by school type***

Taking into consideration that the VET category is very little represented among the respondents, considering the distribution of answers among every single school type, we can assert that the use of office and similar packages is well established among the teachers of VET level, and with small difference also among the majority of teachers in secondary school. Quite coherently with the school type, the use of **Office and similar packages** is less frequent at the primary school level and slightly less in the early year level. Anyway in every school type office and similar packages are used often or always by the majority of the respondents.

Overall, the 50% of teachers in every school type is accustomed to often or always use **software for downloading audio/video file**: the value of the frequency "often" in the early year is less than 10%, while in the other school type is between 14-20%. The habit to use software for downloading audio/video files is stronger in the primary school where the 48,8% of teachers responded "often" and the 19,8% responded always.

Search tools are used by the great majority of all respondents: with the exception of the early year level, more than the 50% of the teachers of every level uses them, from a minimum of 54% in the primary school to the maximum of 59% in the secondary school (14-19 years) where another 32% of answers are in the option "often". At the early years level the teachers who use search tools often/always are in total the 74%, at the VET level are 71% whereas at the other level they exceed the 85%.

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The **creation or editing of audio/video content and graphics** is less common than the previous typologies in every school type: it is slightly more used in the secondary school (11-14 y.o.) where 33% of respondents answered "often" and 16% answered "always". Approximately the 50% of teachers in the primary and secondary school never (11-14%) or sometimes (36-39%) creates or edits audio/video contents, in the early year this set collects the 60% of teachers and in VET the 85%.

At the early years level **digital environments for learning, sharing, communication and collaborating** are never or sometimes used by the 61% of the respondents and often used by the 33% of the teachers, while in all the other categories the percentage varies between 31% and 43%. Secondary school have the highest percentage of teachers who always use them (22%), while VET is the school level where the 57% of teachers who claim to use these tools often or always.

Digital educational content and OER are not very widespread at all school levels: early years is the level with the highest percentage of teachers who use them never or sometimes: 83%, the school level with the lowest percentage of teachers who use them never or sometimes is primary school, but these are still the majority of respondents (62%). The level where teachers use them most is primary school, where 32% of teachers use them often and 6% use them always. The VET level has the highest number of teachers who always use them: 14% of respondents.

Educational multimedia programs for discipline are mostly used in primary school where the 46% often uses them and 14% uses them always, whereas in the early years they are sometimes used by the 43% of the respondents and never used by the 22% of them.

Coding and computational thinking are very common at a primary level where the lowest percentage of non-use of it is recorded: 26%, it is sometimes used by the 39% of the respondents, often used by the 24% and always used by the 10%. Slightly lower percentages of use are found at secondary level 11-14 and at early years level, while at VET level 100% of respondents have never used coding.

- ***Frequency of use of digital resources in the classroom for teaching activities by age***

In general, it has been observed that the frequencies of use of digital resources increase with age.

So the 25-30 age group is the one that uses digital resources **the least**: the most used ones are **search tools** (+80% of respondents uses it often or always) and **Office or similar packages** (+60% of respondents uses it often or always). The answer sometimes or "never" is given by almost 70% of the teachers for the **digital environment** or **resources for creating audio video contents**, over 90% for the **resources to create blogs or sites**, over 95% for the use of **digital educational content and OER**, 100% for **coding and computational thinking** (of which 75 never uses them).

The distributions in the age ranges 41-50, 51-60 and 60+ are very similar to each other, and show a greater use of technologies than the younger age groups. The resources most used (often or always) are **search tools** (around 90%), Office (around 80%), around 50% instead is the use of **digital environments** and **software for creating audio video contents**. **Open resources** and **coding** are used (often or always) by almost 40% and over 20% respectively.

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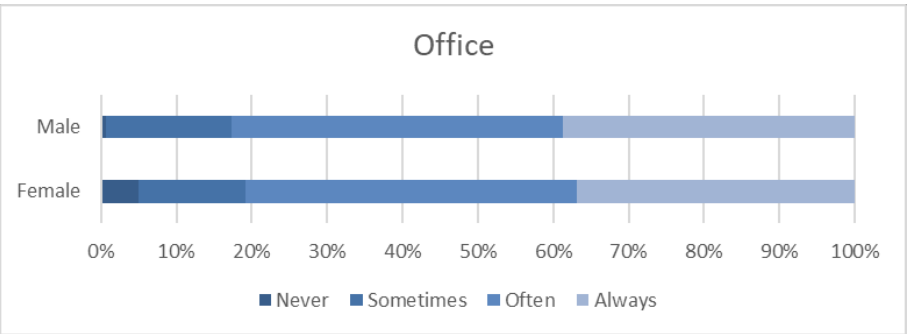
Among the over 60+ there is the greater use of the **program for disciplines** (more than 70% often or always responds).

- ***Frequency of use of digital resources in the classroom for teaching activities by gender***

Analysing the use of digital resources between the two sex categories (although considering that the great majority of respondents are female), no relevant results emerge: the distributions among the frequencies show minor differences, apart from a slightly more frequent use of **software for downloading audio/video contents** and **OER** by women.

Chart 5.10 - Frequency of use of digital resources in the classroom for teaching activities by gender



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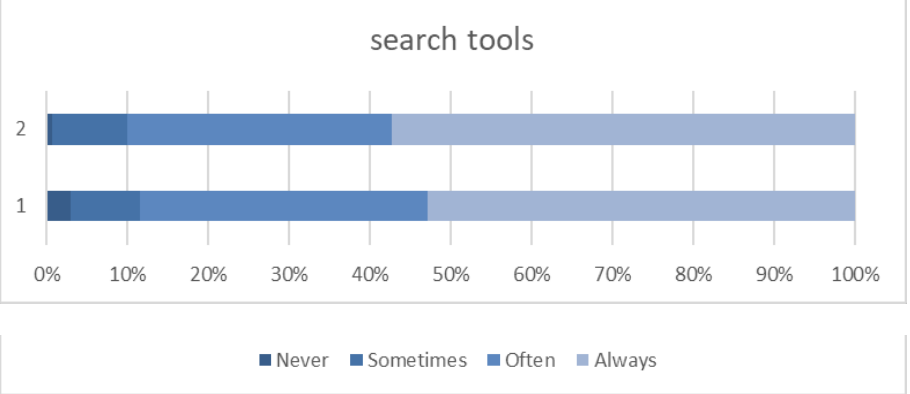

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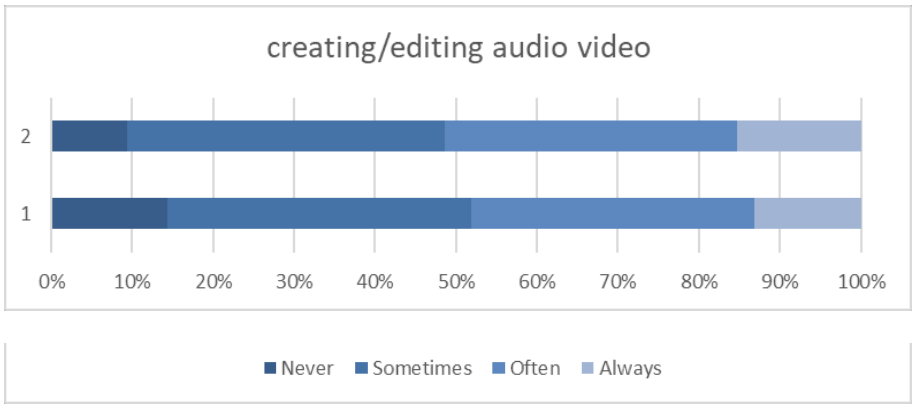

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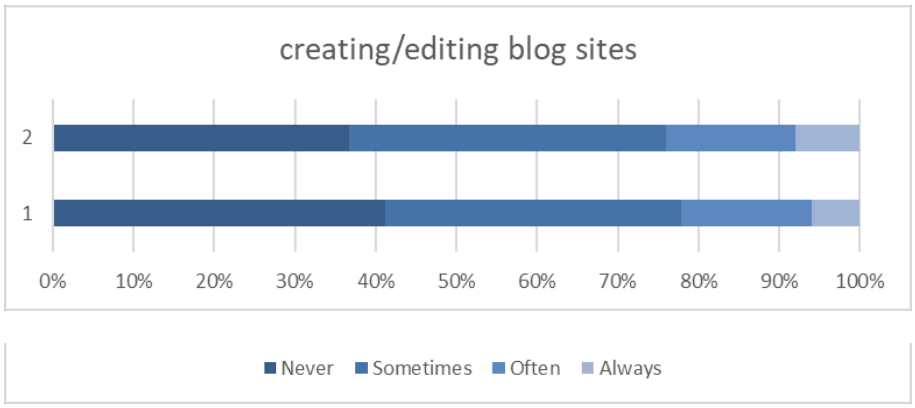

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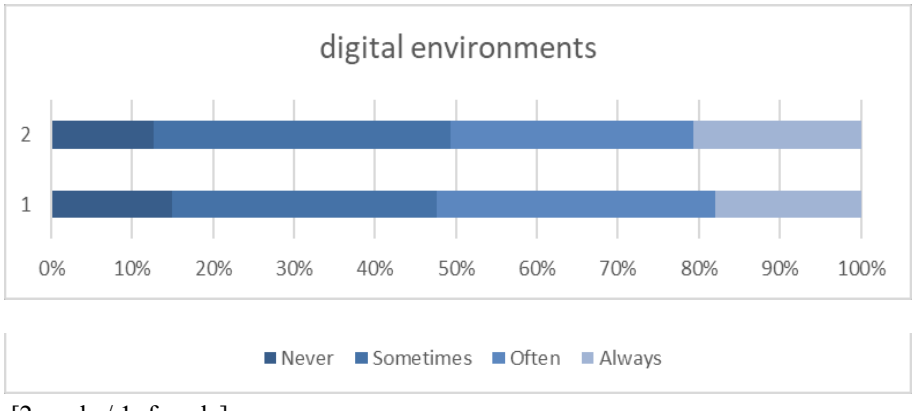

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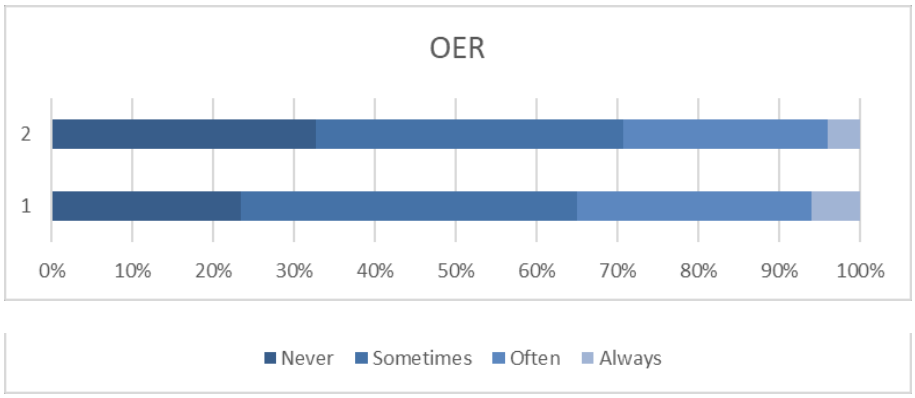

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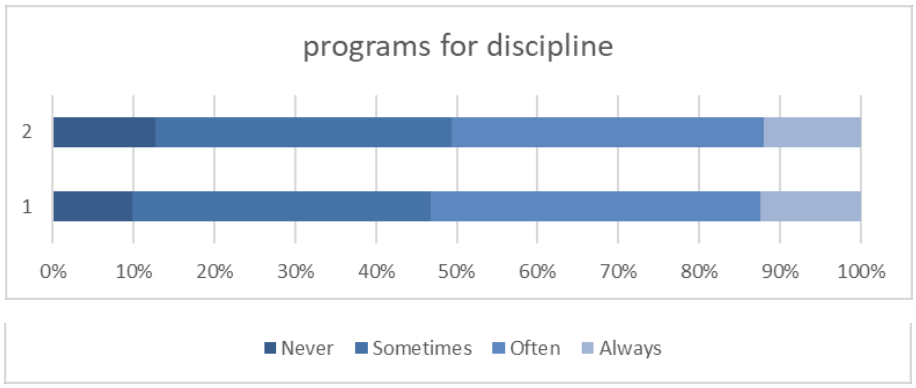

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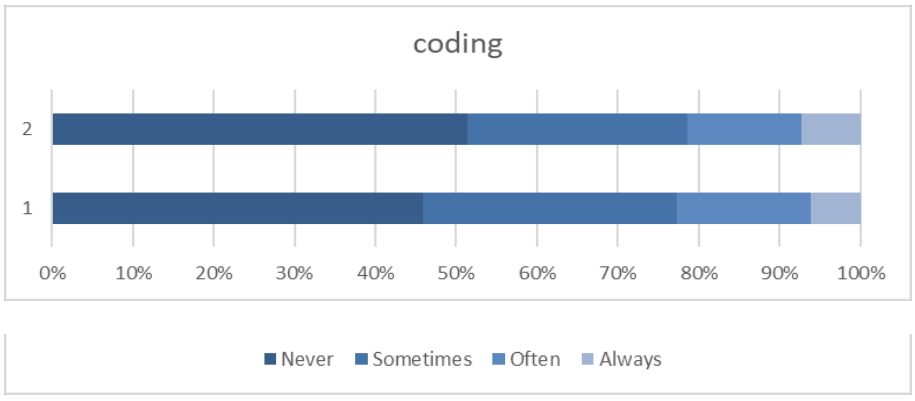

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- ***Frequency of use of digital resources in the classroom for teaching activities By teaching area***

Office and similar packages are widely used in all areas of teaching: with the exception of physical education and religious education, in fact, the responses "often" or "always" exceed 80%, the most relevant frequencies

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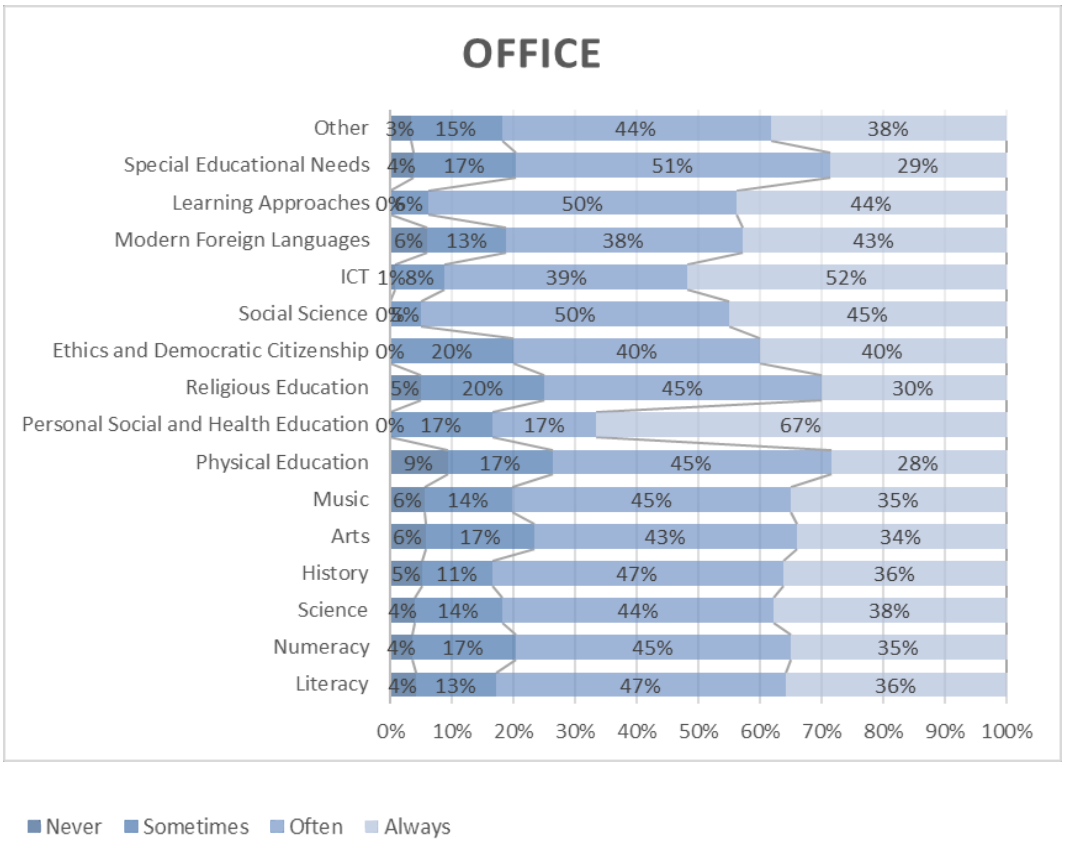
are found in the areas of **social sciences** and **learning approaches** (respectively 95 and 94% of teachers responded "often" or "always"). The highest percentage of responses of the "always" option is found in the area of **personal social and health education** (67%).

The frequency of use (often or always) of **software for downloading audio video contents** varies between the 50% in the personal social and health education area and the 72% in the modern foreign languages area, with the sole exception of 20% in the **ethics and democratic citizenship area** (represented by a total of 5 teachers) which also records 60% of responses to the option "never".

Search tools are the resources with **the highest frequencies**, where responses to the "often" or "always" options are between the 78% of the Physical Education area and the 100% of the Learning Approaches and Personal Social and Health Education areas, in the latter the frequency of the answer option "always" is also one of the highest: 67%, exceeded only by the ICT area where its frequency is 71%.

Chart 5.11 - Frequency of use of digital resources in the classroom for teaching activities by teaching area



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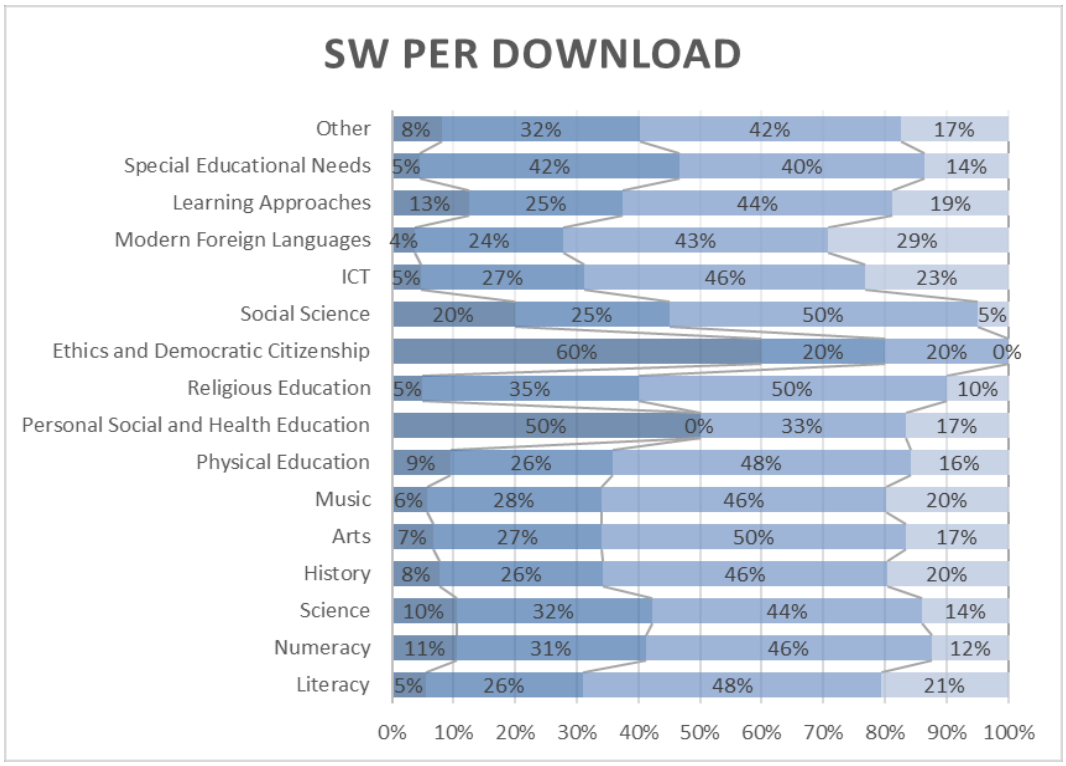

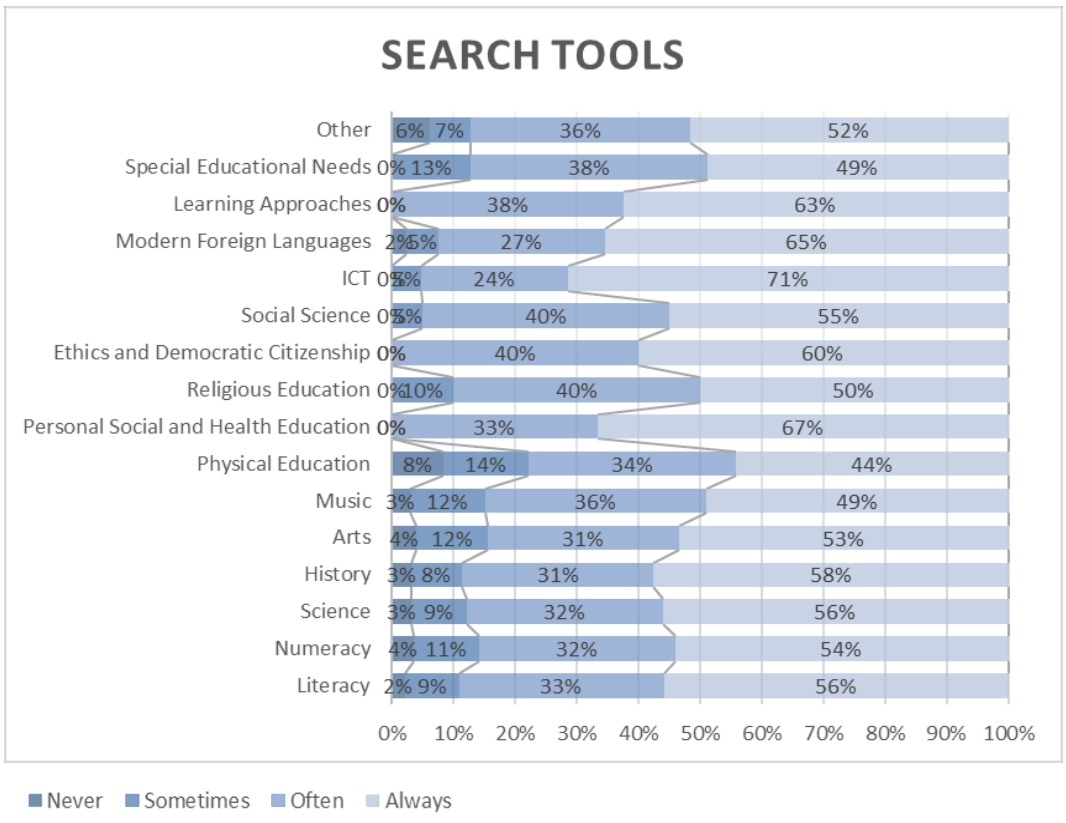

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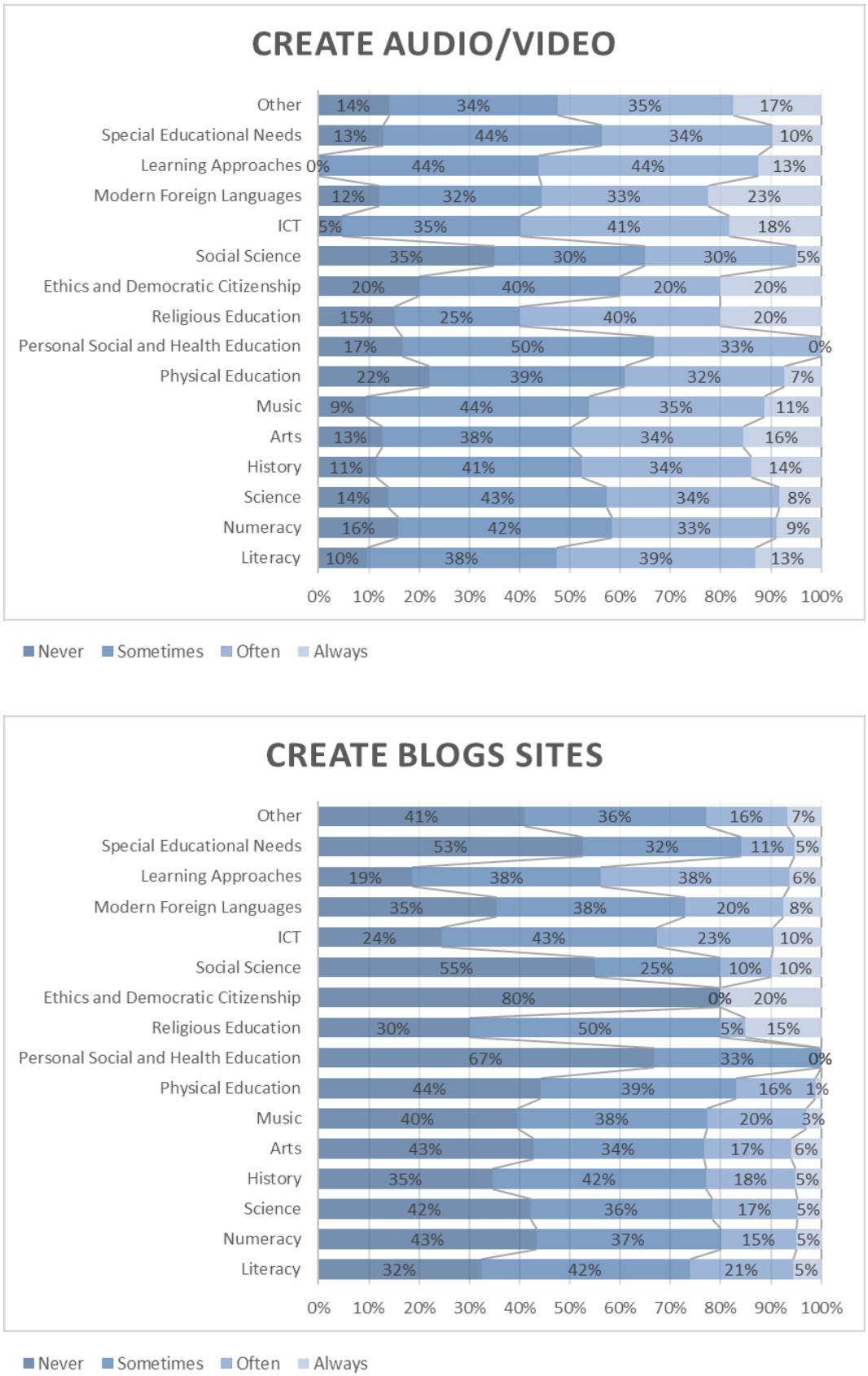

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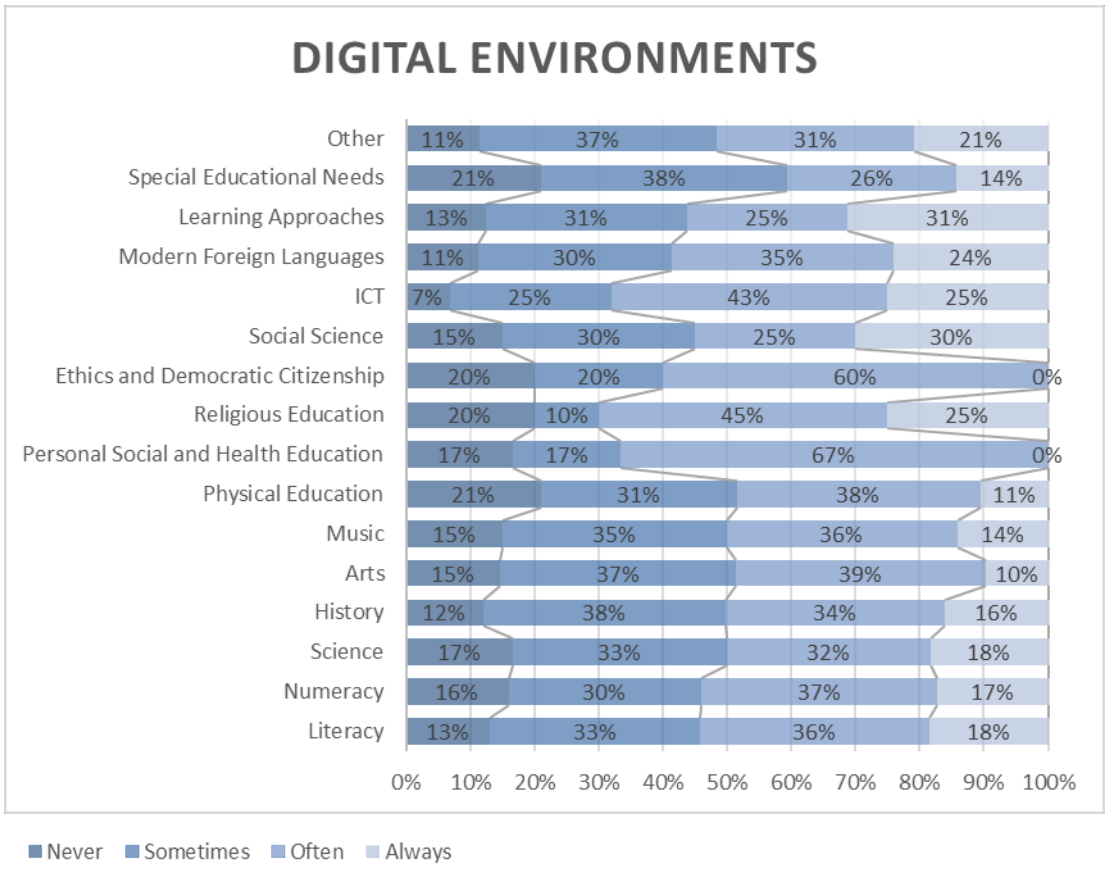

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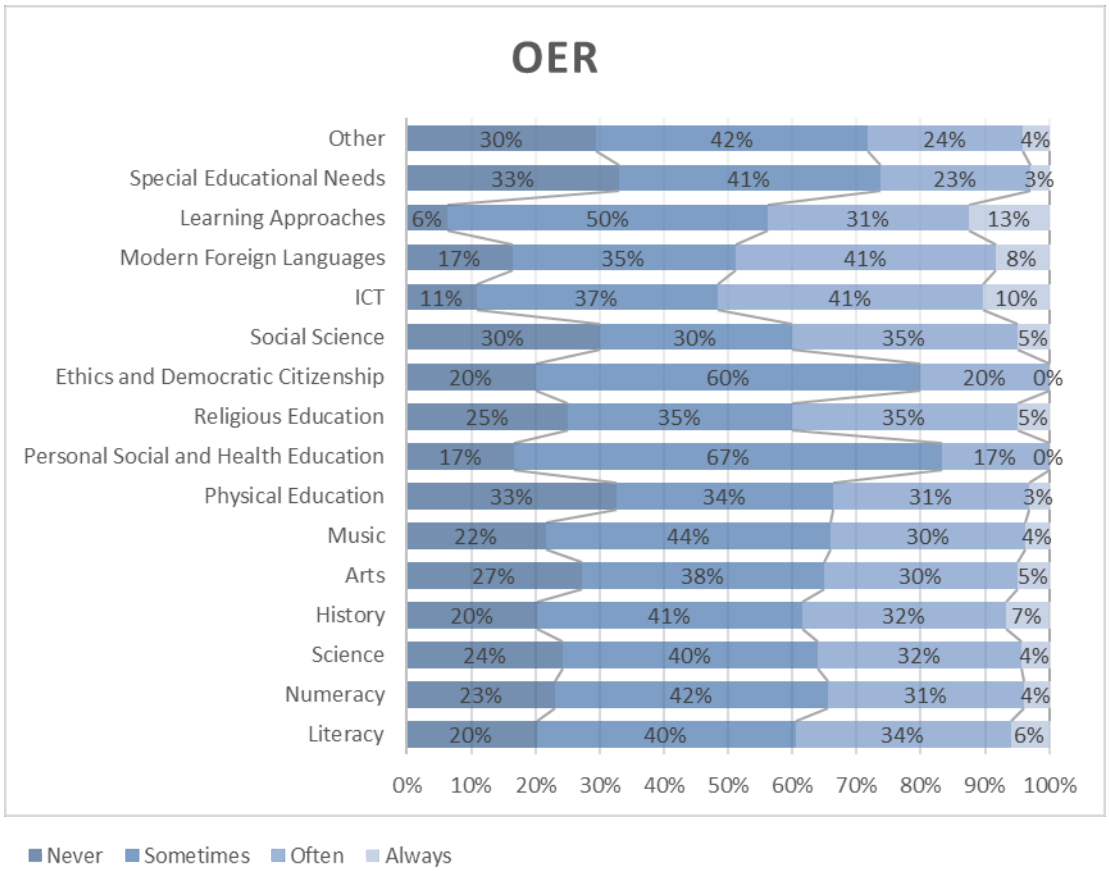

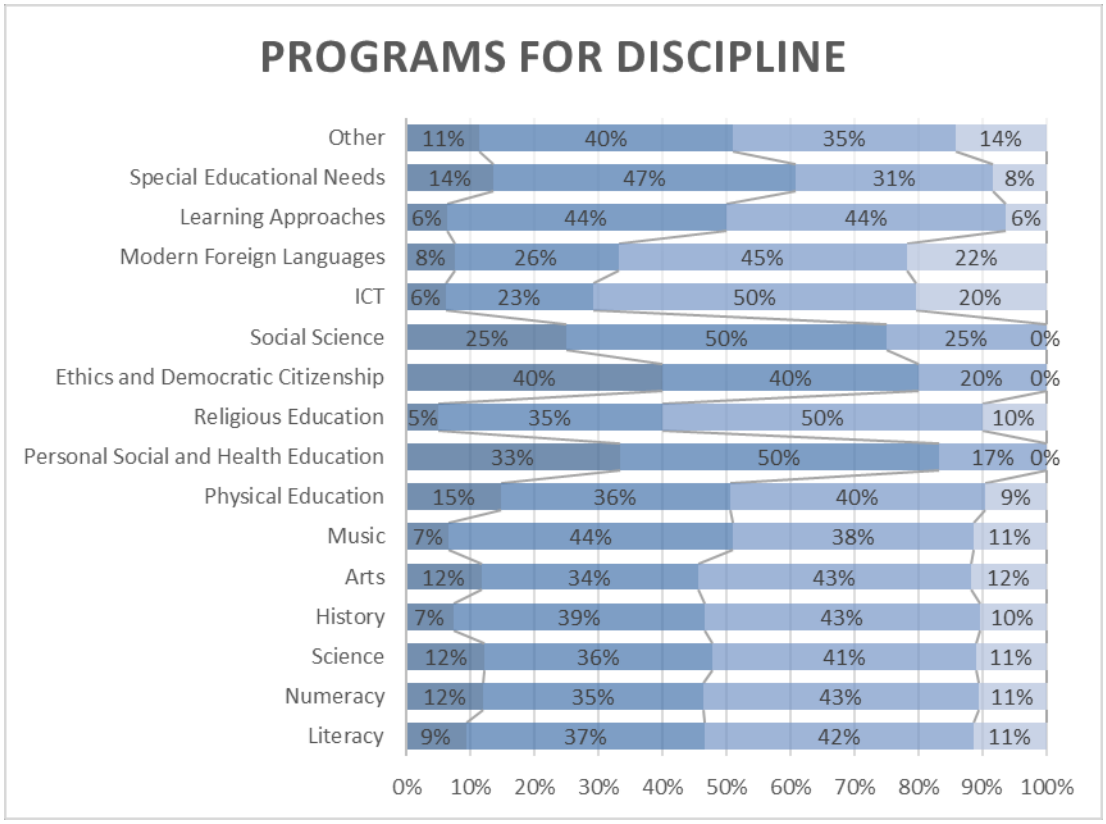

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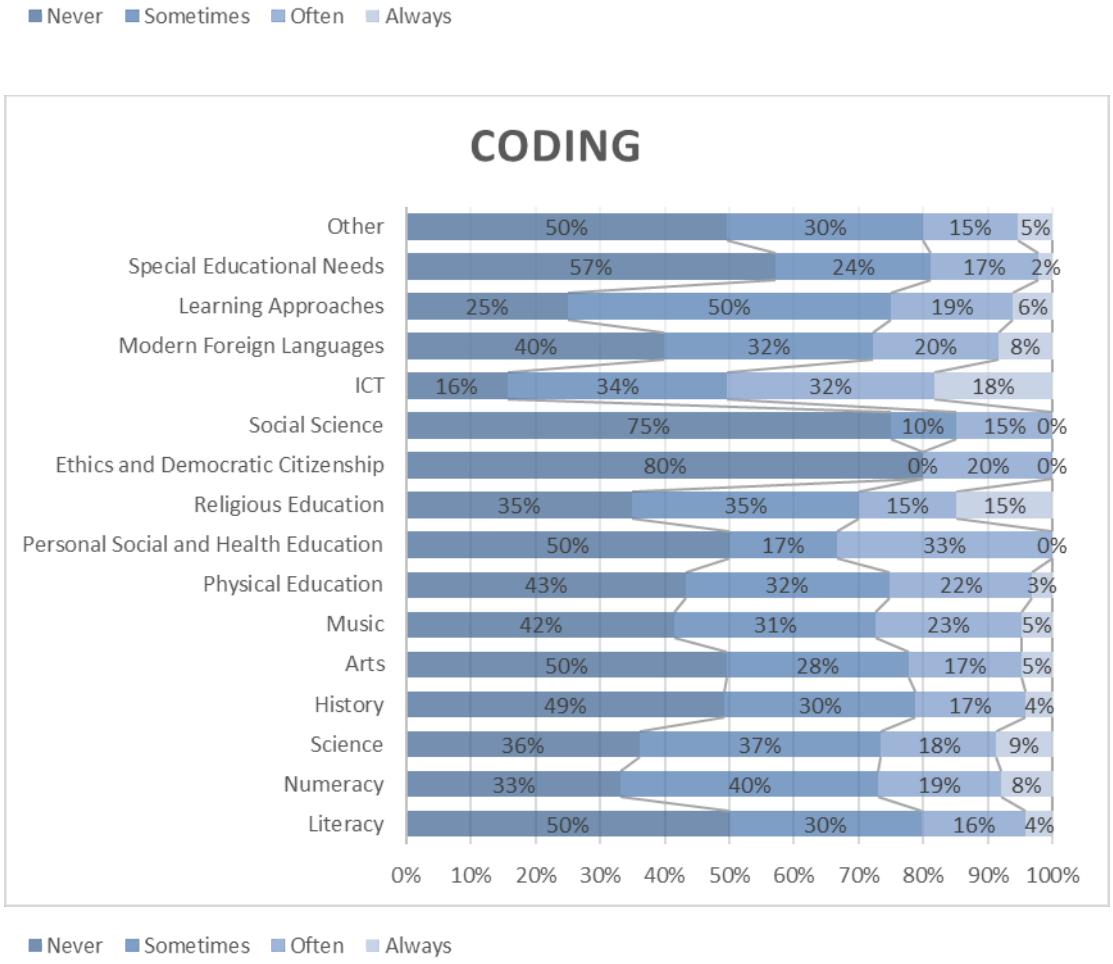

- ***Frequency of use of digital resources in the classroom for teaching activities by type of contract in the school (current employment status)***

With the exception of **Office and similar packages** where frequencies are quite similar, it is observed that the use of digital resources is slightly more frequent (answer options "often" or "always") among teachers with permanent contracts, although the answer option "always" is higher than teachers with temporary contracts only for the cases of **softwares for downloading audio/video contents** (17% vs 8%) and **search tools** (54% vs 42%).

The most relevant exceptions to the situation identified are the use of **resources for creating/editing audio, video and graphics contents**, where teachers with temporary contracts who always use them are 25%, unlike teachers with permanent contracts who are 13%, and **resources to create blogs, sites, hypertexts**, where teachers with temporary contracts who always use them are 19%, unlike teachers with permanent contracts who are only 6%.

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5.2.2 Familiarity with the main teaching practices in use by school type, age, gender, teaching area, type of contract

The different types of teaching practices considered are:

- Active methodologies (such as Flipped Classroom)
- Collaborative learning
- Project-based learning
- Problem-based learning
- Case-based learning

- ***Familiarity with the main teaching practices in use by school type***

Active methodologies is less known by teachers who work in the Early Years level and in VET, where about the 30% declare they are unaware of this teaching practices; in the Early Years specifically result the lowest percentage of use of the methodology: 13%. The active methodologies are more widely known (around 53%) and used (around 44%) in the Secondary School. **Collaborative learning** is widely used at every school level (between 76 and 86%) except at Early Years level where it is used by the 57% of the teachers; the percentages of teachers unaware of the methodology are very low, the most relevant results are for Early Years (9%) and VET (14%). **Project based learning** is also quite widespread: even if the percentages related to its adoption are in general lower then the previous methodology (between 43% at VET level and 62% at Secondary School 11-14 level), it seems to be adopted with few differences at all school levels; the percentage of unawareness varies between 6% and 15%. **Problem based learning** is less known at VET level (29%) and Early Years level (22%), but at the other level it results to be quite known (31-35%) and widely used (around 60%). **Case based learning** is the methodology less known (from 14% for the Secondary School 14-19 level to the 43% of the VET level) and, consequently, less used at all levels (from 31% for the Secondary School 14-19 level to the 14% of the VET level).

Chart 5.12 - Familiarity with the main teaching practices in use by school type

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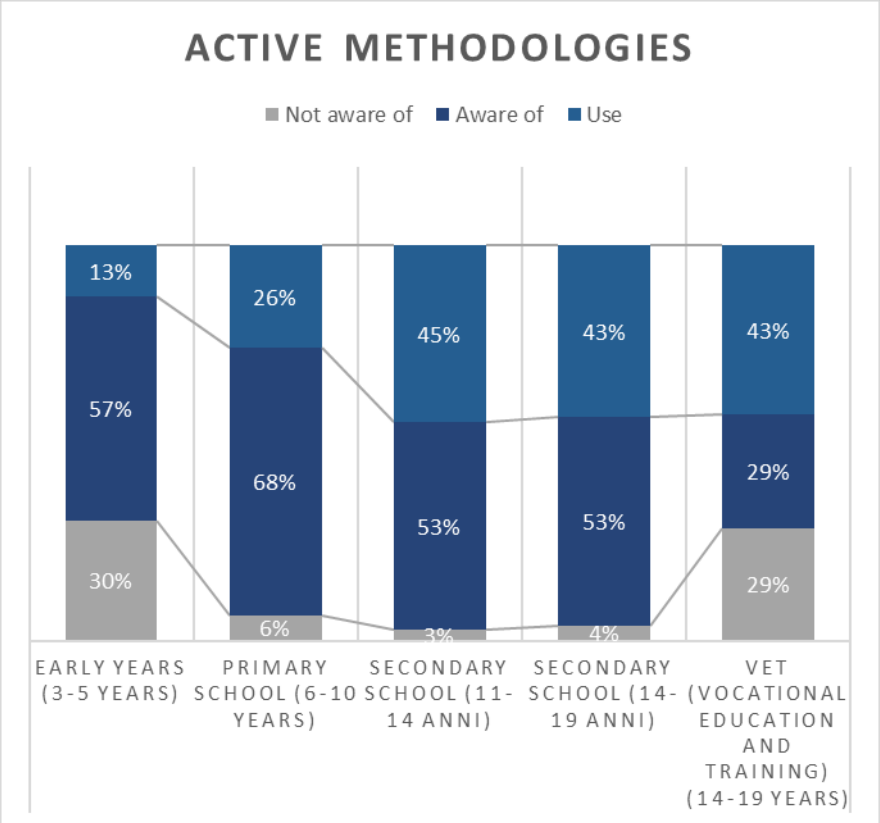

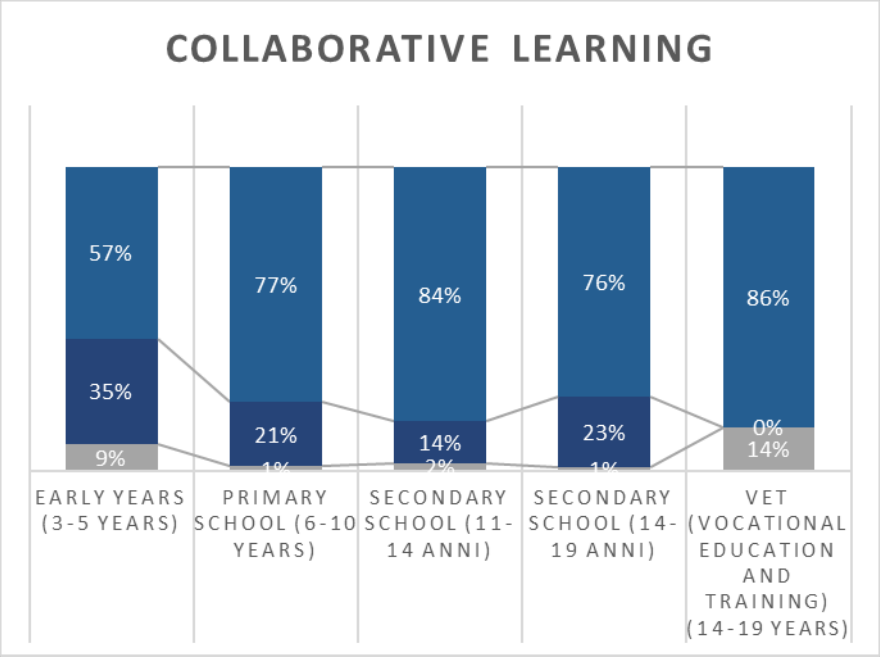

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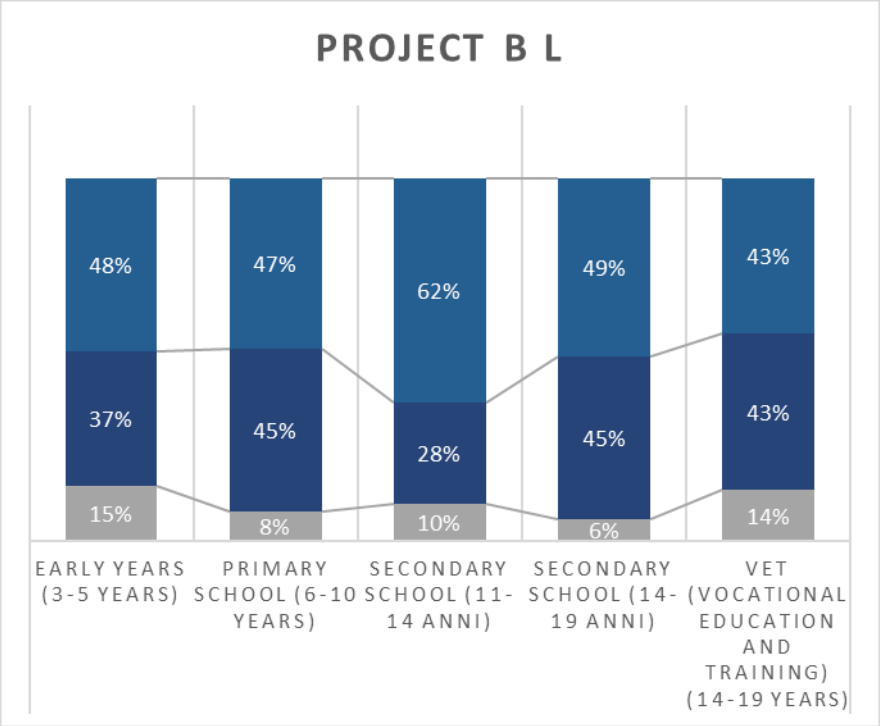

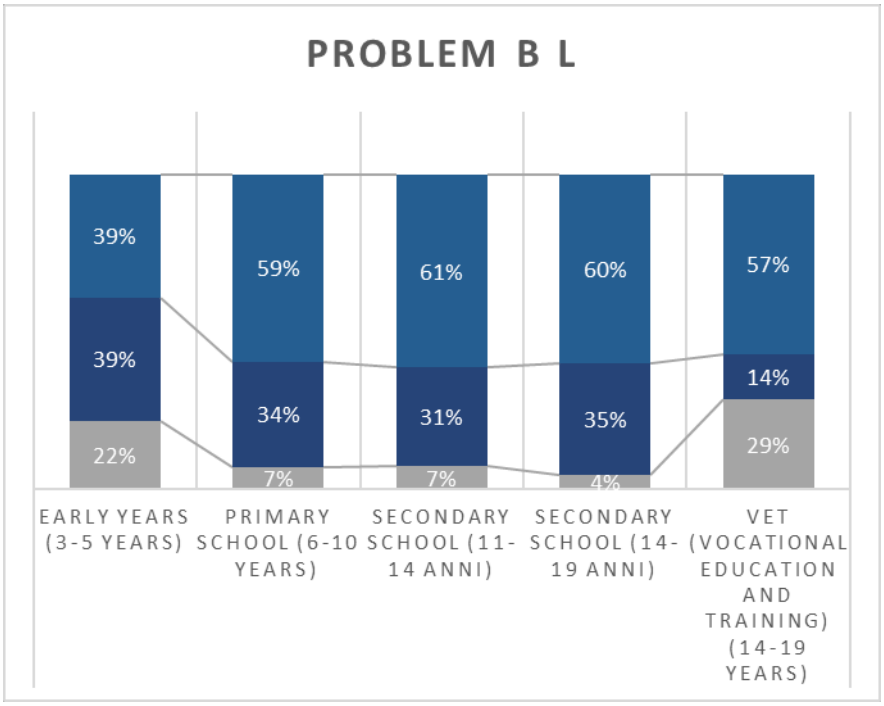

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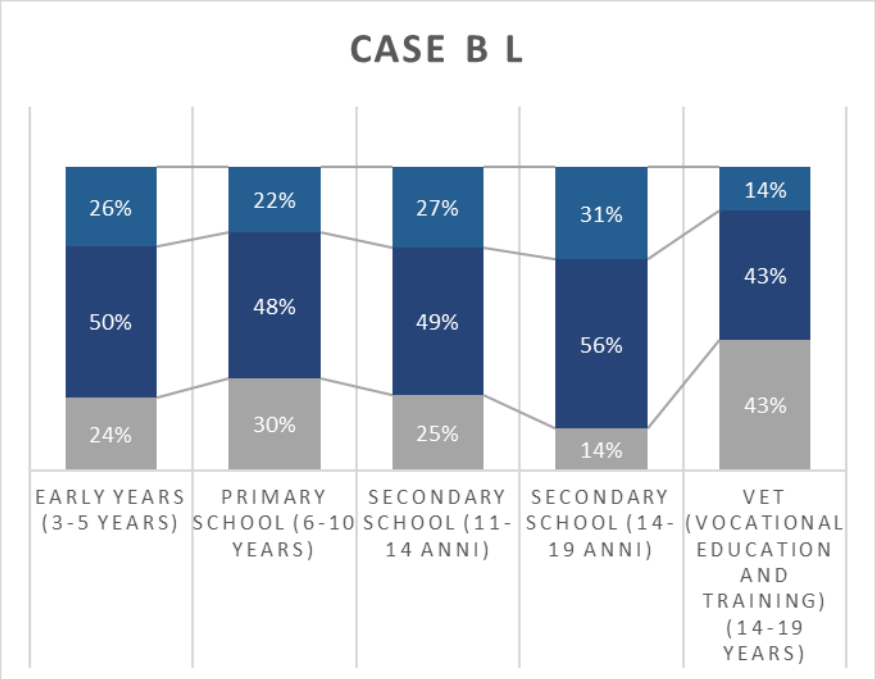

- ***Familiarity with the main teaching practices in use by age***

Teachers between 25-30 years results to be the most aware of **active methodologies**, but those who use them the least (19% vs around 33-43% of older teachers), a similar situation is found in the awareness/use of the **case based learning methodology** (used by the 13% of 25-30 y.o. teachers vs around 24-29% of older teachers). In return, they are those who uses **collaborative learning methodology** the most (88%), where the percentage regularly slightly decreases as the age increases (83%-71%). The same trend is recorded for **problem based learning** methodology, even if percentages of adoption are lower (from 66& to 58%).

Chart 5.13 - Familiarity with the main teaching practices in use by age

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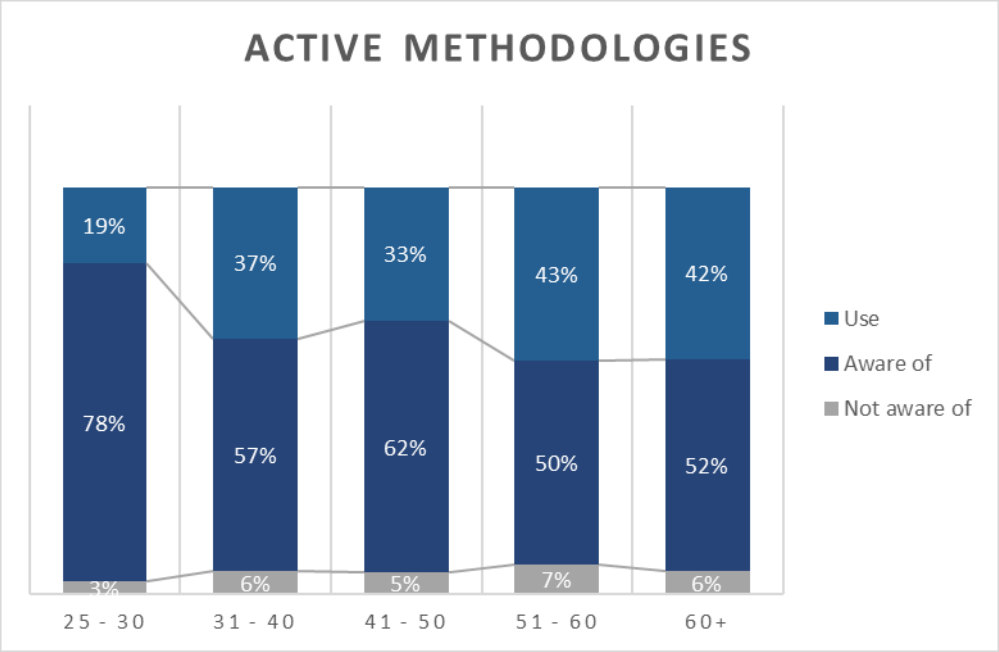

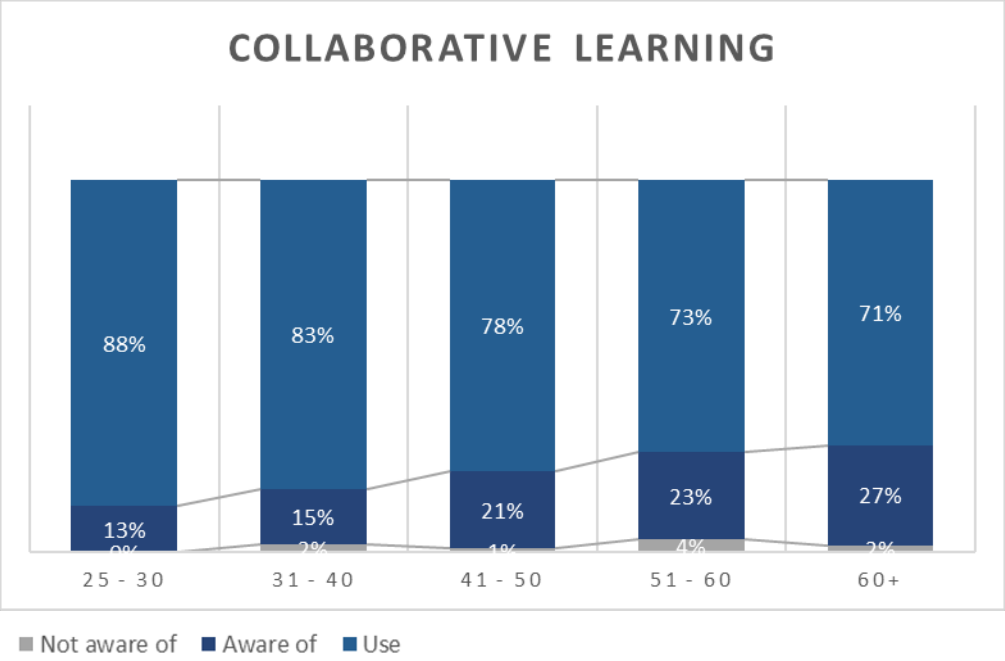

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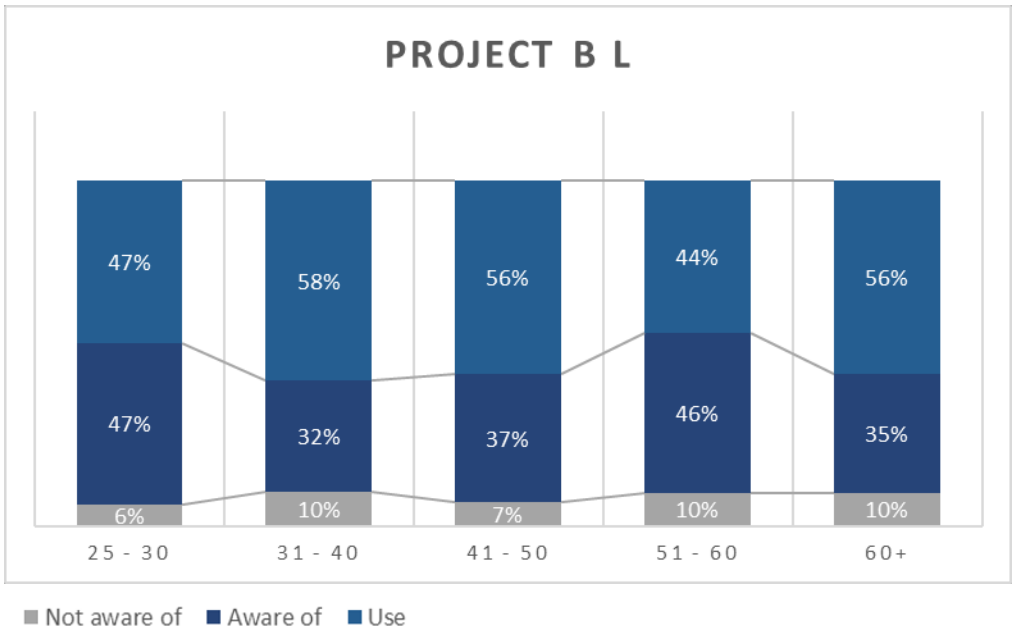

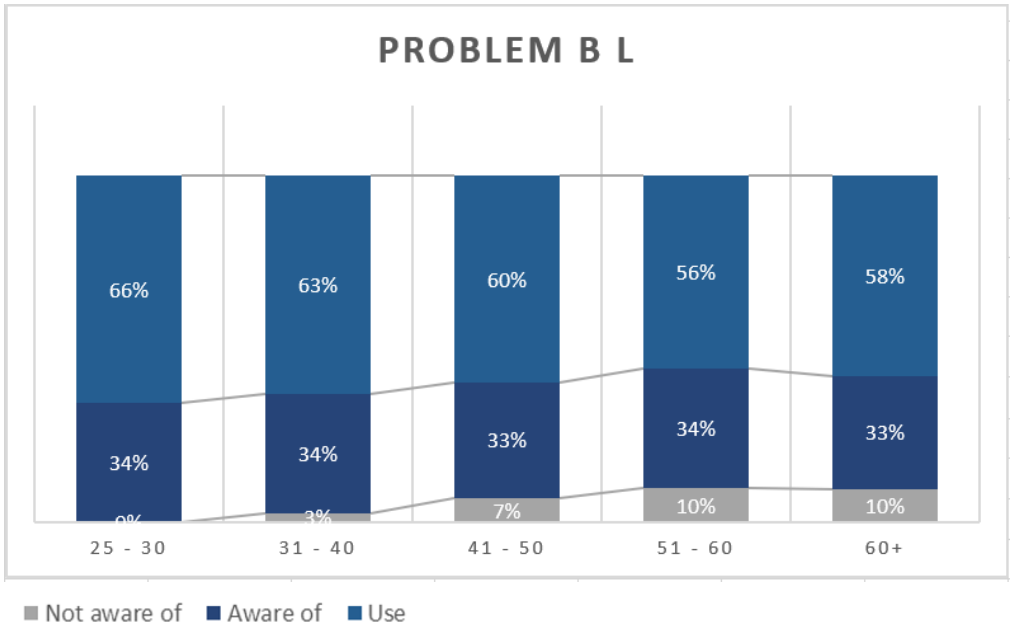

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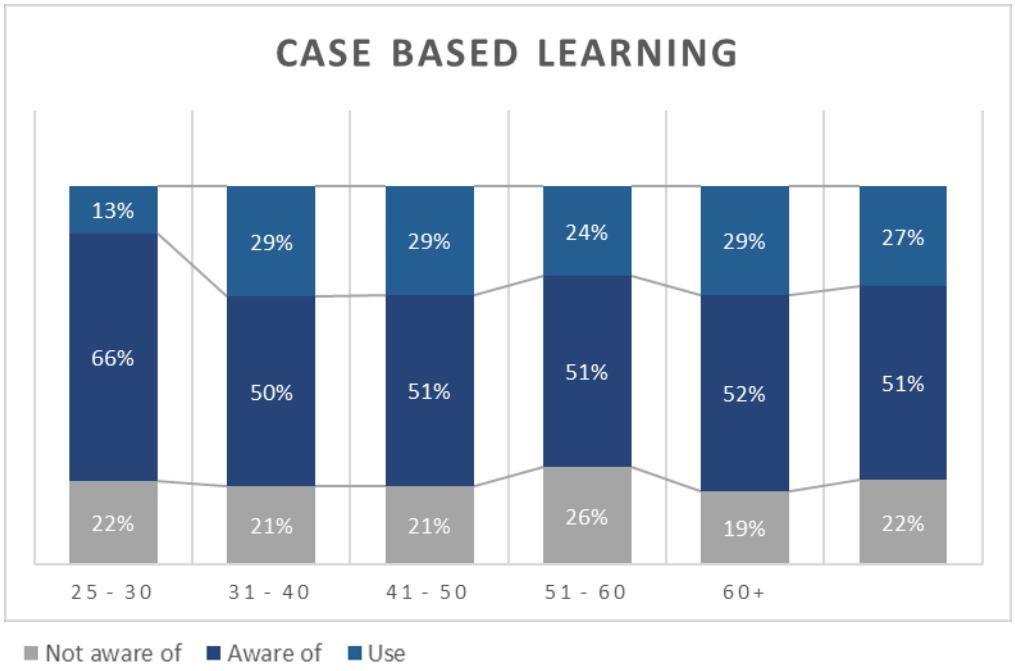
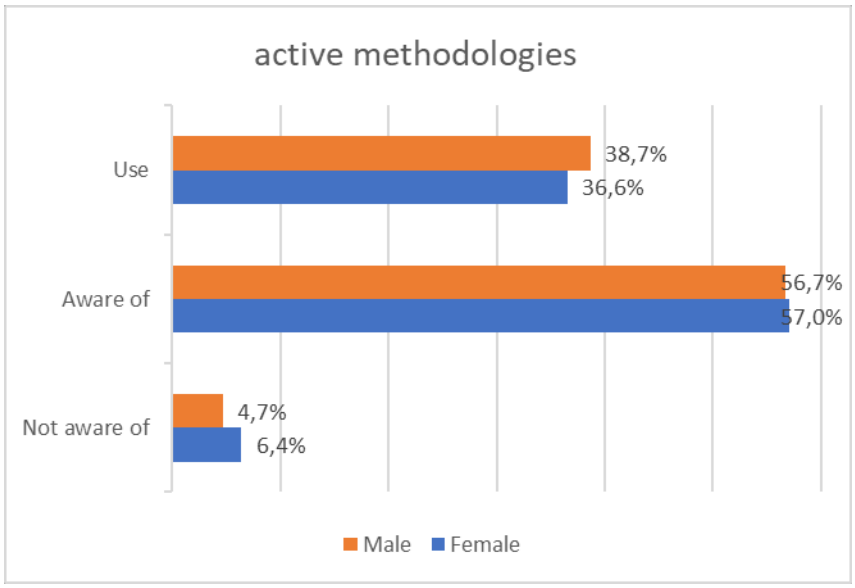


- ***Familiarity with the main teaching practices in use by gender***

There are no significant differences in the use of the various teaching practices between male and female teachers: the percentages regarding female teachers are usually 3-4 points lower than those regarding male teachers, except for the use of **collaborative learning methodology** (78% female vs 74% male) and **problem based learning** (60% female vs 57% male) and the unawareness of **case based learning** (23% female vs 16% male).

Chart 5.14 - Familiarity with the main teaching practices in use by gender



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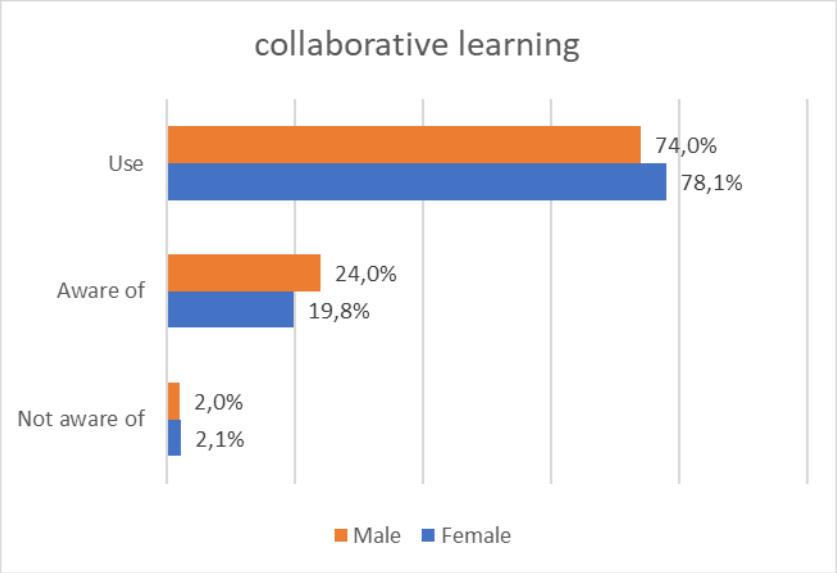

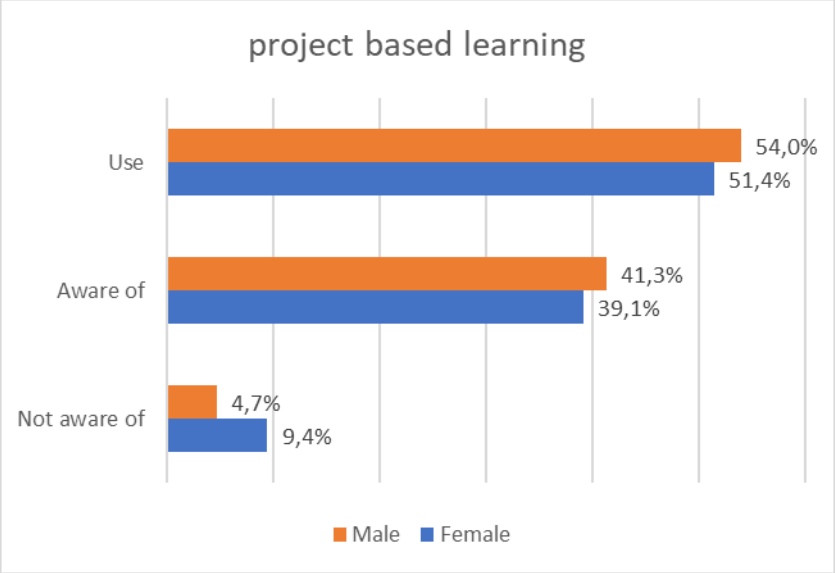

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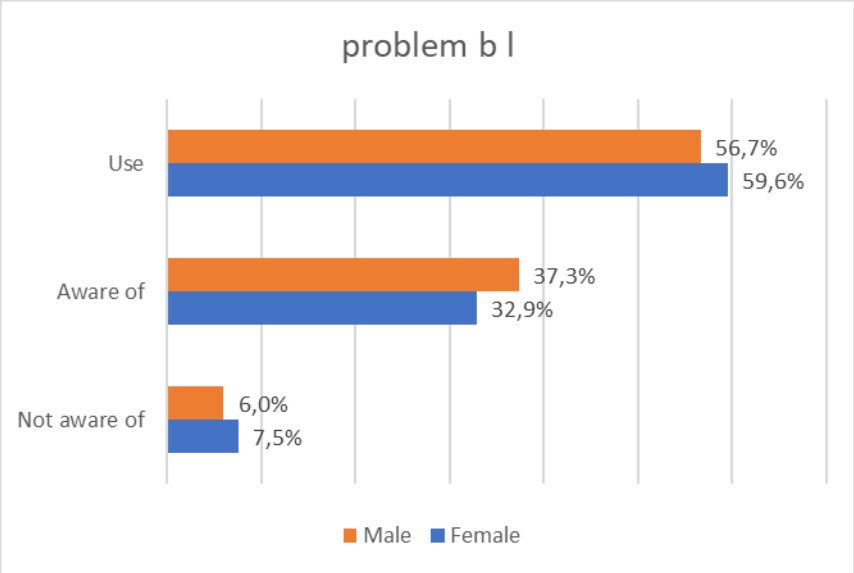

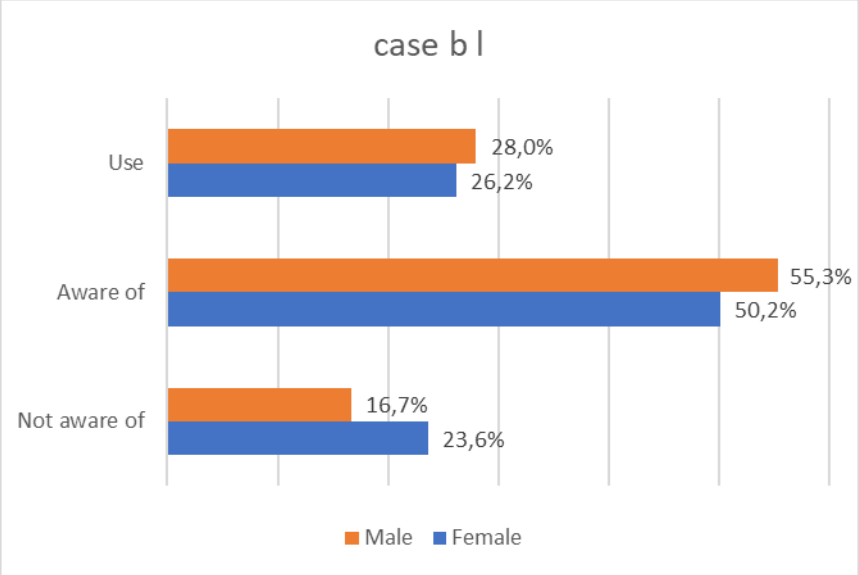

- ***Familiarity with the main teaching practices in use by teaching area***

Active methodologies are more used in the area of Learning Approaches (69%), Religious Education (45%) and Literacy (43%) and less practiced in the field of Personal, Social and Health Education and Physical Education (respectively 17 and 19%). The use of **collaborative learning** is more widespread among the different teaching areas and varies from 65% in the area of Religious Education to the 94% of the area of Learning Approaches. **Project based learning** results being used in the area of Ethics and Democratic Citizenship (80%), Learning Approaches (75%) and Personal, Social and Health Education (67%). **Problem based learning** shows in general high percentage of use for most of the teaching area, from the 50% of the Arts area to +70% of Numeracy, ICT, Social Sciences and Learning Approaches areas; the only exception is the 35% in the area of Religious Education. **Case based learning** results being mainly used in the area of

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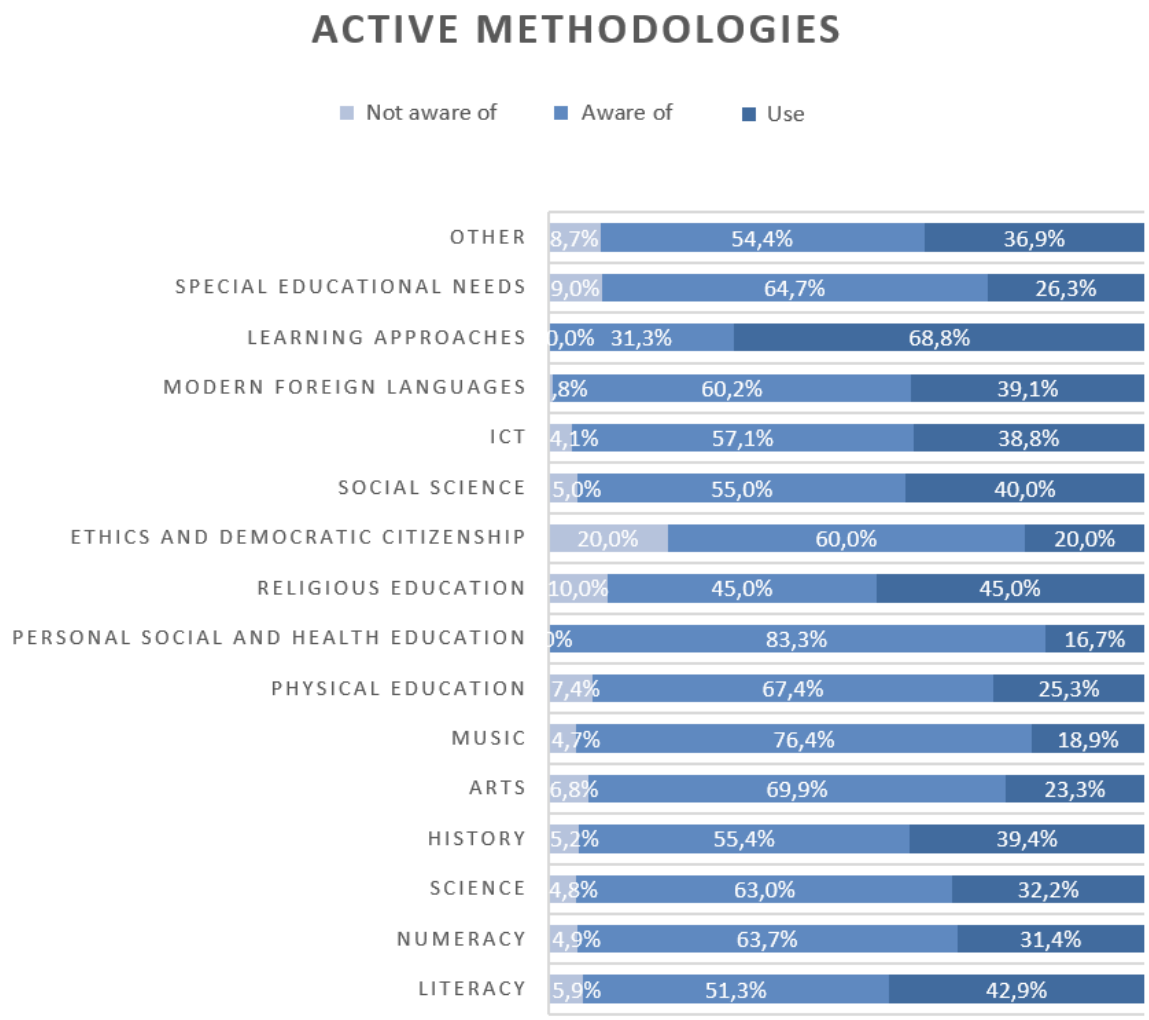
Personal, Social and Health Education (50%), Social Science and Ethics and Democratic Citizenship (both 60%) and Learning Approach (62%).

Chart 5.15 - Familiarity with the main teaching practices in use by teaching area



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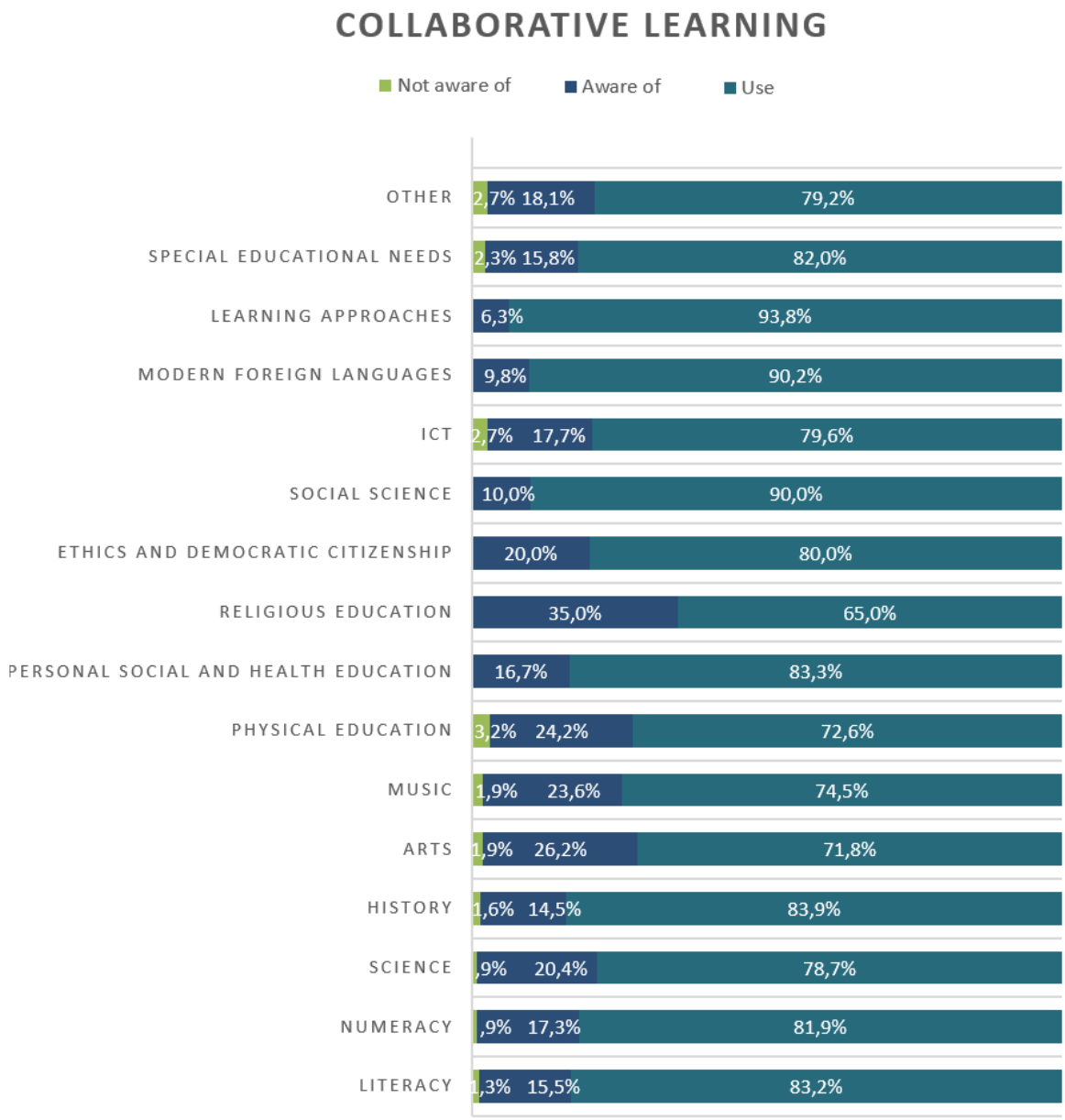

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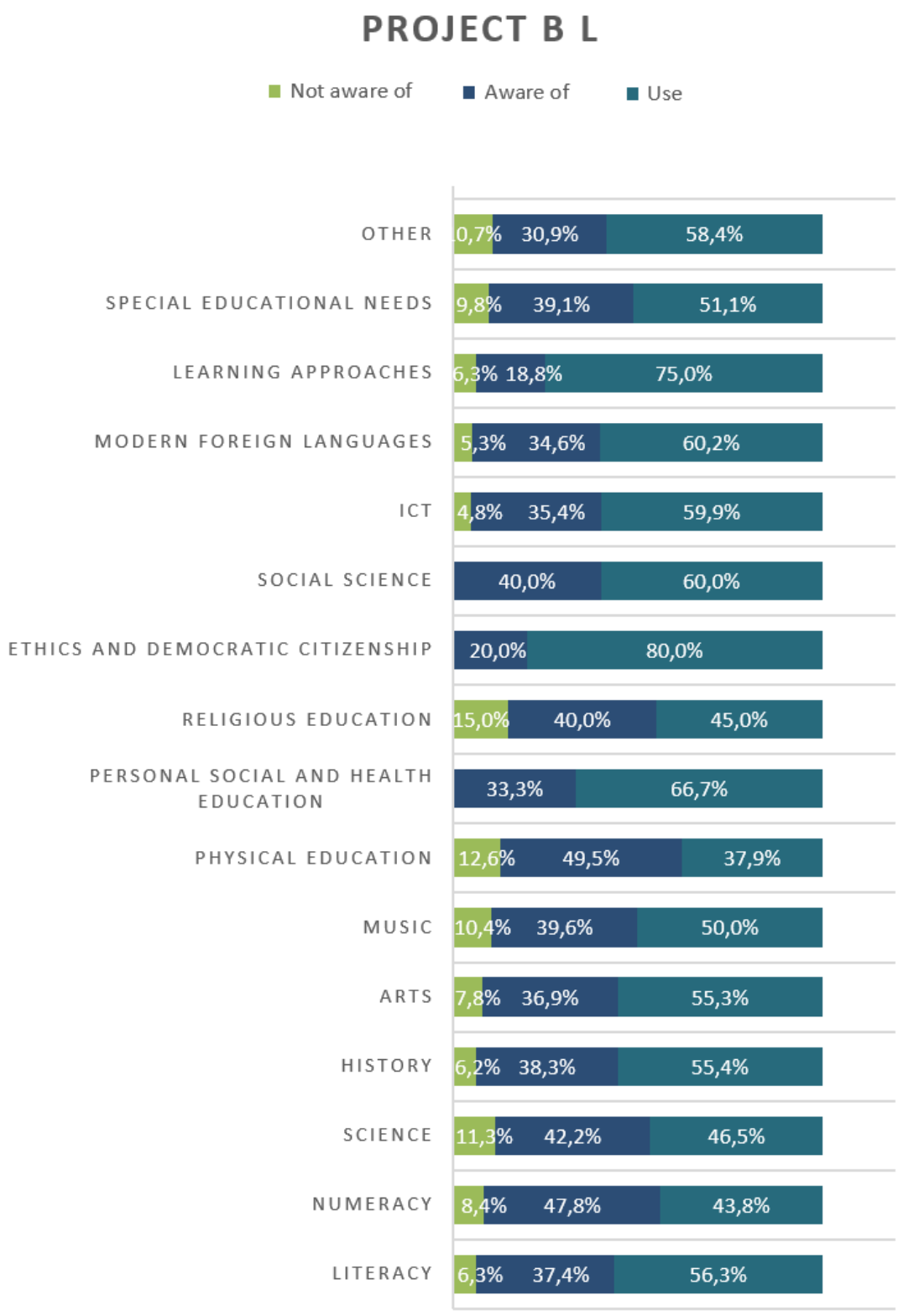

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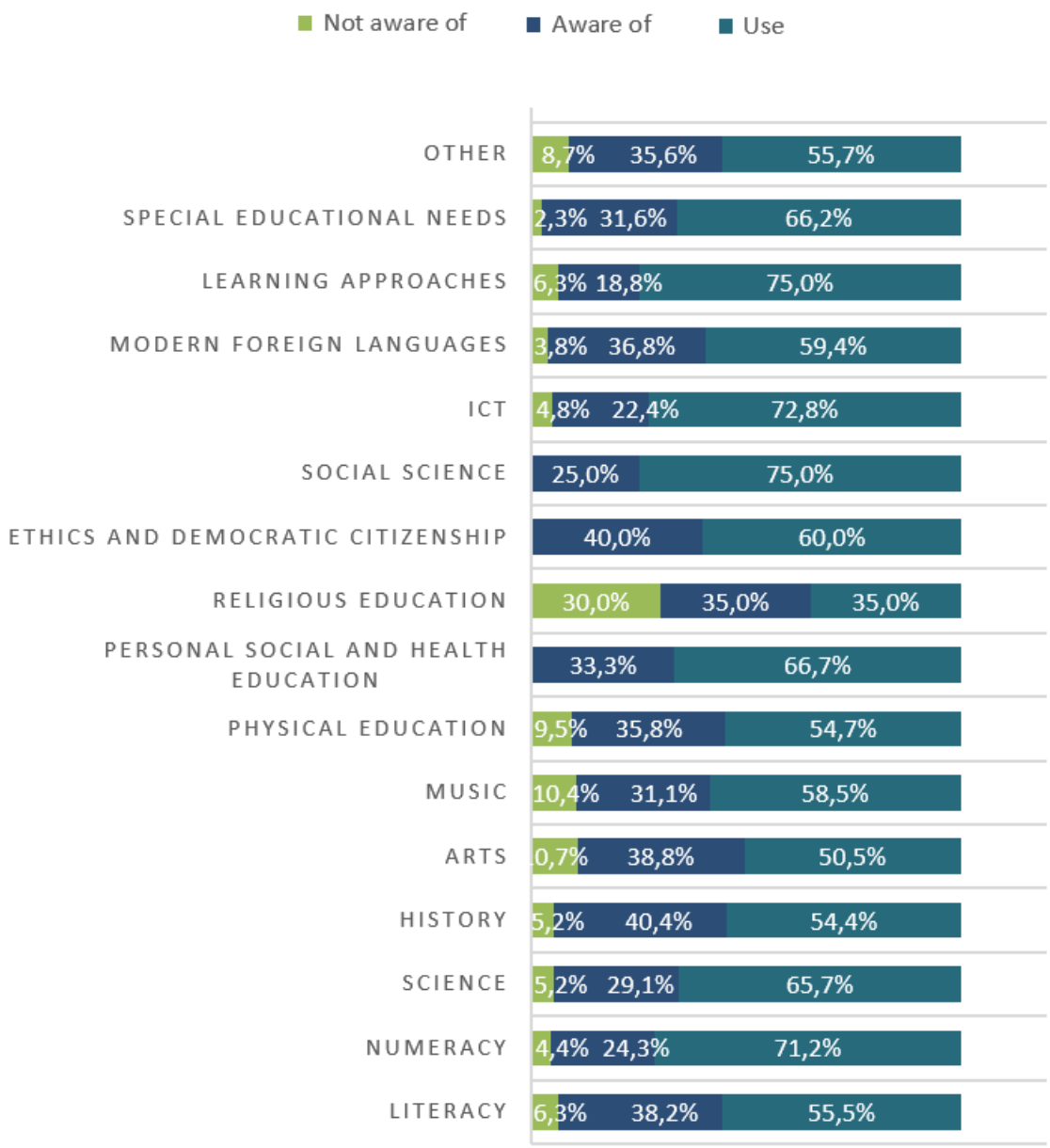
PROBLEM B L



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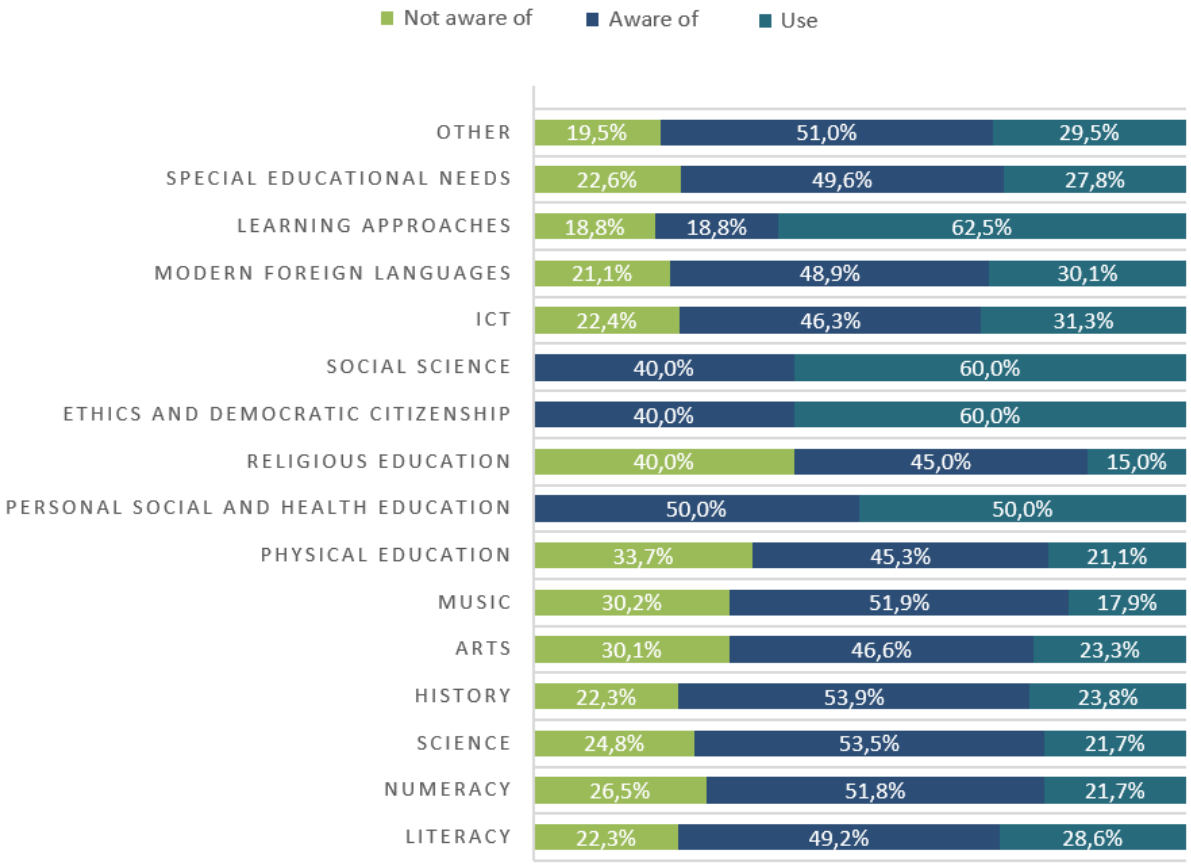
CASE B L



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5.2.3 Frequency of activities as part of teaching by school type, age, gender and teaching area

The different types of activities as part of teaching considered are:

- Regular contact with my students through online communication (email, forums, blogs etc.) to continue the learning process outside the classroom
- Ask students to document online what they have learnt
- Involve students in collaborative online work
- Online student assessment
- Creative work using online applications
- Encourage interdisciplinary projects through the use of online technologies

- ***Frequency of activities as part of teaching by school type***

The habit of having a **regular contact with the students** becomes more common as the school level increases: the option "often" shows values from 4% at Early Years level to 33% of Secondary School level and 57% for VET level (which shows a lower percentage for the option "always"). A similar trend is evident also for the habit of **asking students to document online their learning** (with the exception of VET level where the majority of respondents (57%) selected the option "never") and **involving students in collaborative online work**. Interestingly, online student assessment seems to be quite used at Primary School level, where a total of 52% of the respondents selected the options "sometimes", "often" or "always". **Creative work using online applications** appears to be commonly used and shows a higher percentage of use, in comparison to the previous activities, also at Early Years level. **Encouraging interdisciplinary projects** results do be a very common activity at Primary School (+70%) and Secondary School level (around 80%).

Chart 5.16 - Frequency of activities as part of teaching by school type

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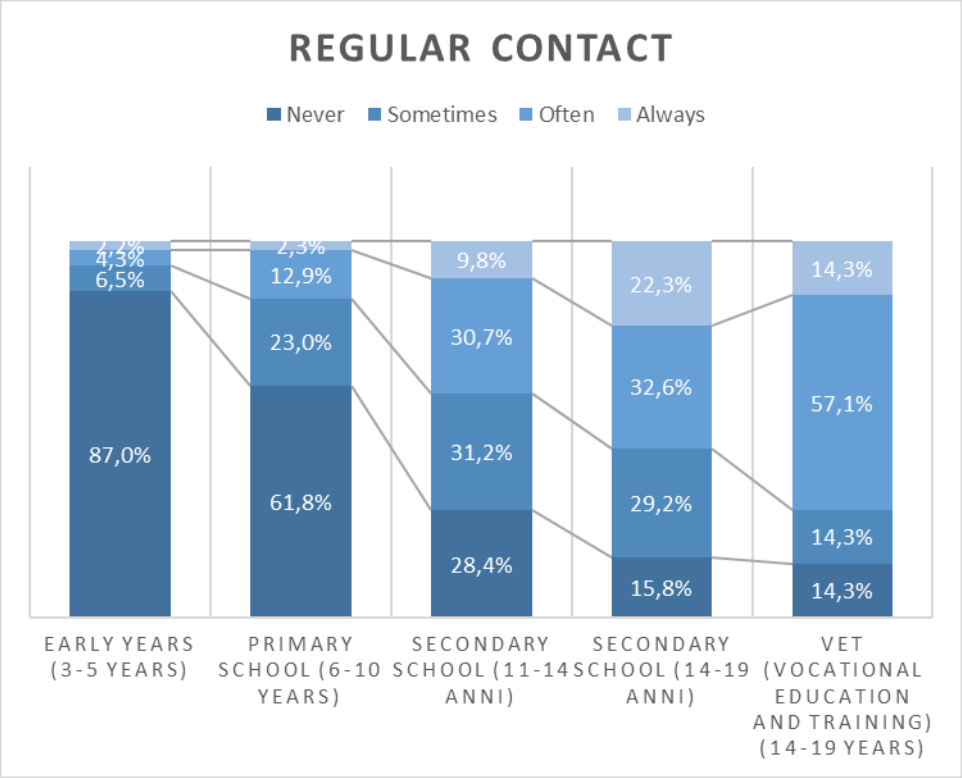

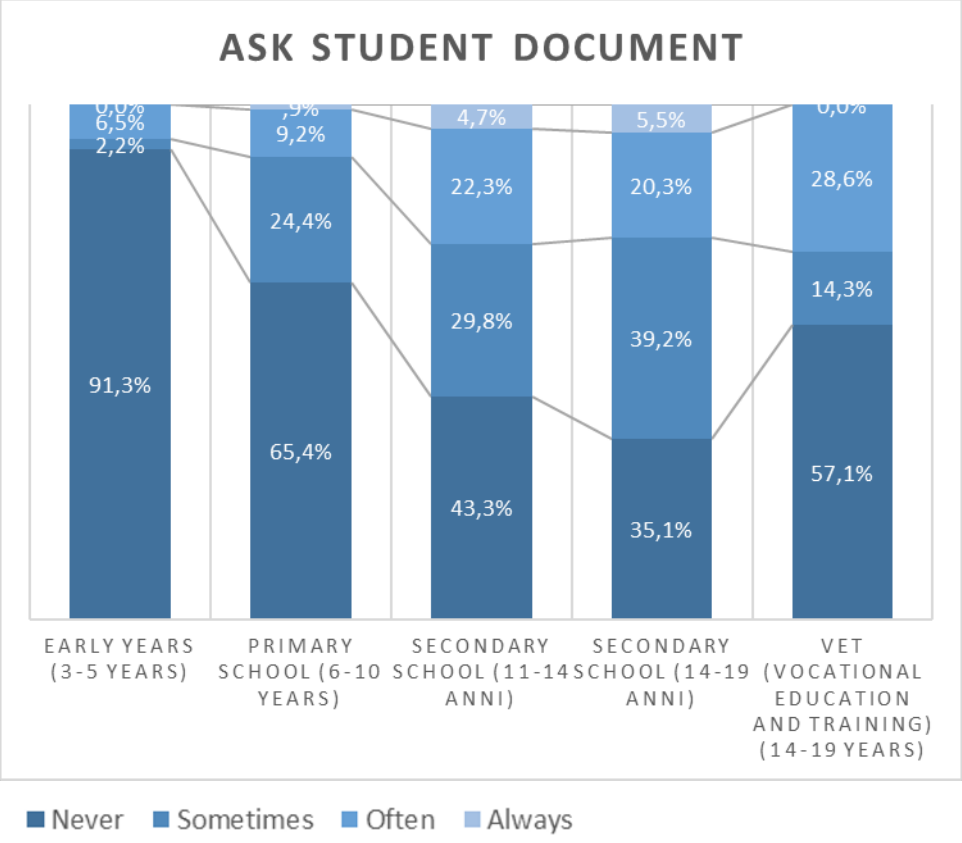

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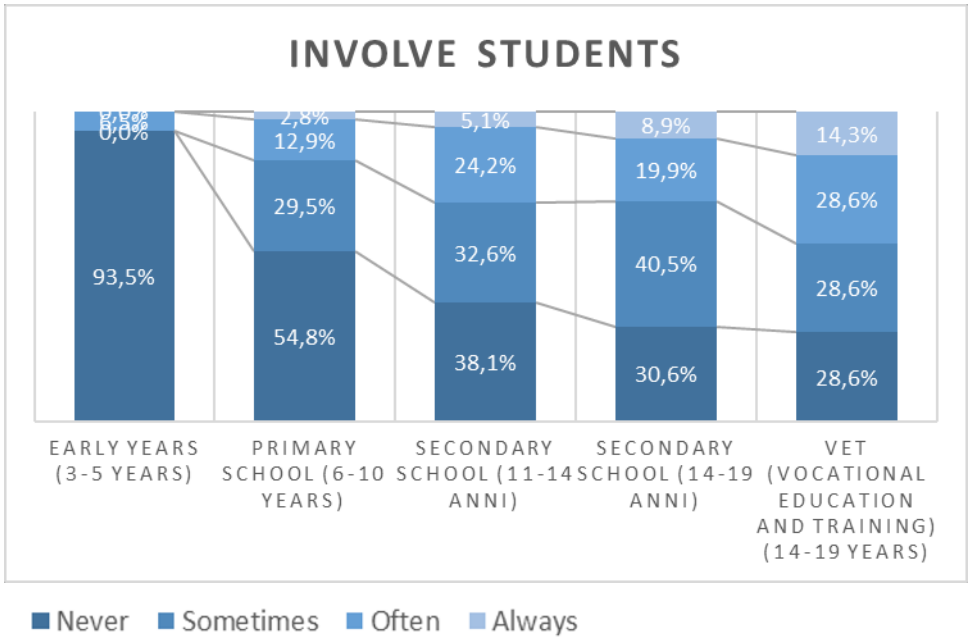

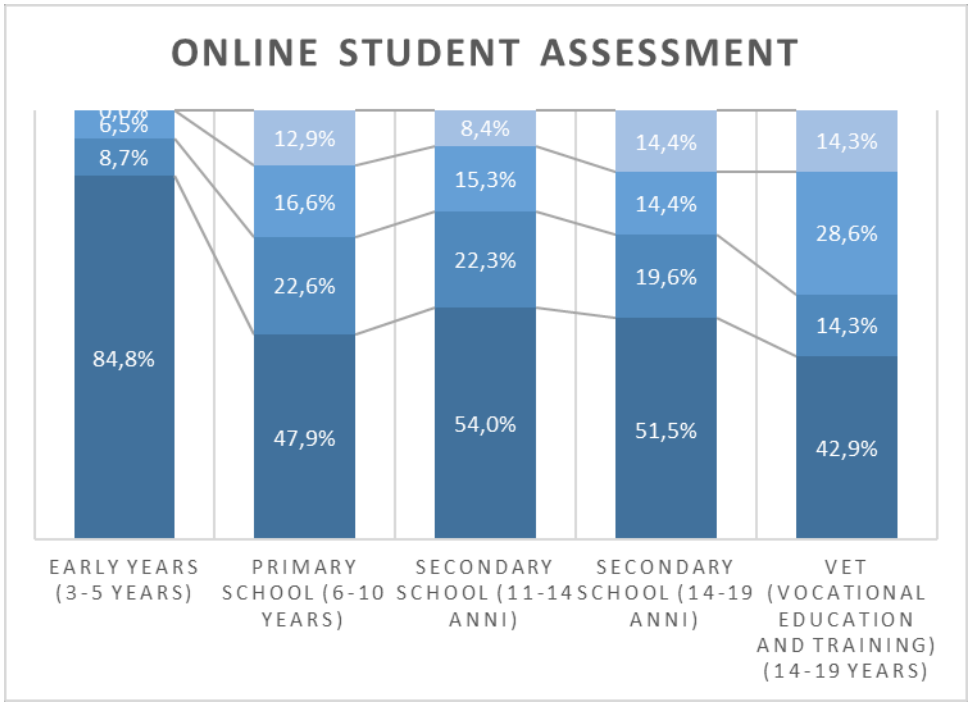

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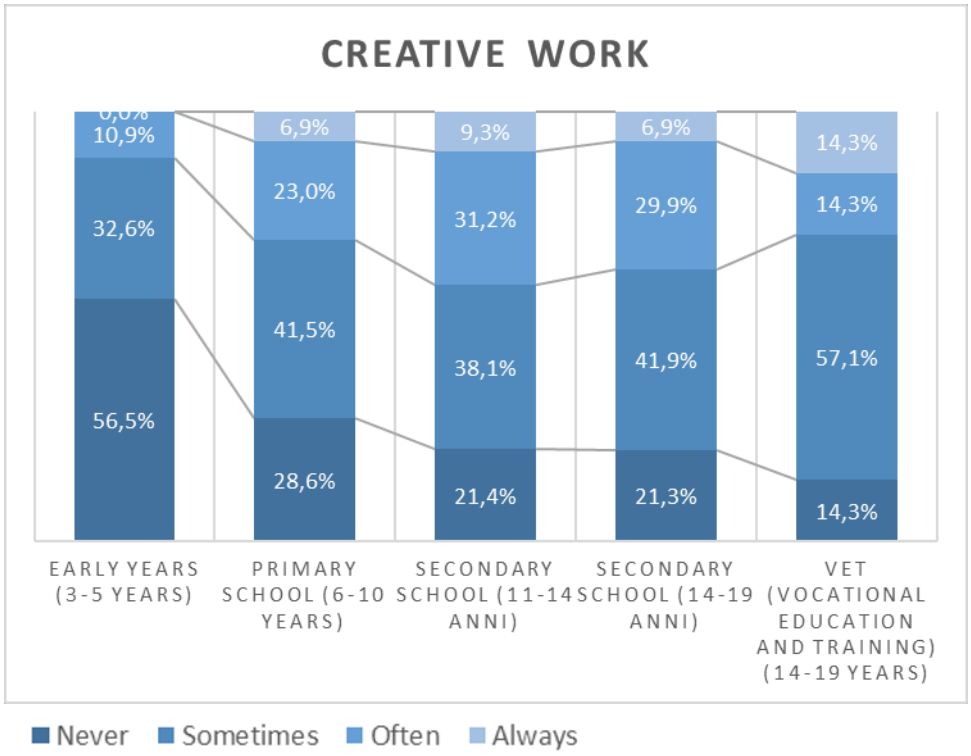

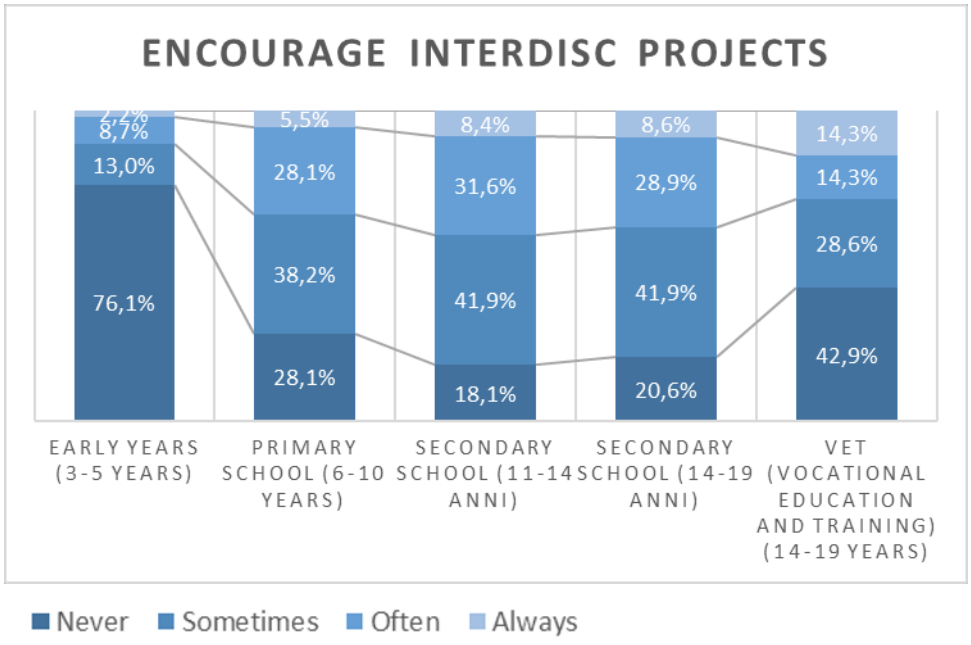

- ***Frequency of activities as part of teaching by age***

With some slight differences in the values, the results show a **general increase of the frequency of the activities carried out as the age of the teachers increase**, with the exception of the 31-40 age group that

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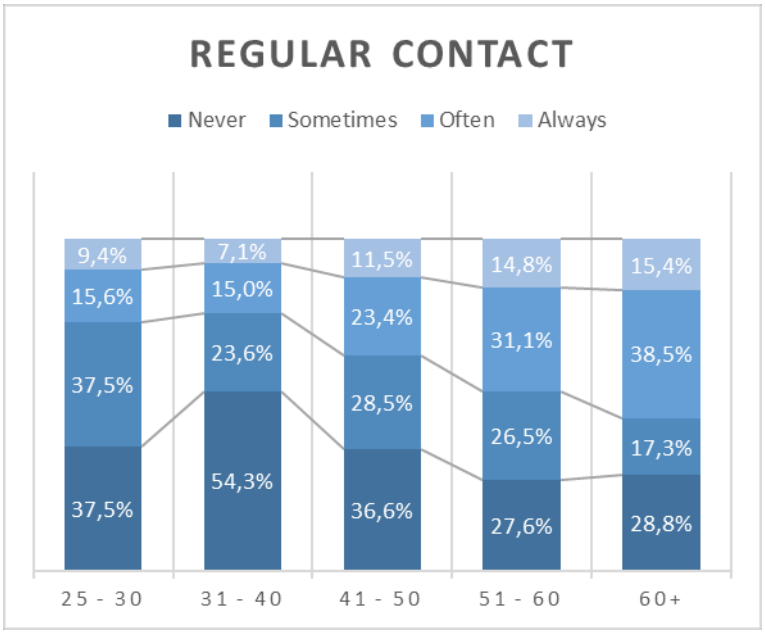
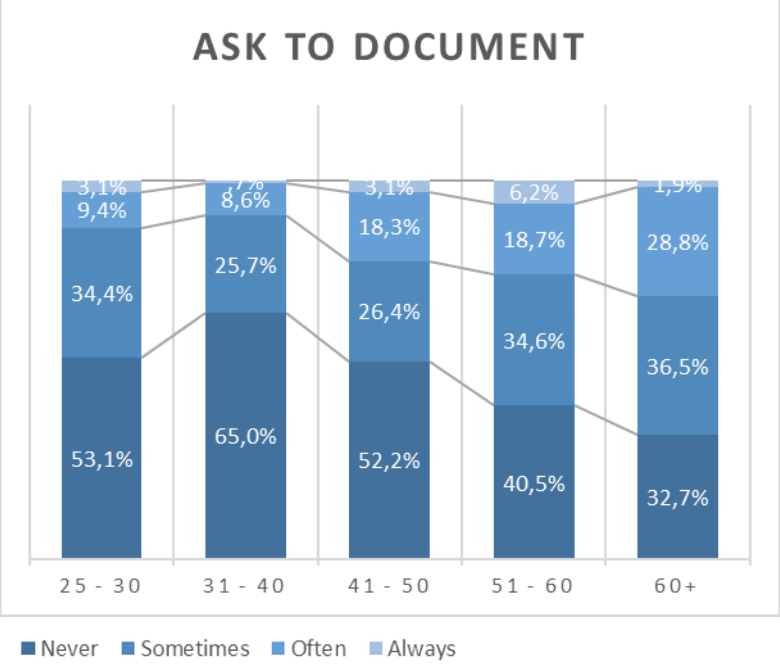
shows higher values for the option “never” in most of the activities taken into consideration, especially online assessment (72%), asking students to document their learning (65%) and having regular contact with the students (54%).

Chart 5.17 - Frequency of activities as part of teaching by teaching age





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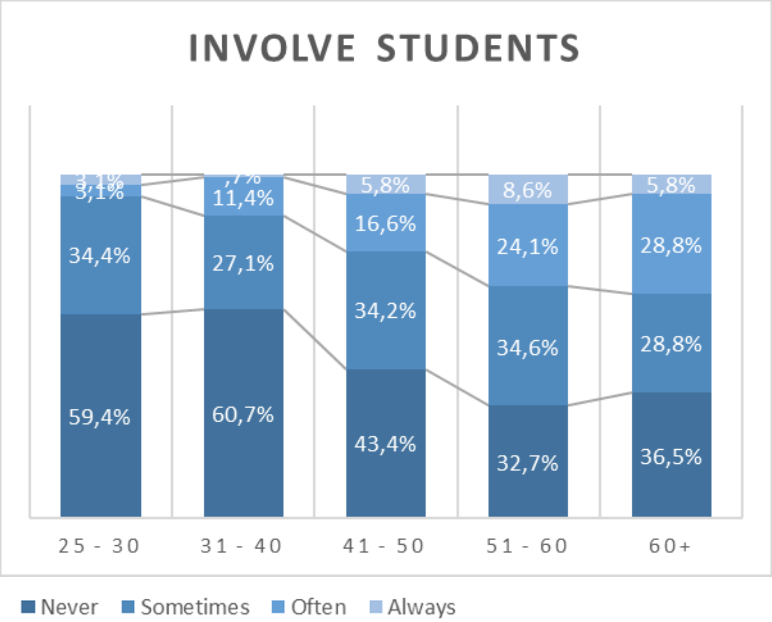

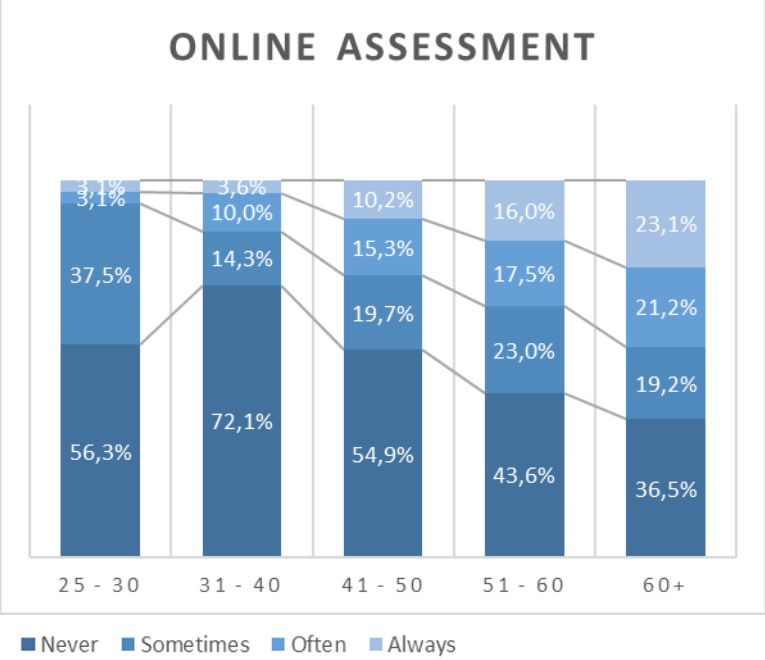

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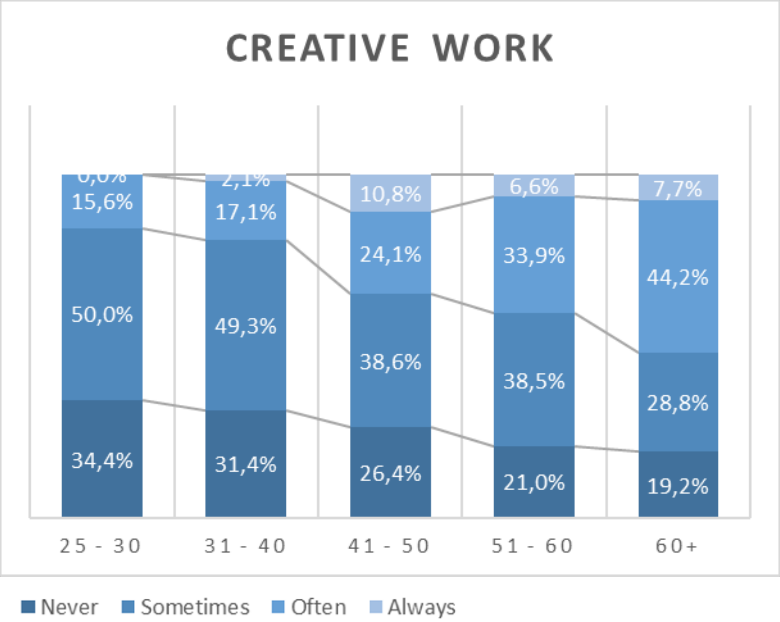

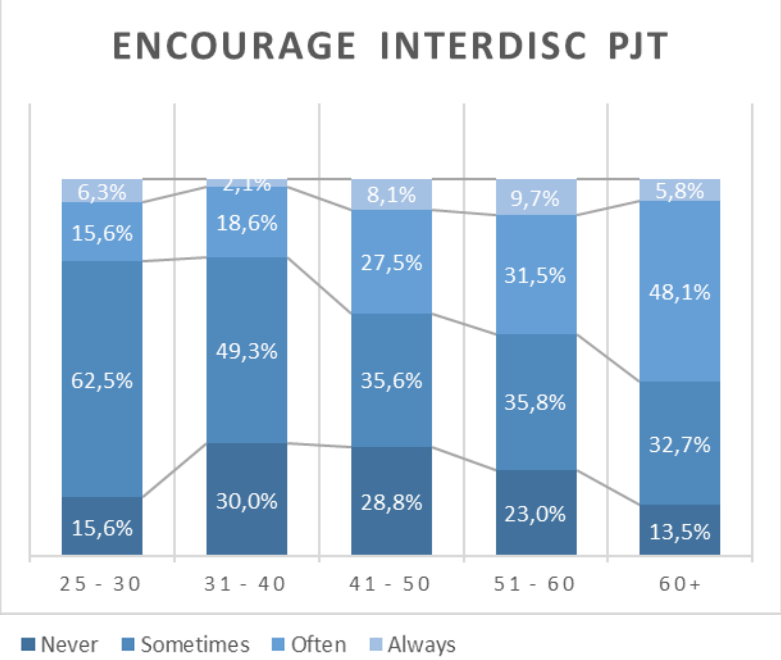

- ***Frequency of activities as part of teaching by gender***

The distribution of answers for the option "sometimes / often / always" between the two genders seems to be similar – or with little significant difference - only for **online student assessment and creative work using online applications**. The distribution in the other kind of activities shows that responses to the option "sometimes / often / always" are given more frequently by male teachers, with very few exceptions where the difference between the two genres is however very small: ex. ask student to document their learning (option

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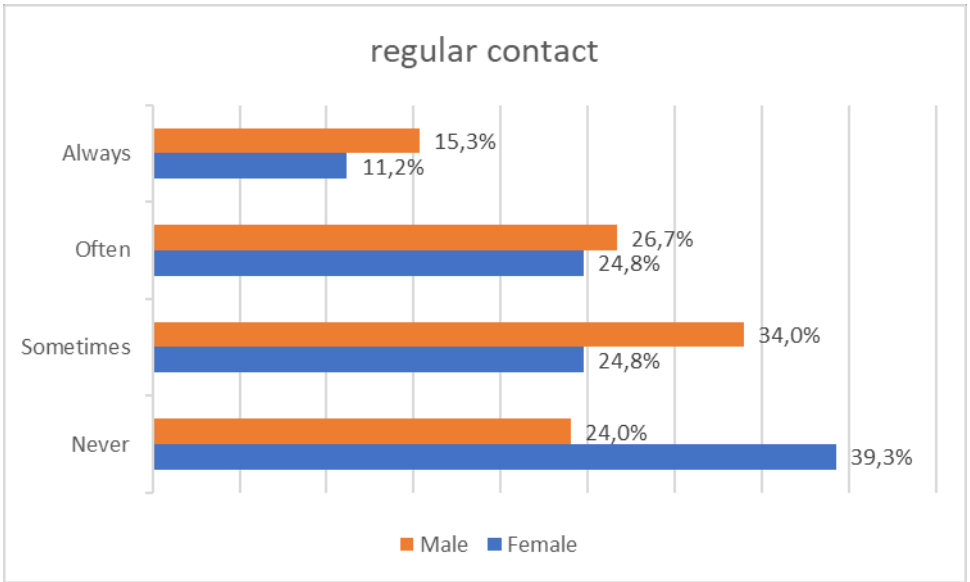
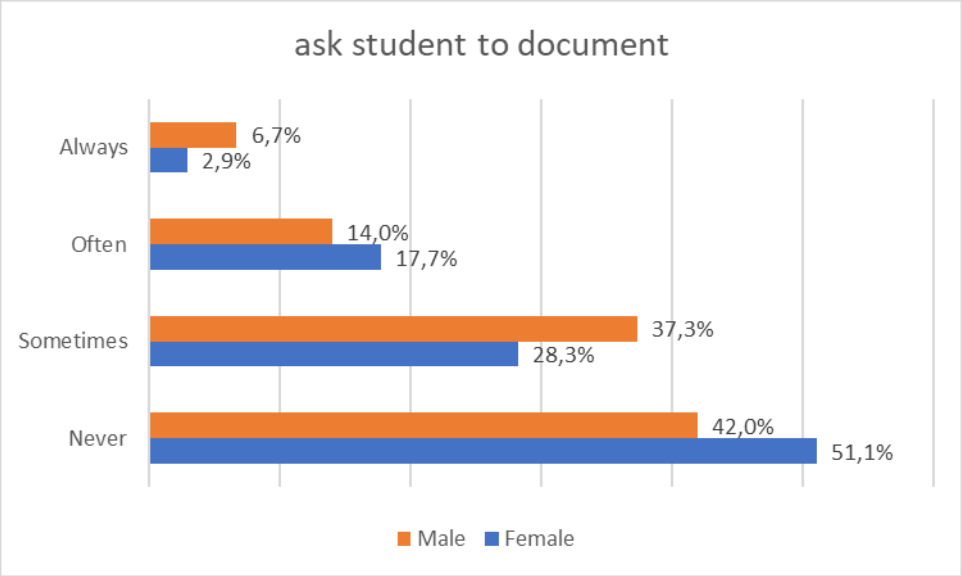
"often": 17% female teacher, 14% male teacher), online student assessment (option "often": 15% female teacher, 14% male teacher).

Chart 5.18 - Frequency of activities as part of teaching by gender





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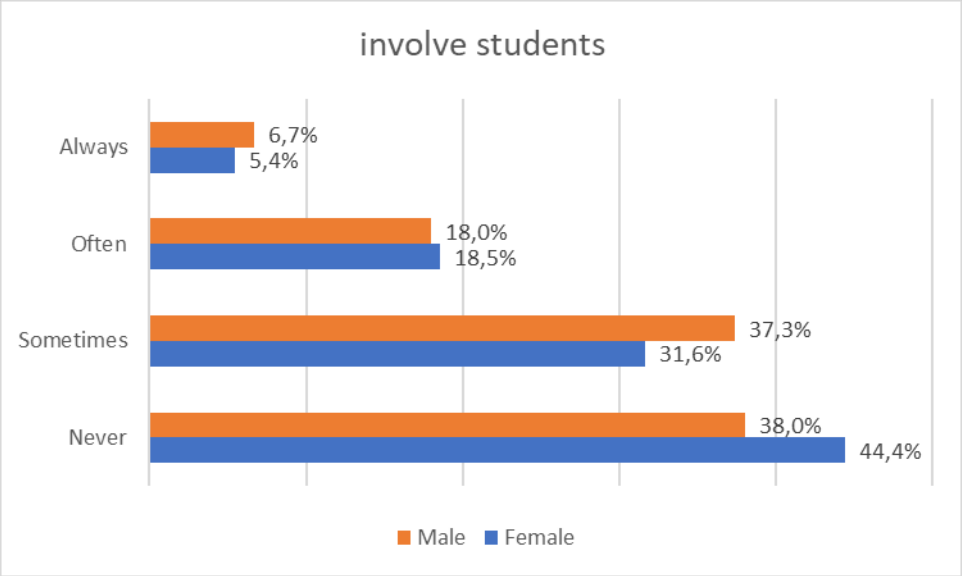

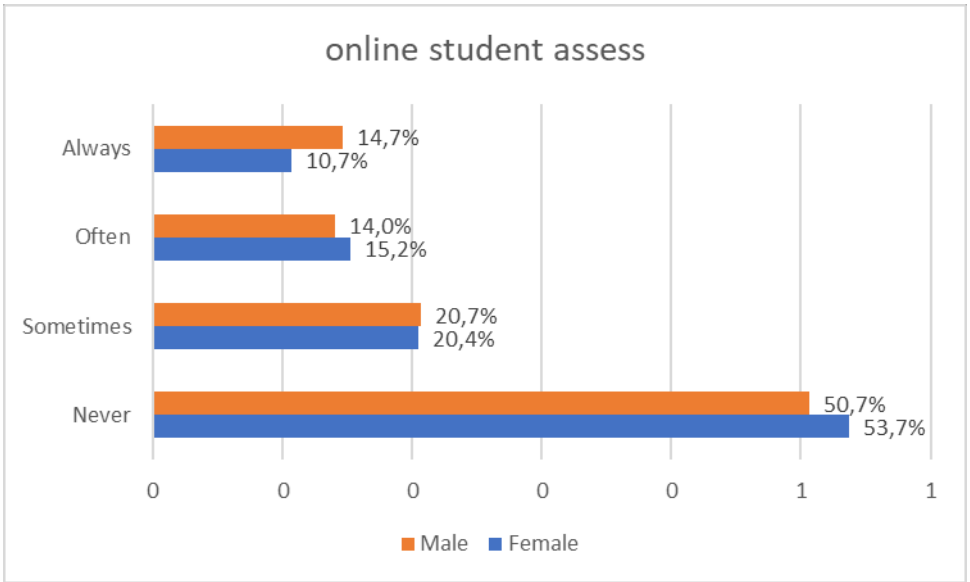

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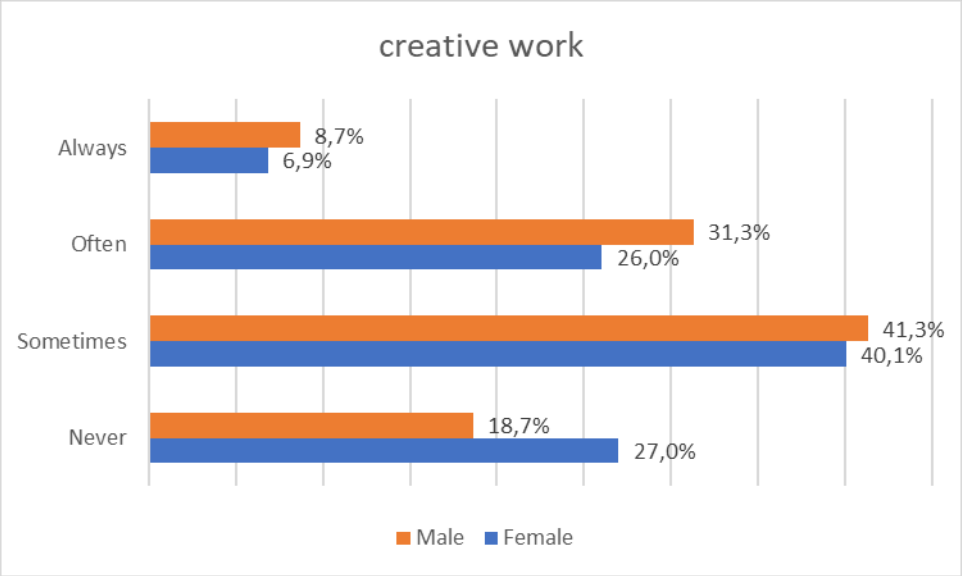

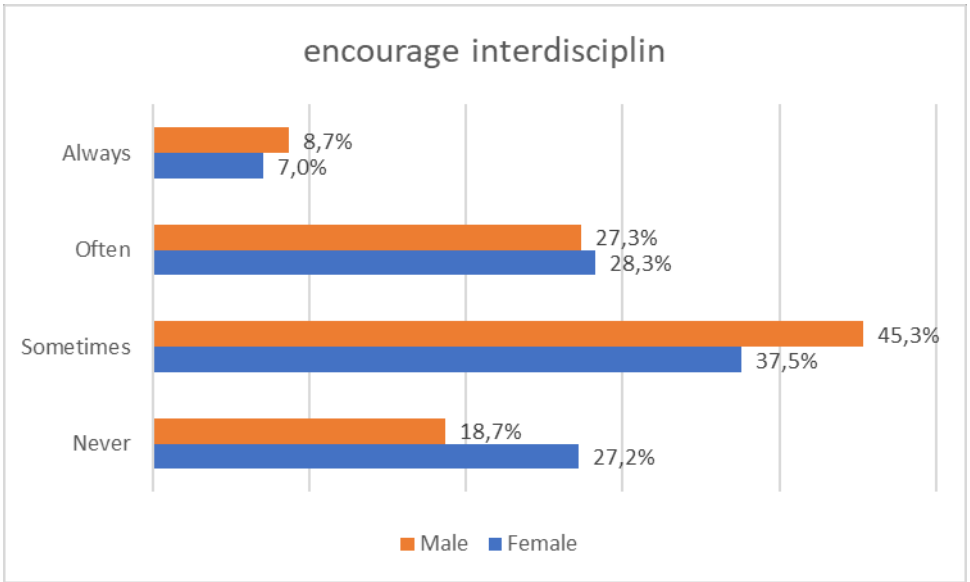

- ***Frequency of activities as part of teaching by teaching area***

The **teaching area related to Learning Approaches** shows higher frequencies in carrying out the different activities, for example **having a regular contact with students** is a frequent activity for the 51% of respondents belonging to that area; **involving students in collaborative online work** shows similar values; **online student assessment** is carried out by the 55% of the respondents, **creative work using online applications** by 69%, **encourage interdisciplinary projects through the use of online technology** by more than the 75% of them.

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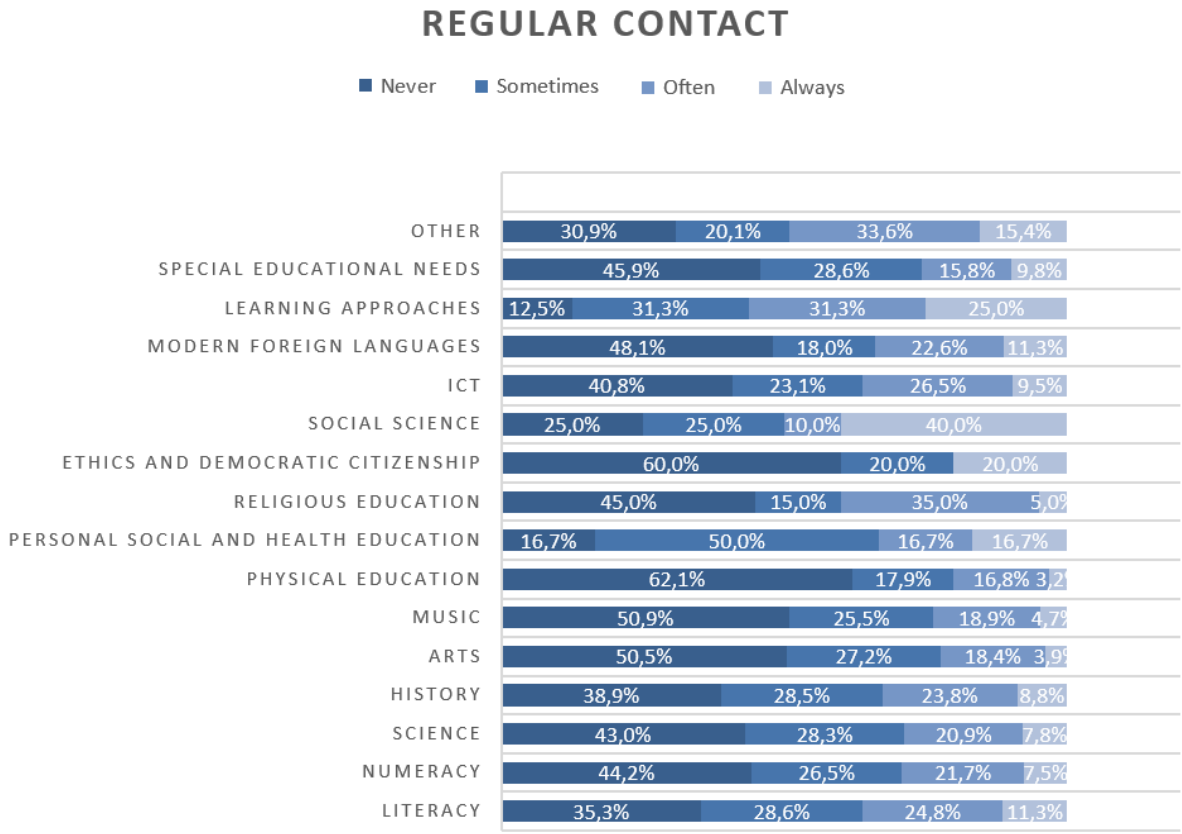
Chart 5.19 - Frequency of activities as part of teaching by teaching area



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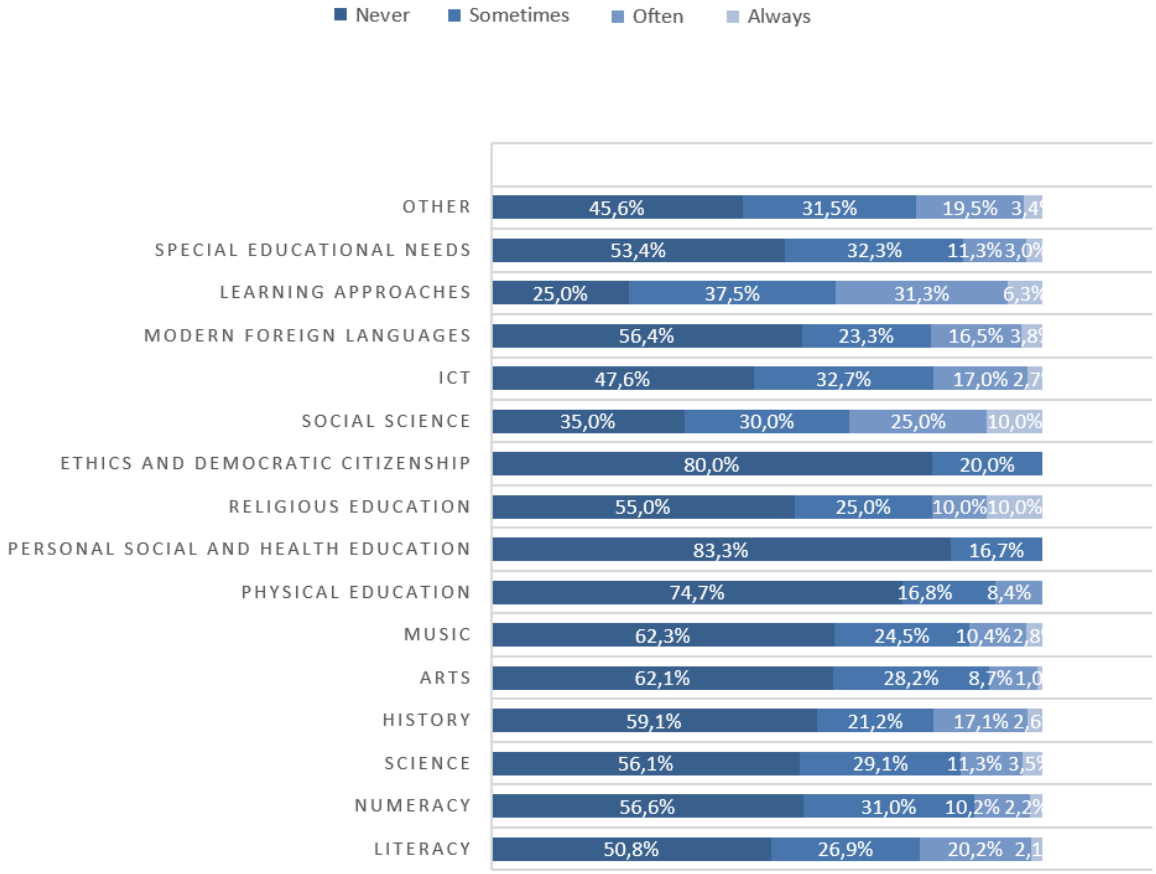
ASK STUDENTS



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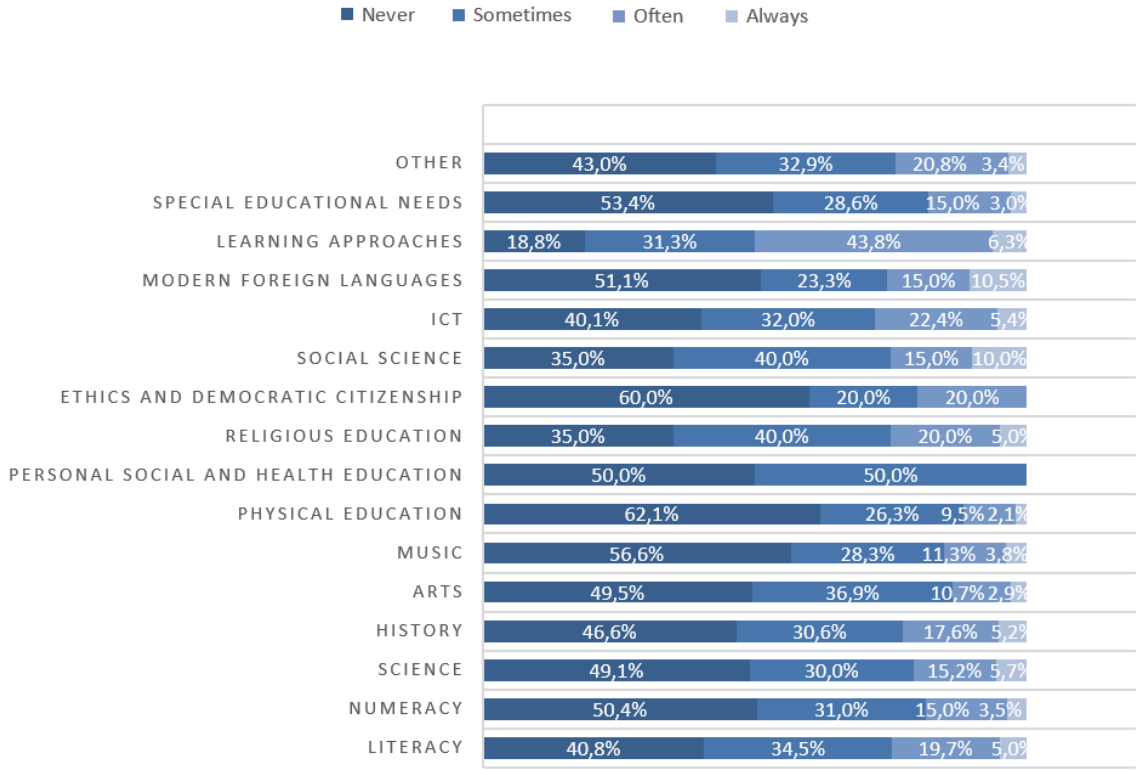
INVOLVE STUDENTS



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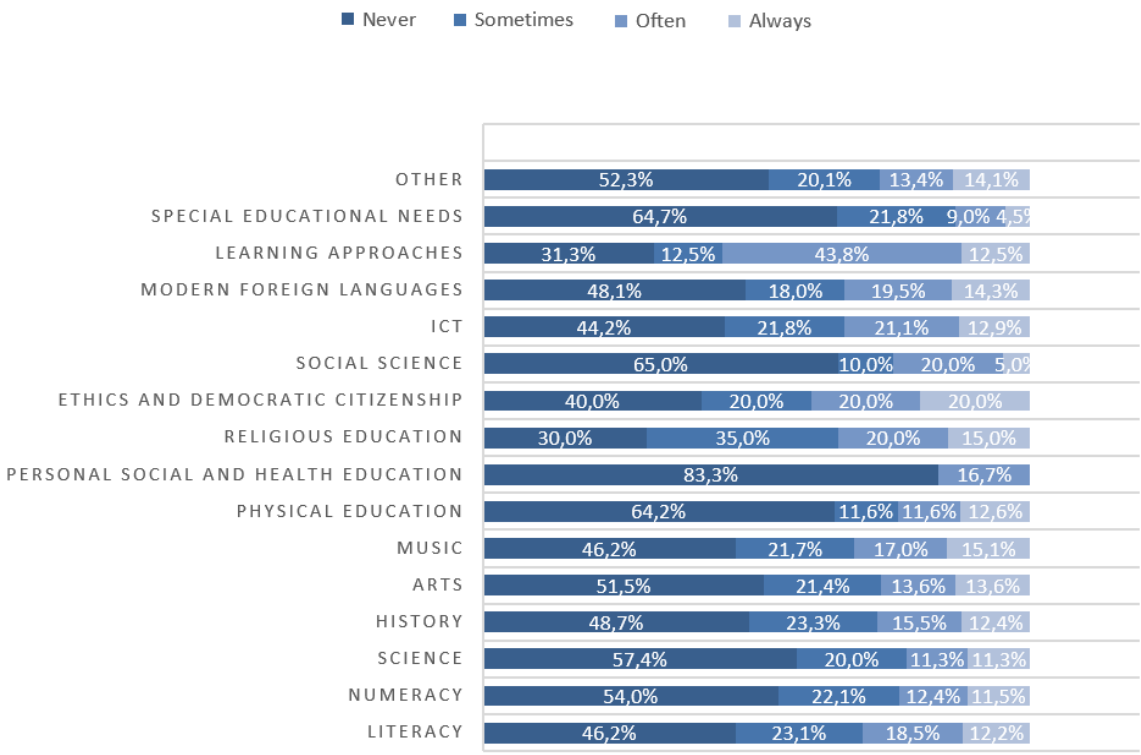
ONLINE ASSESSMENT



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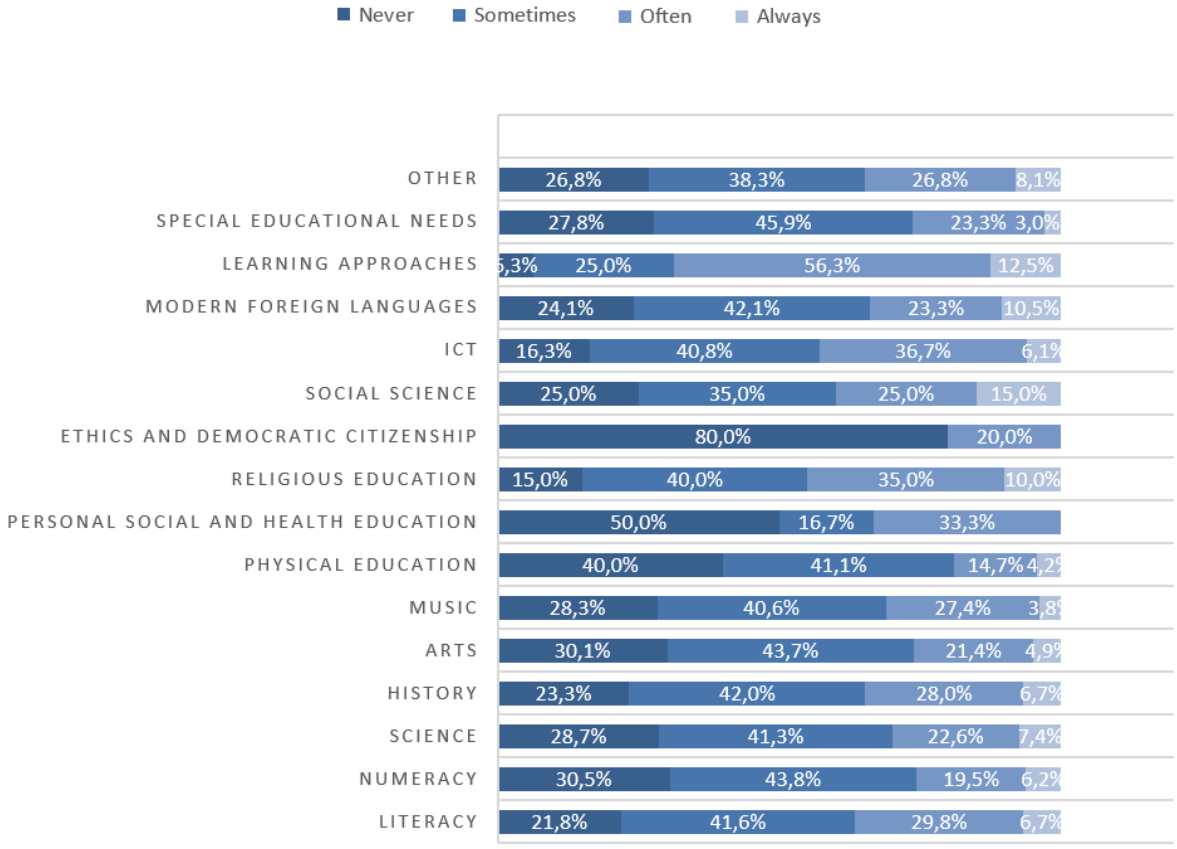
CREATIVE WORK



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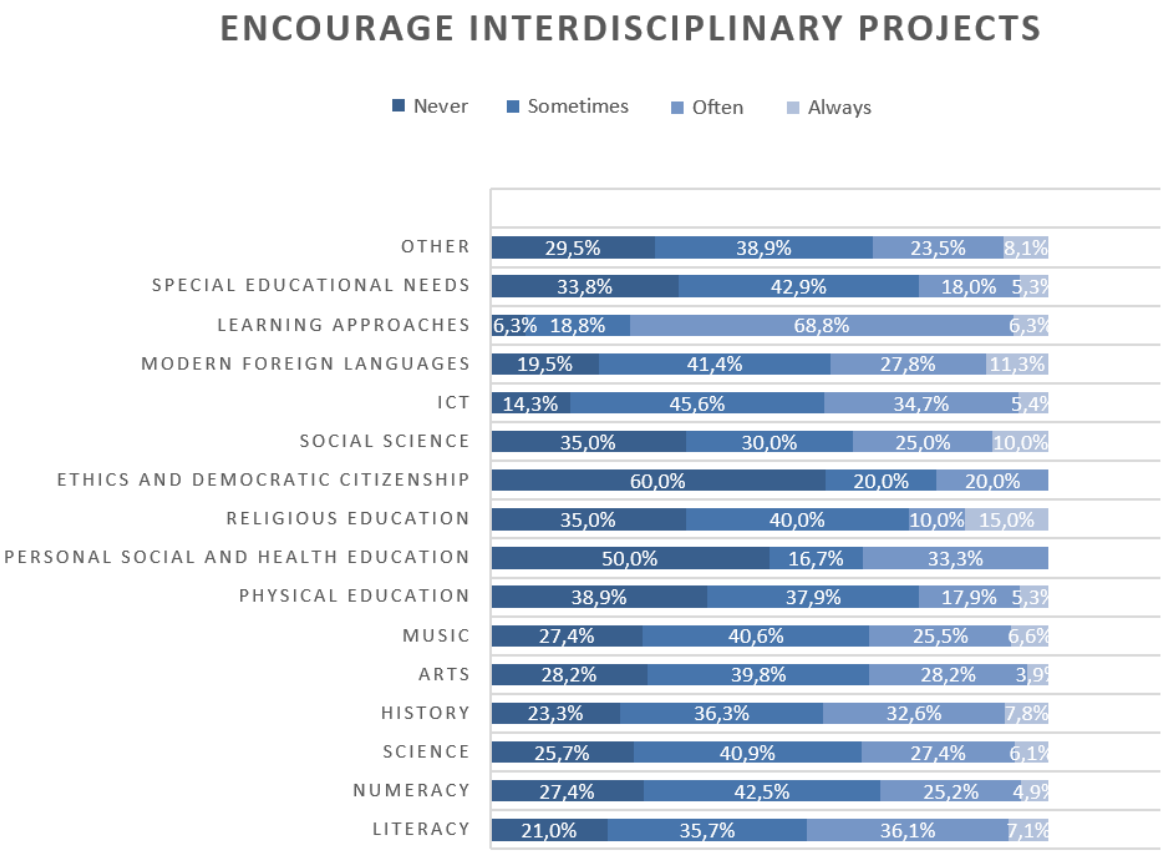

5.2.4 Perception of the utility of digital tools and technologies

The dimensions potentially supported by digital tools and technologies taken into account are:

- Make students more autonomous
- Empower students in their own education
- Make the learning process more meaningful for the student
- Make the learning process more effective (students achieving higher results than expected)
- Make the learning process more efficient (achievements with less effort and/or lower costs)
- Integrate formal, non-formal and informal learning
- Involve other actors in the learning process
- Improve communication, collaboration and coordination between colleagues, students and institutions
- Improve teacher Continuing Professional Development (CDP)
- Link school activities with work experience placements

- ***Perception of the utility of digital tools and technologies by school type***

Overall, there are few significant differences in the perception of the teachers involved in the survey. The dimensions where teachers from different school levels substantially agree on the utility of digital tools and technologies are: **empower students in their own education** (60-70%), **improve communication** (60-70%),

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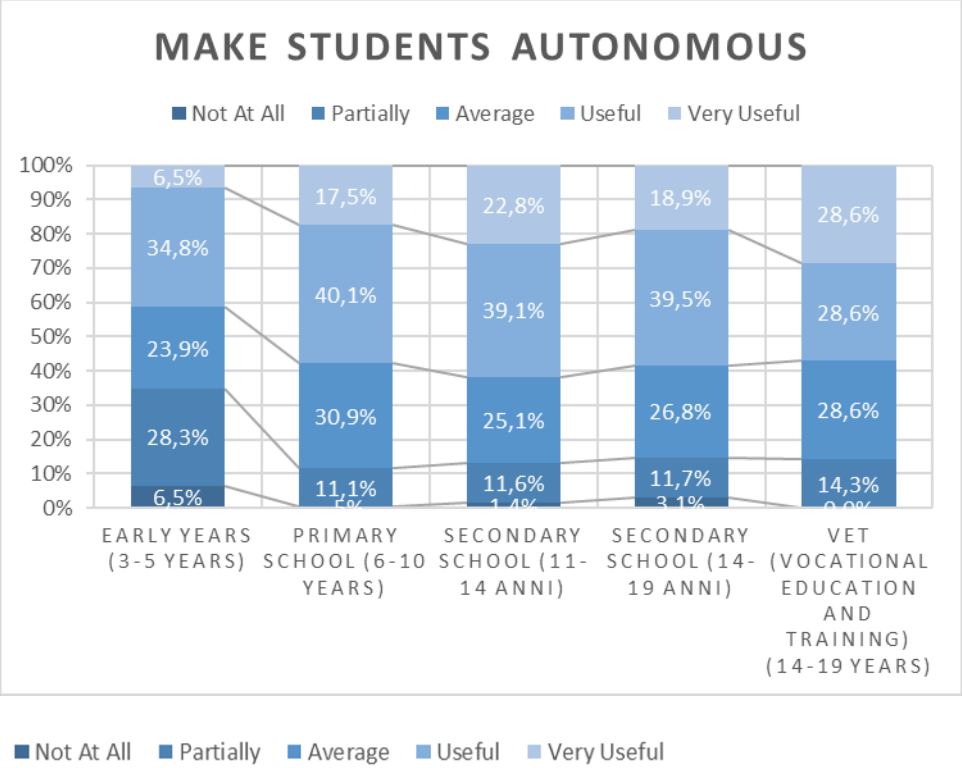
improve teacher CDP (70-80%). Dimensions where some differences emerge are: **make students more autonomous**, for which at the Early Year level digital tools are considered useful/very useful by the 41% of the respondents instead of the 60-62% of teachers from the other school levels**; make learning more meaningful**, for which at the Primary School level digital tools are considered useful/very useful by the 73% of the respondents instead of the 60-66% of teachers from the other school levels; **make learning more effective** and **make learning more efficient**, for which at the Early Year level digital tools are considered useful/very useful respectively by the 41% and the 47% of the respondents, at the Primary School level are considered useful/very useful by the 64% and 65% of them, instead of a decreasing value that can be observed in the succeeding School level (56-42% and 56-43%); **integrate formal, non-formal and informal learning** and **involve actors in the learning process**, for which at the Early Year level digital tools are considered useful/very useful respectively by the 50% and the 54% of the respondents, at the Primary School level they are considered useful/very useful by the 74% and 66% of them, instead of a decreasing value that can be observed in the succeeding school levels (71-63% and 56-43%). In **linking school activities with work experience placements** digital tools are considered useful/very useful by more the 50% of the teachers at Early School, Primary School and Secondary School (14-19 y.o.) level, while the percentage is lower for Secondary School (11-14 y.o.) and VET level, where the value are 45% and 29% respectively.

Chart 5.20 - Perception of the utility of digital tools and technologies by school type



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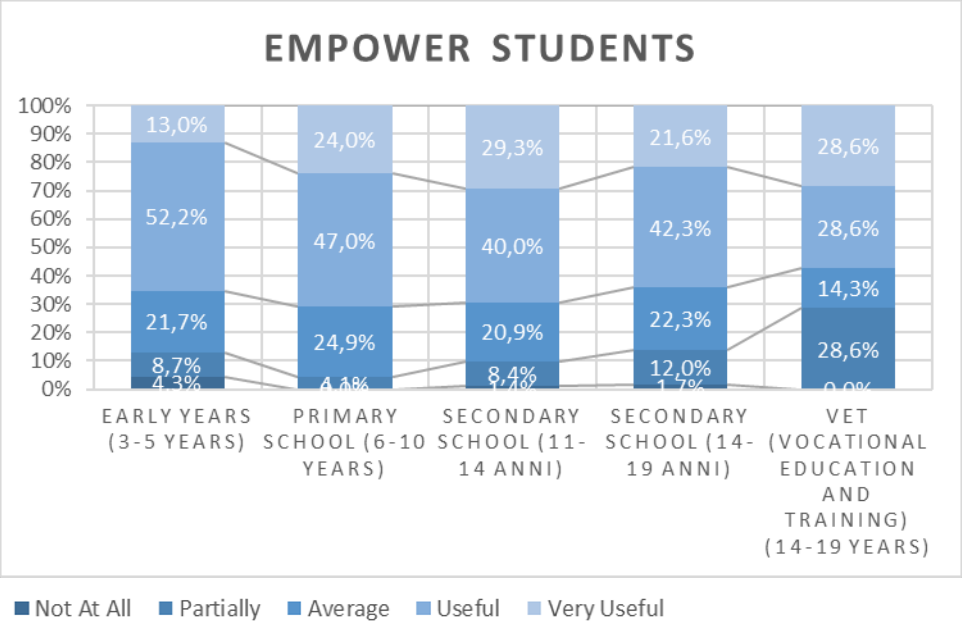

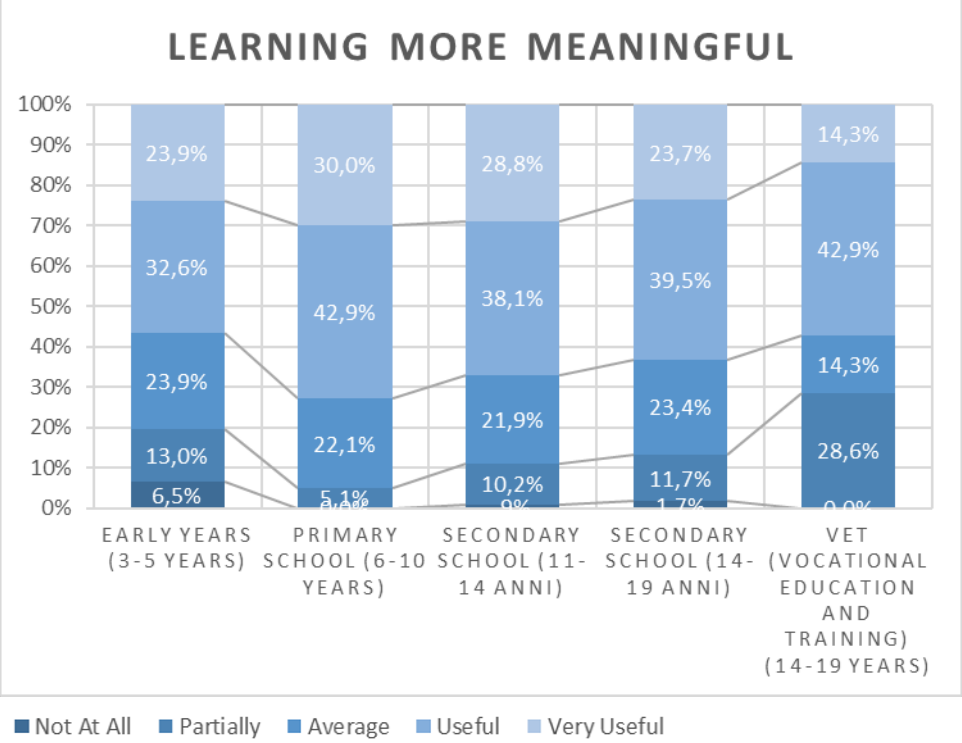

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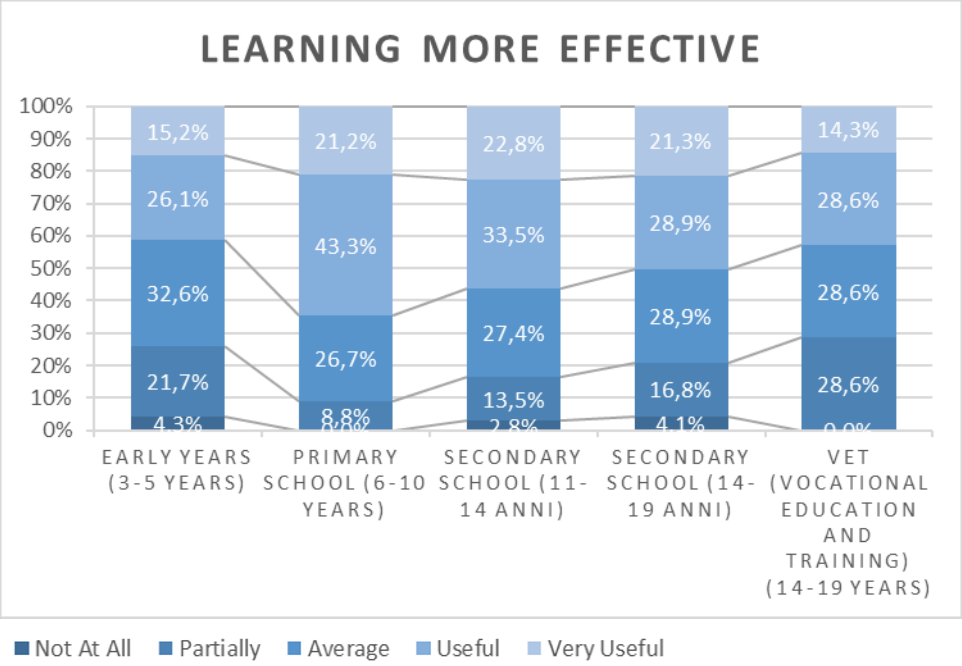

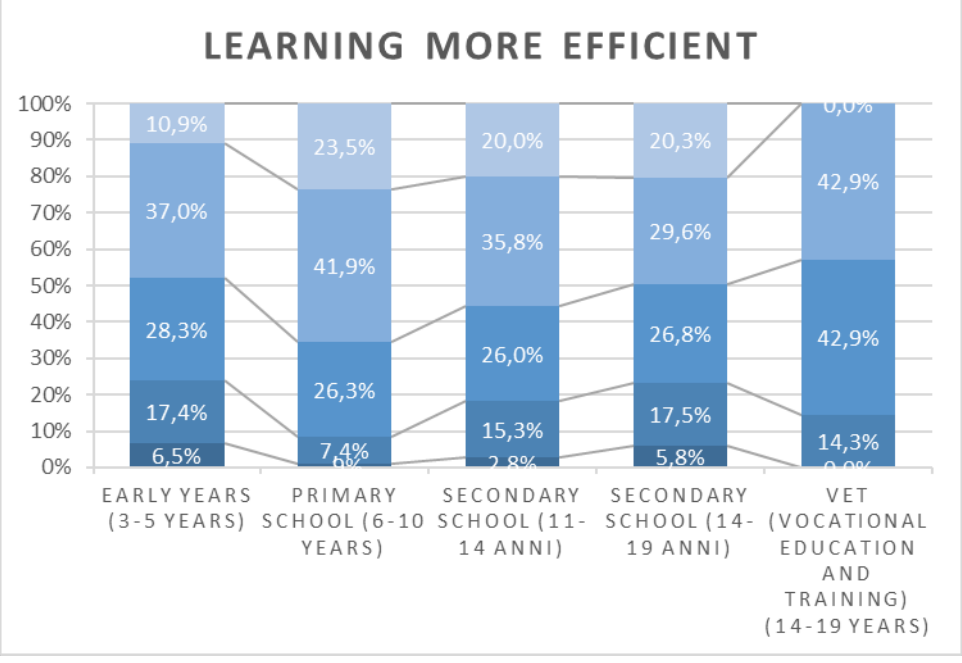

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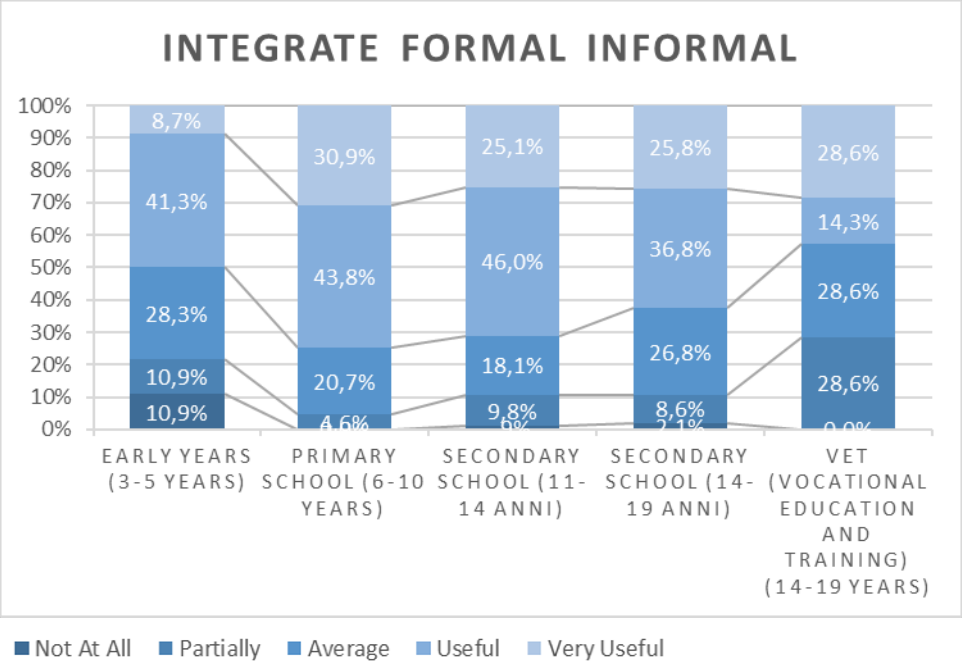

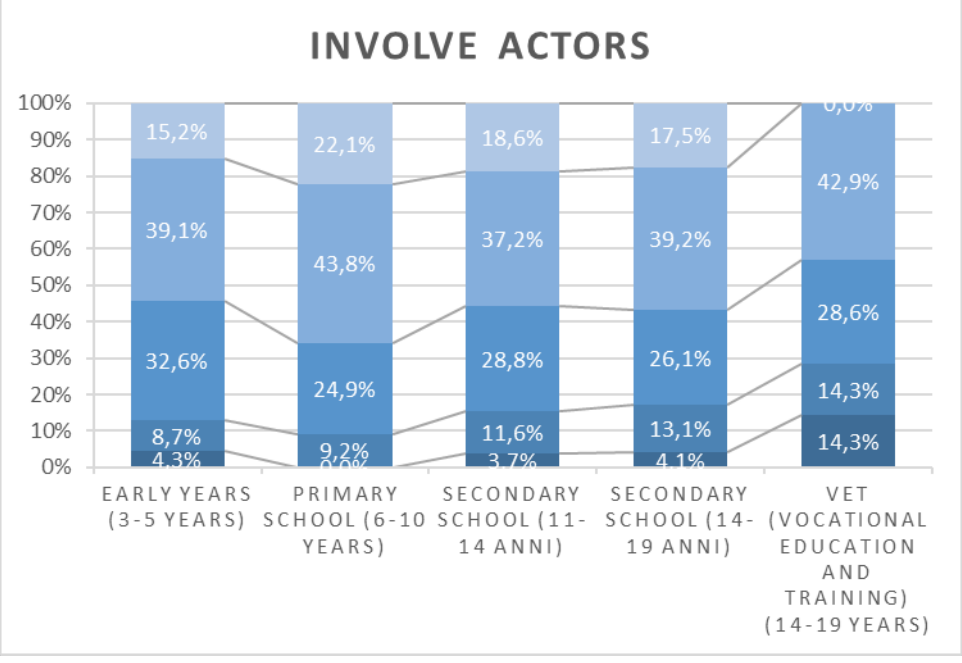

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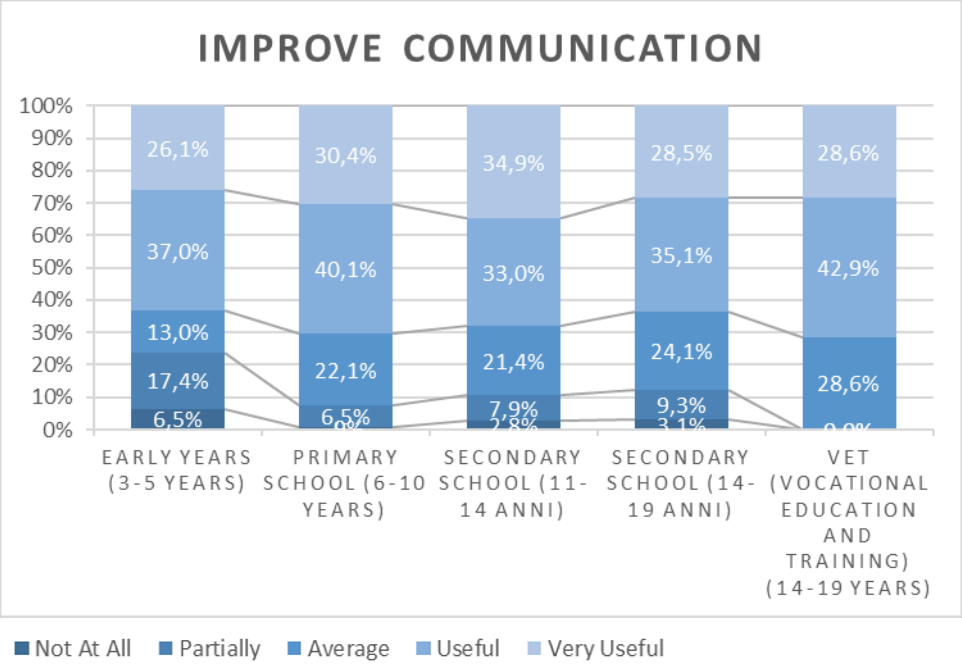

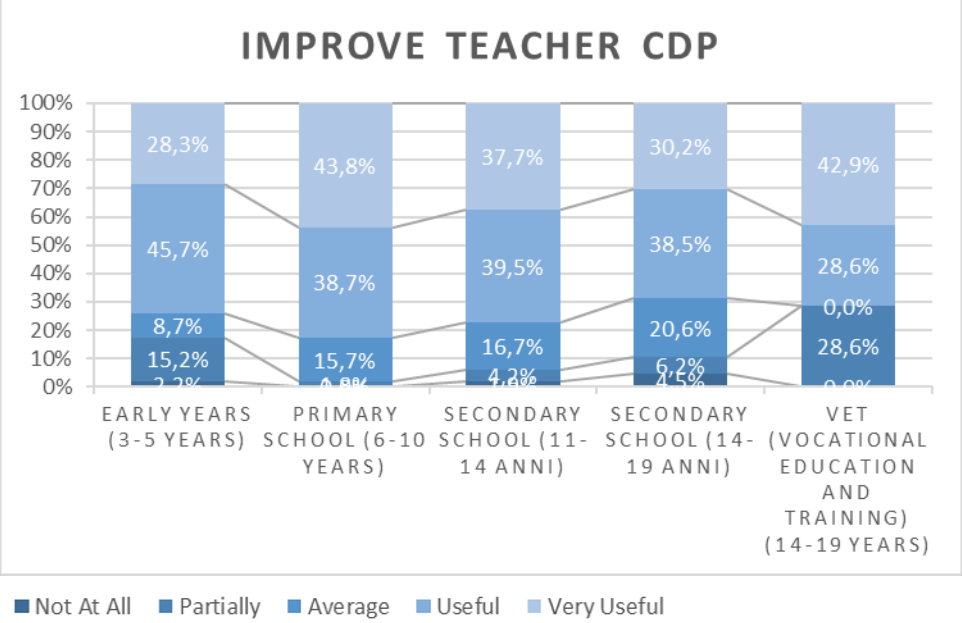

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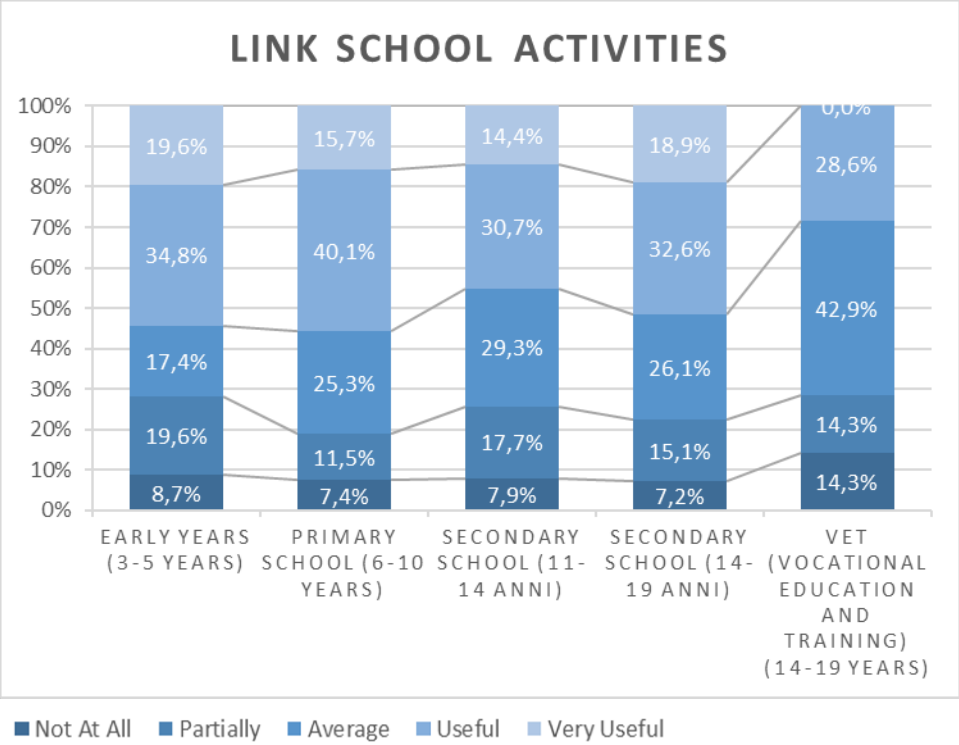

- ***Perception of the utility of digital tools and technologies by age***

The general trend observed is that the perception of the utility of digital tools and technologies increases as the age of the respondent increases, but it decreases for the age group +60. This is observed for all the dimensions with the exception of the utility perceived for improving teacher Continuing Professional Development (CDP), where the age group +60 shows a slight increasing value.

Chart 5.21 - Perception of the utility of digital tools and technologies by age

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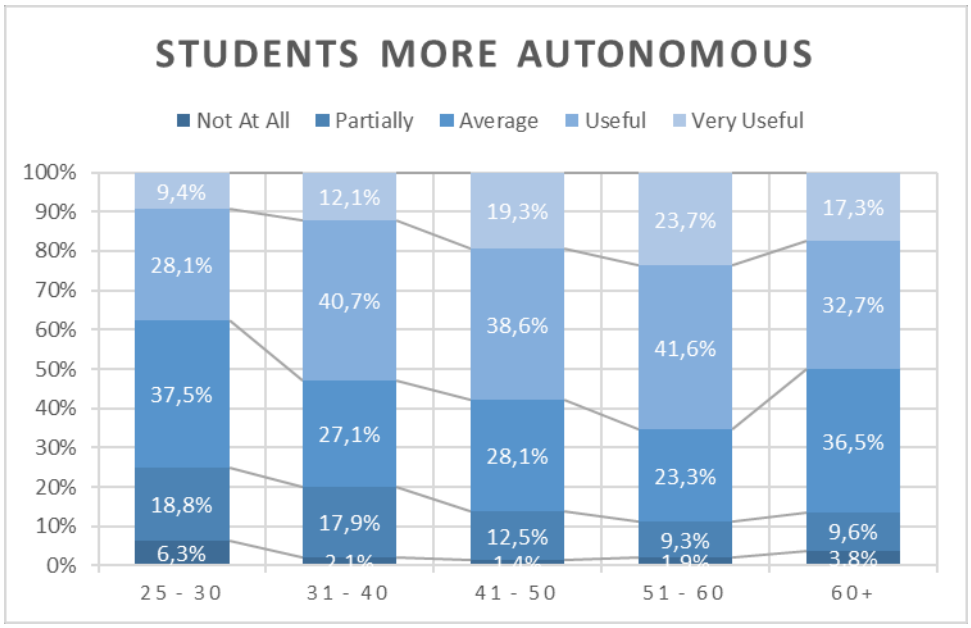

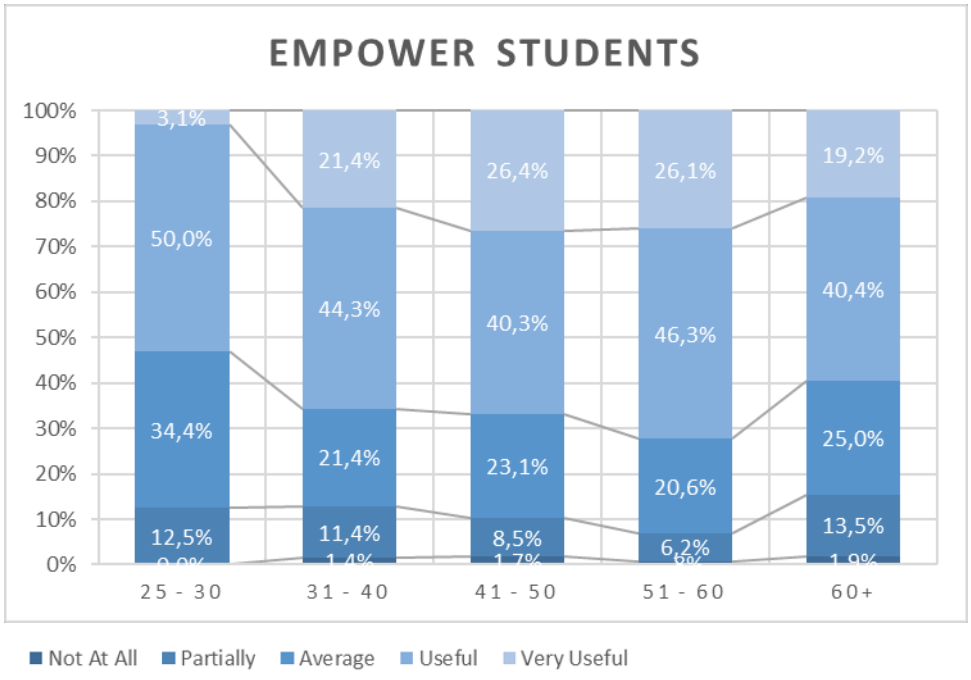

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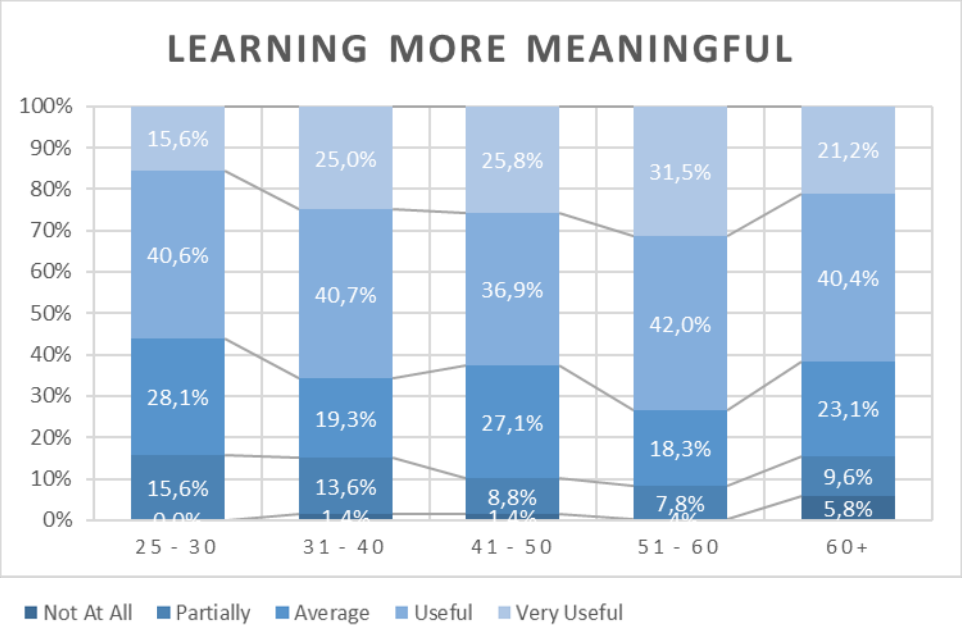

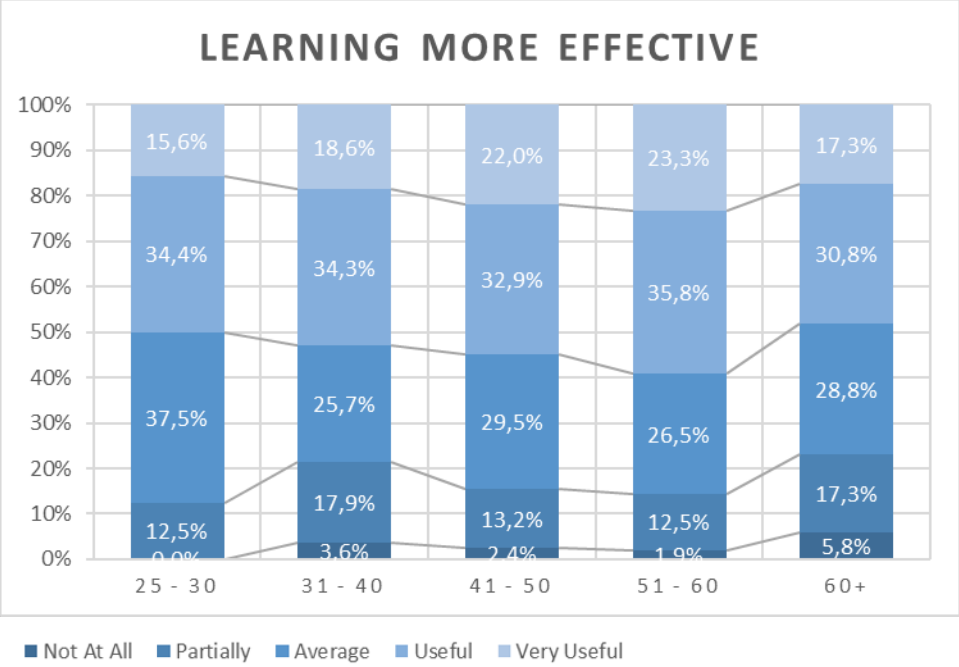

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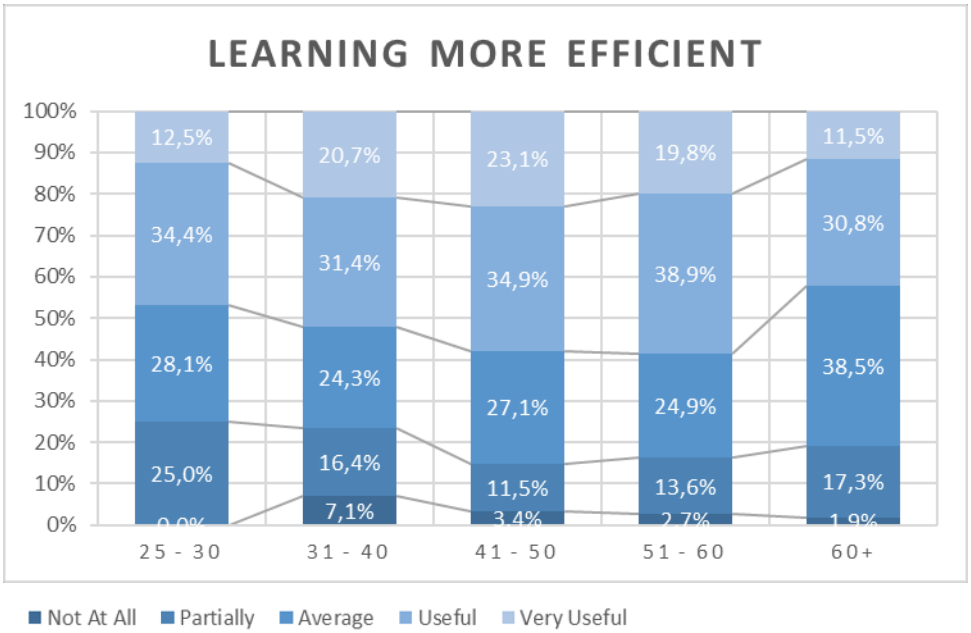

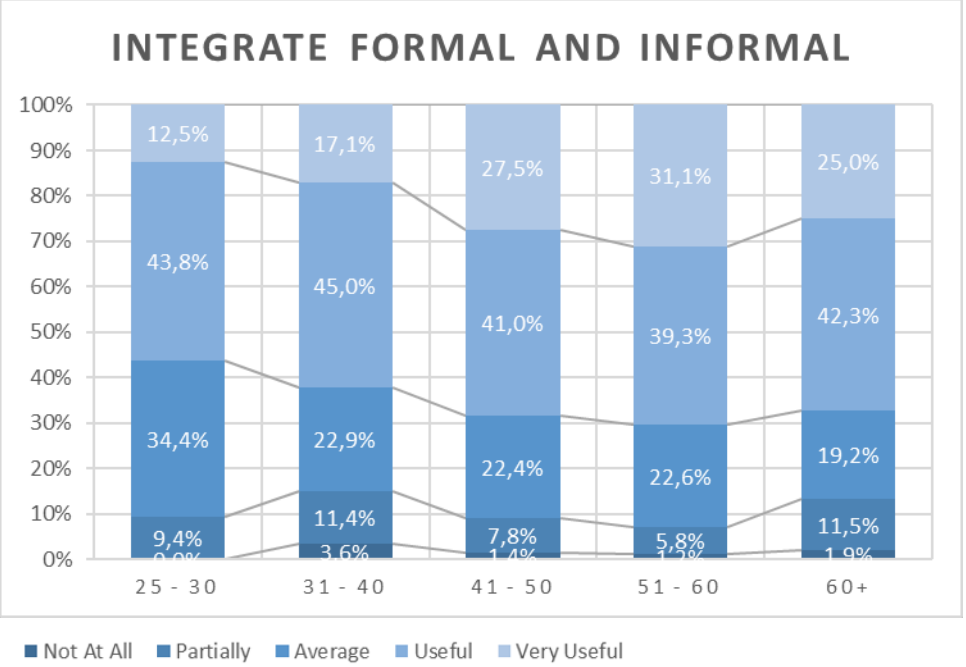

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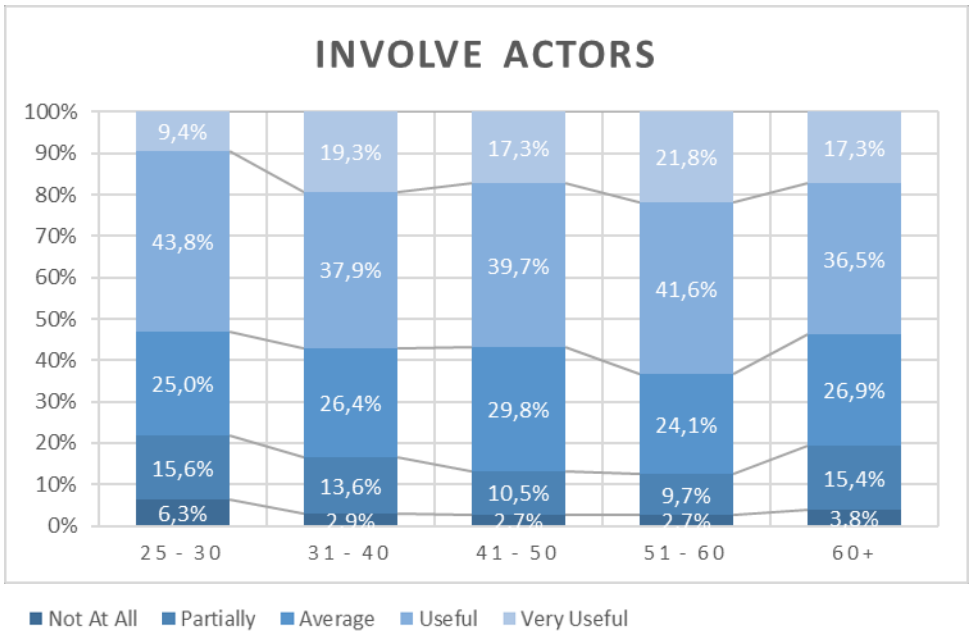

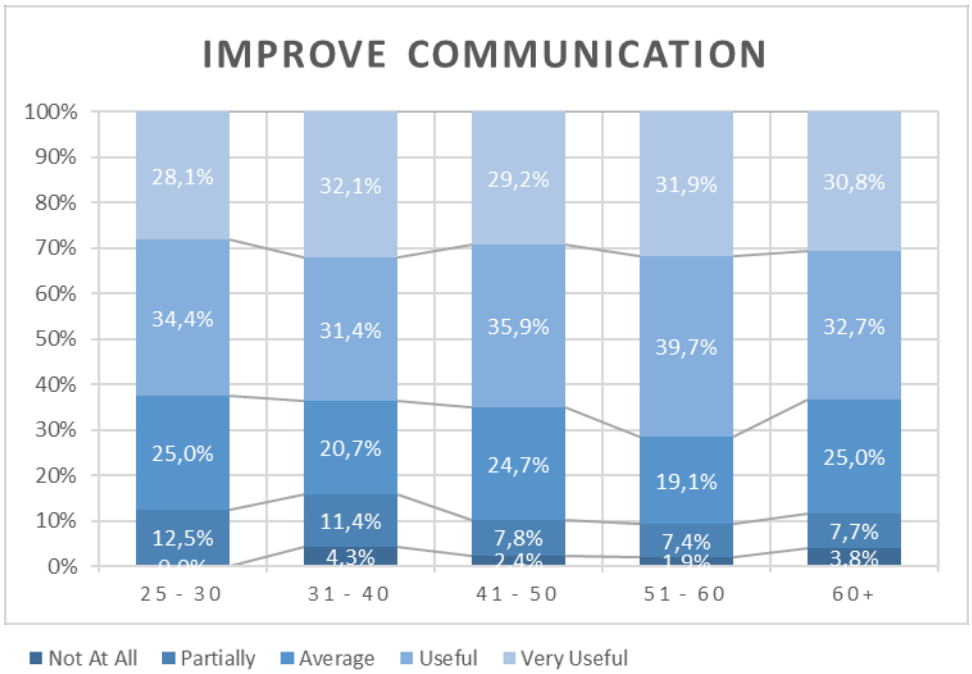

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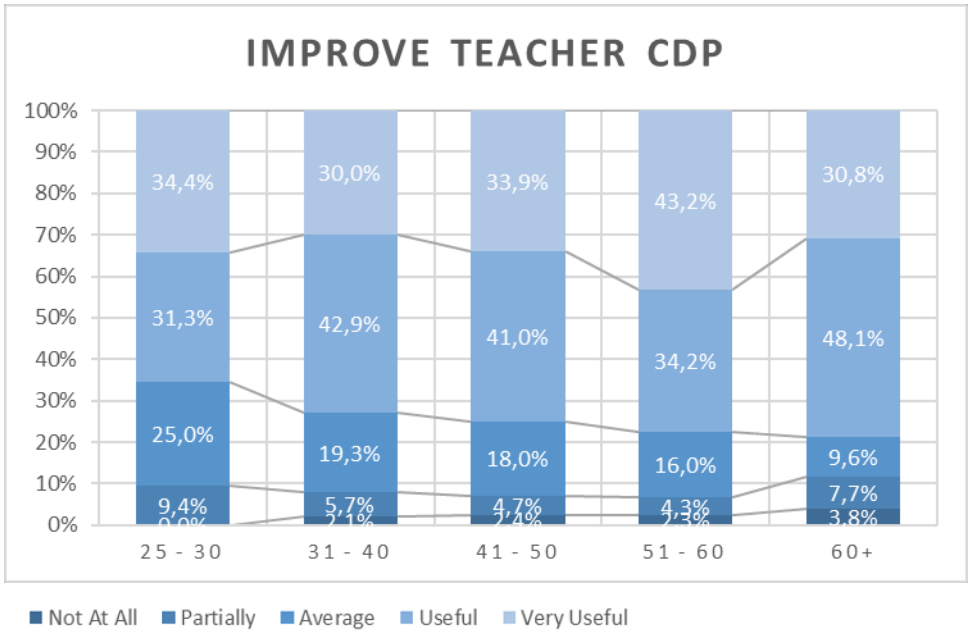

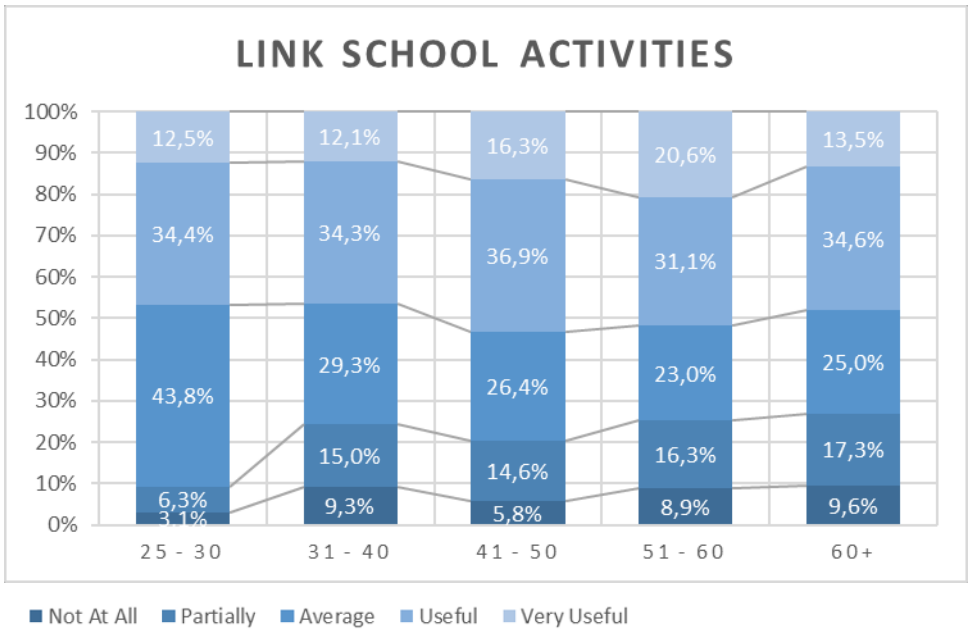

- ***Perception of the utility of digital tools and technologies by gender***

There are few significant differences in the answers between the two genders, that usually differ by a few percentage point. A slightly more significant difference is observed for the dimension **make learning more efficient and integrate formal, non-formal and informal education** and **improve teacher CDP** where the gap for one or both the option useful / very useful is 6-7 percentage point (major value for female teachers). The dimension **improve communication** shows a different distribution: the option "useful" is selected by the

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29% of male teachers and the 38% of female teachers, while the option "very useful" is selected by the 34% of male teachers and the 30% of female teachers.

5.3 Teachers among training and accompaniment needs

5.3.1 Training attended around using digital technologies

Training attended around using digital technologies has been examined (q0014). Identified contexts are: formal learning, non-formal learning, informal learning, face to face, blended and fully online[9].

More answer options are possible.

This variable is analysed by:

- school type (q0001),
- age (q0003),
- gender (q0004),
- teaching area (q0005),
- type of contract in the school (q0006),
- teaching role (q0007).

With regard to school type (q0001), about the total, for three groups out of four – Primary, Secondary and upper Secondary school -, attended training is mixed: a mix of face-to-face and online training (16,6%, 16,5%, 20,2%), while for Early Years teachers, the most attended is non-formal learning (Tab. 5.1). For secondary and upper secondary school teachers the second modality is ex-equo online and non-formal learning. For Primary teachers it is online learning, followed by formal learning. Within school type, among Early Years school teachers, the most attended training is non-formal learning (41,3%); among Primary teachers the most attended is the mixed one (59,4%); for all other teachers the most attended training continue to be mixed one, followed by online (ex equo with non-formal learning for upper secondary school teachers) (Tab. 5.1). The most adopted training model is the mixed training, followed by online.

With regard to age (q0003), training activities on the use of new technologies are more attended by teachers between the ages of 41 and 50. Most widely adopted model is still mixed training (22.3%), followed by online

[9] Formal learning: follows a syllabus and is intentional in the sense that learning is the goal of all the activities learners engage in. Learning outcomes are measured by tests and other forms of assessment.
Non-formal learning: takes place outside formal learning environments but within some kind of organisational framework. It arises from the learner's conscious decision to master a particular activity, skill or area of knowledge and is thus the result of intentional effort. But it need not follow a formal syllabus or be governed by external accreditation and assessment.
Informal learning: takes place outside schools and colleges and arises from the learner's involvement in activities that are not undertaken with a learning purpose in mind. Informal learning is involuntary and an inescapable part of daily life.
Source: https://www.coe.int/en/web/lang-migrants/formal-non-formal-and-informal-learning
Face to face: involves traditional classroom learning. Students and teacher/trainer study *face-to-face and* attend classes.
Blended: involves traditional face-to-face learning and online learning.
Fully online: involves only online learning, in virtual learning environments.

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(19.5%) (Tab. 5.2). Within age, teachers among 25-30 years prefer non-formal and formal learning, while the other classes mainly attends mixed learning.

With regard to gender (q0004), about the total 45,0% of female teachers prefer mixed learning and online with the 39,7%, and so male teachers, with the 10,6% and 9,8% for online (Tab. 5.3).

With regard to teaching area (q0005), about the total, in all teaching areas, mixed learning is the most attended, followed by online. For Numeracy teachers, online learning is prefer as the mixed one. Non-formal learning is preferred as second choice by history teachers and as third by numeracy.

With regard to type of contract in the school (q0006), about the total, the 95,4% of the sample have a permanent contract. Also in this case, they mainly attend in mixed learning and then in online. Within type of contract in the school, the 55,8% of confirmed teachers prefer mixed learning, 58,3% prefer online one; but the second choices are the same. %) (Tab. 5.4).

Within training attended, it is interesting to evidence that if we consider the training data, among confirmed teachers, the preferred training becomes non-formal learning, but all models are very closed as results.

With regard to teaching role (q0007), about the total, considering teaching role, it is possible to observe that the identified trend continues: among teachers who have a leadership role, the 12,6% attend to mixed training; among teachers who have a management role, the percentage is 20,5%; among teachers it is 54,4%. The second option in all cases is the online training. (Tab. 5.5).

Within training attended, for leaders, 24% is online; online is for 38% of managers; for teachers the percentages are all around 97%.

- ***Frequency of use of digital resources in the classroom for teaching activities (q0009)***

Examined digital resources are: Office and similar packages; software for downloading audio/video files, search tools, resources for creating/editing audio/video content and graphics, resources for creating blogs, websites etc., digital environments for learning, sharing, communication and collaborating (online platforms, websites, blogs, social and educational social networks, gamification, edutainment etc.), digital Educational Content and OER (Open Educational Resources), multimedia programs relevant for your discipline, coding - Computational thinking.

In all learning contexts and modality, resources often and always used are:

- office and similar packages,
- search tools.

Resources sometimes and often used are:

- software for downloading audio/video files,
- resources for creating/editing audio/video content and graphics,
- digital environments for learning, sharing, communication and collaborating (online platforms, websites, blogs, social and educational social networks, gamification, edutainment etc.),

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- digital Educational Content and OER (Open Educational Resources),
- multimedia programs relevant for your discipline.

Resources for creating blogs, websites etc., and coding - Computational thinking are never and sometimes used.

Within training attended, it is possible to observe the following data (for the count of responses, see Tab. 5.6):

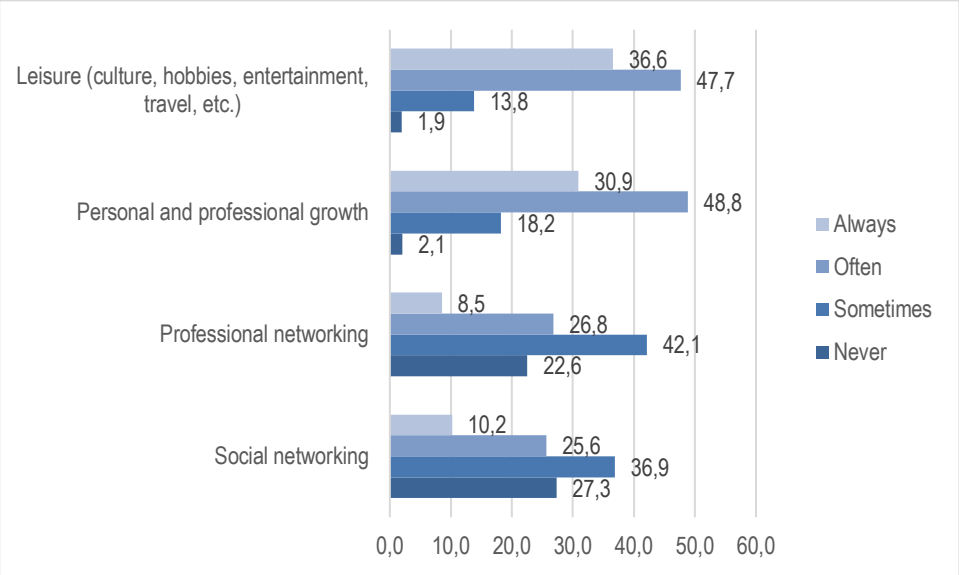

Chart 5.22 - Training attended

Office is very used in informal and in frontal learning.

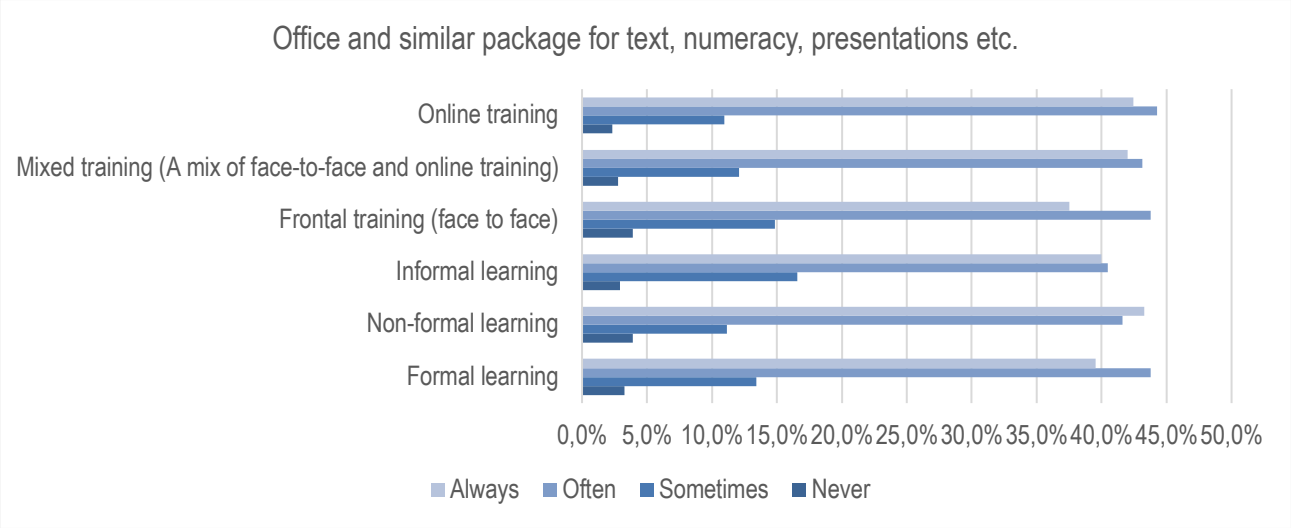

Chart 5.23 - Frequency of use of Office and similar package in the classroom for teaching activities

Softwares for downloading are sometimes used in all learning contexts and more in online training.

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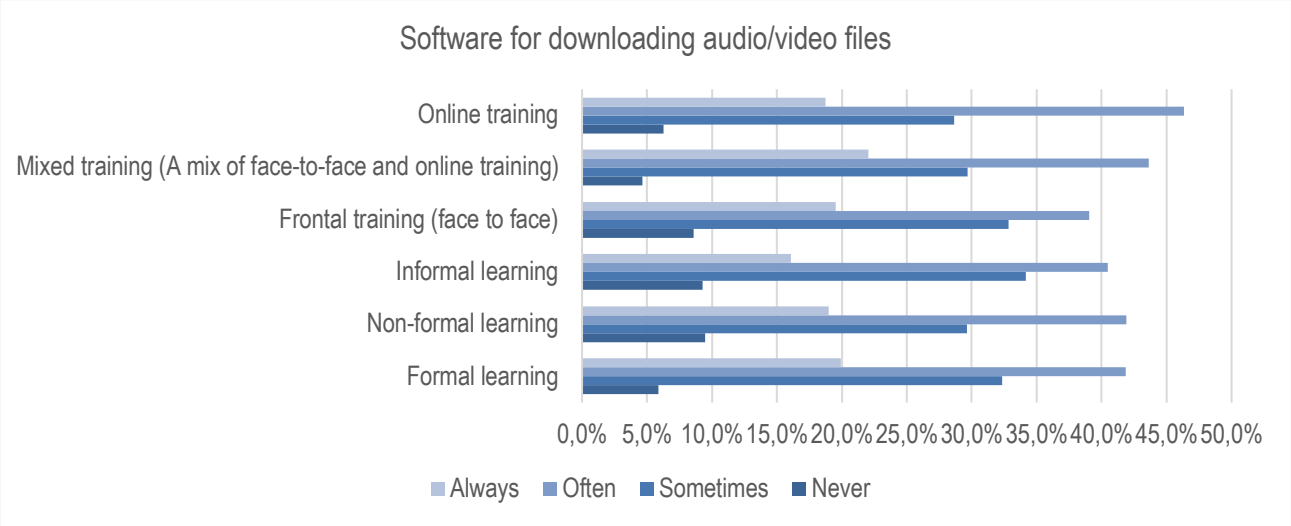

Chart 5.24 - Frequency of use of software for downloading in the classroom for teaching activities

Search tools are generally always used, less in frontal learning.

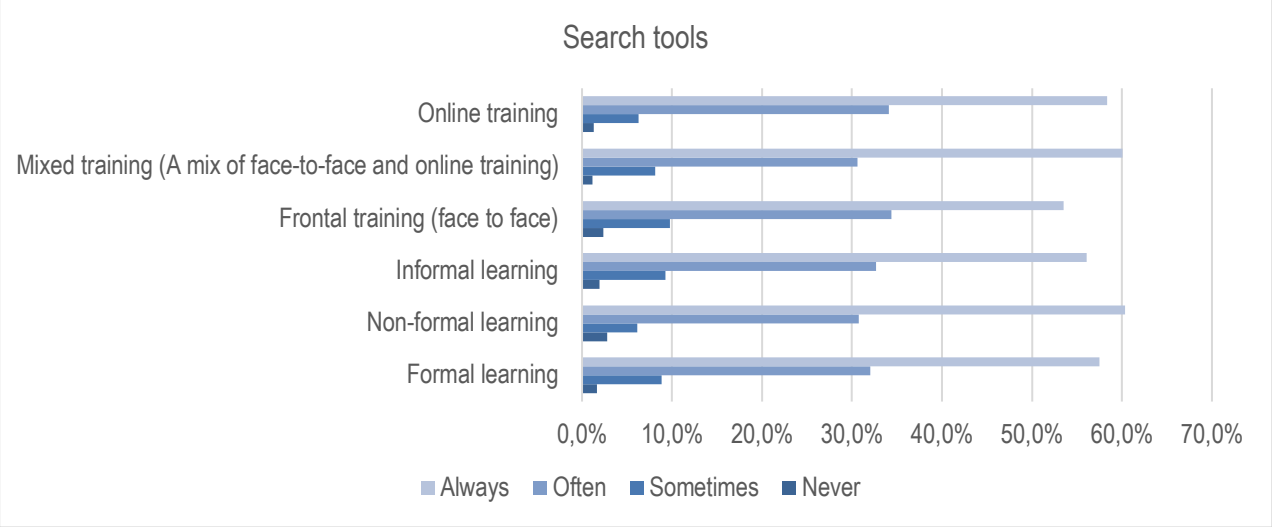

Chart 5.25 - Frequency of use of search tools in the classroom for teaching activities

Resources for creating and editing are sometimes used, more in informal learning and in online training.

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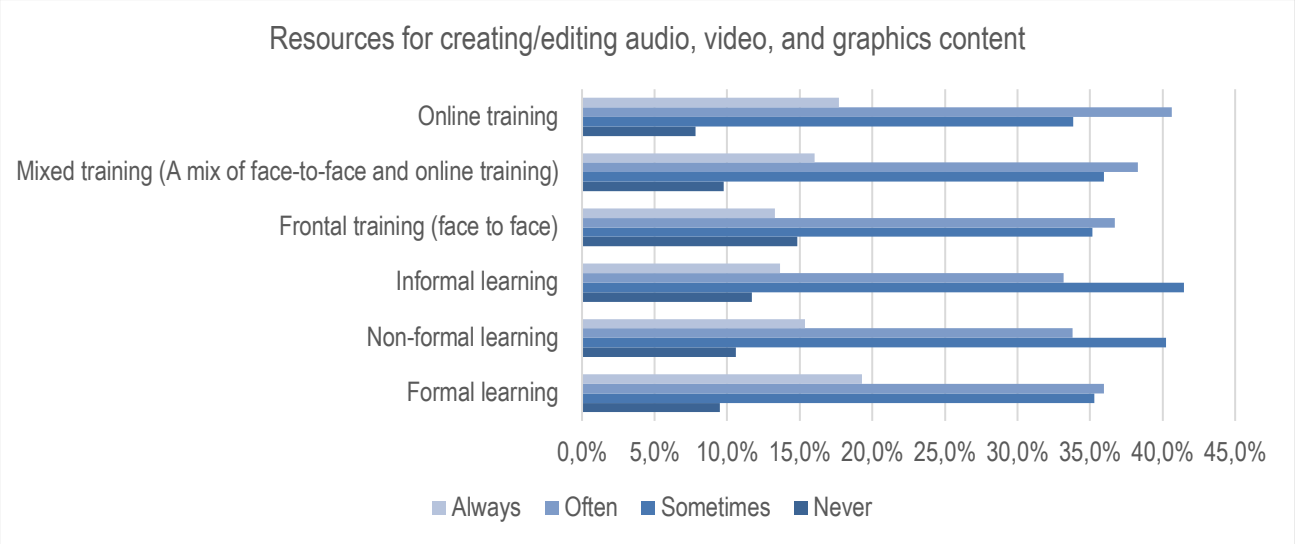

Chart 5.26 - Frequency of use of resources for creating/editing in the classroom for teaching activities

Resources for creating are sometimes used in online training and never in frontal, never in informal learning, sometimes in non-formal and formal learning.

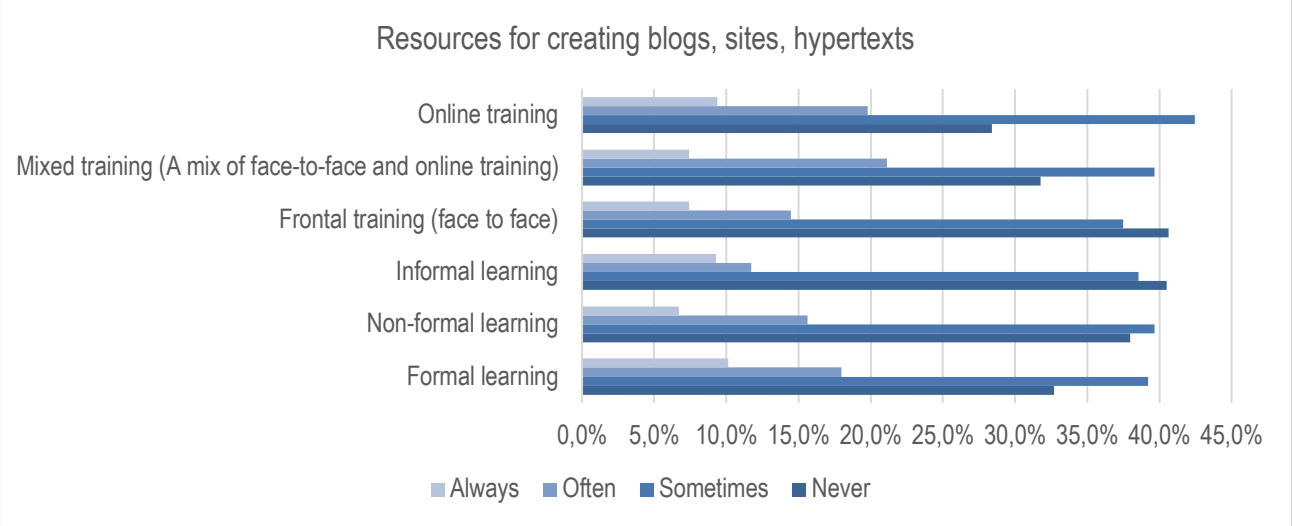

Chart 5.27 - Frequency of use of resources for creating blogs, sites, hypertexts in the classroom for teaching activities

Digital environments are sometimes used in online training.

Never in informal learning and sometimes in non formal.

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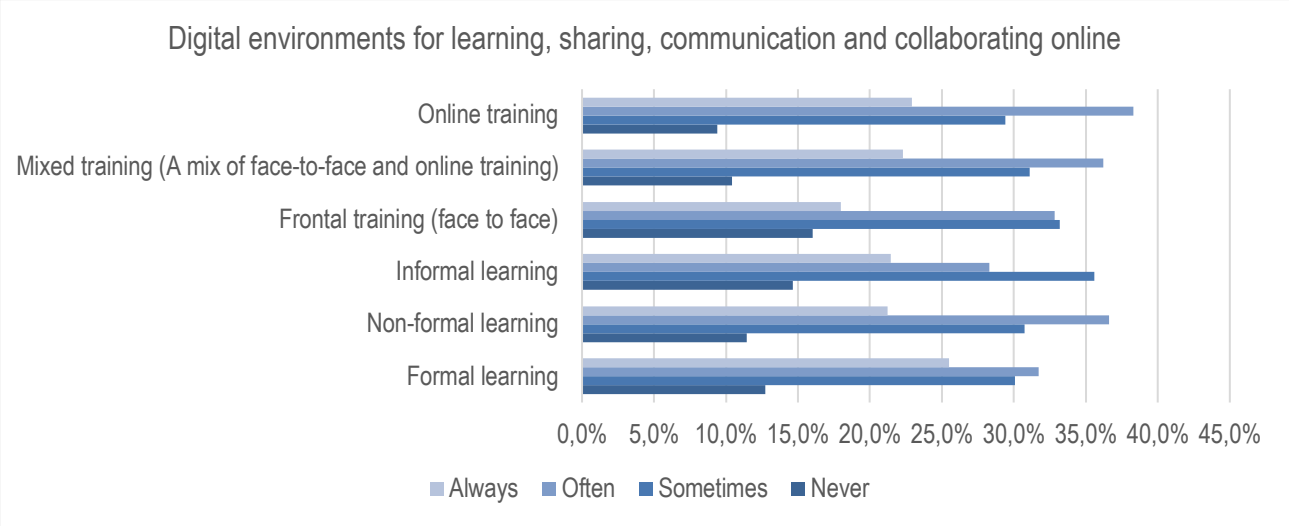

Chart 5.28 - Frequency of use of digital environments in the classroom for teaching activities

Digital educational content and OER are sometimes used in online and mixed training and also in informal learning.

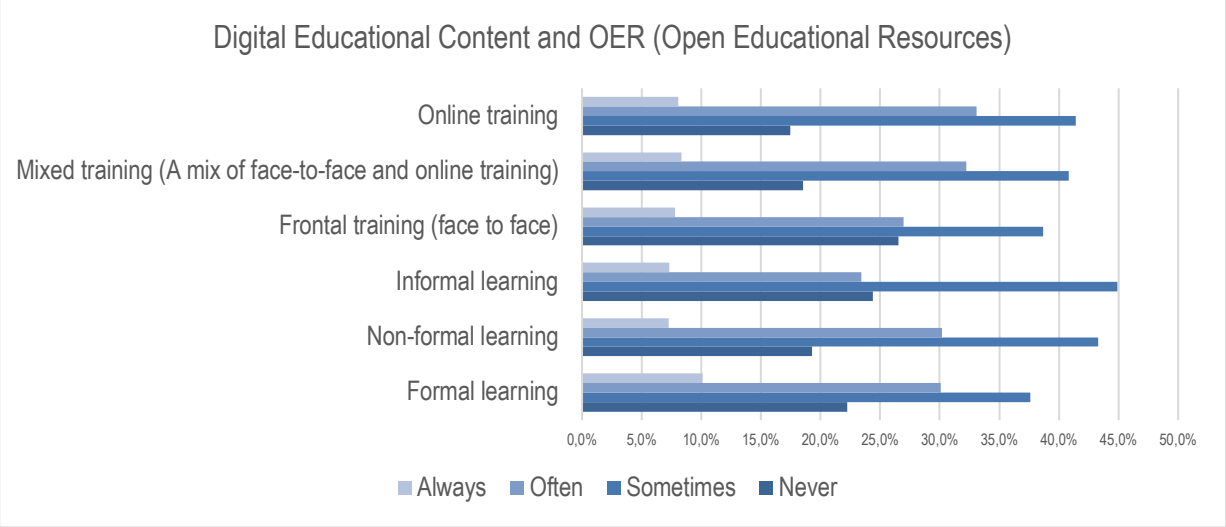

Chart 5.29 - Frequency of use of DEC and OER in the classroom for teaching activities

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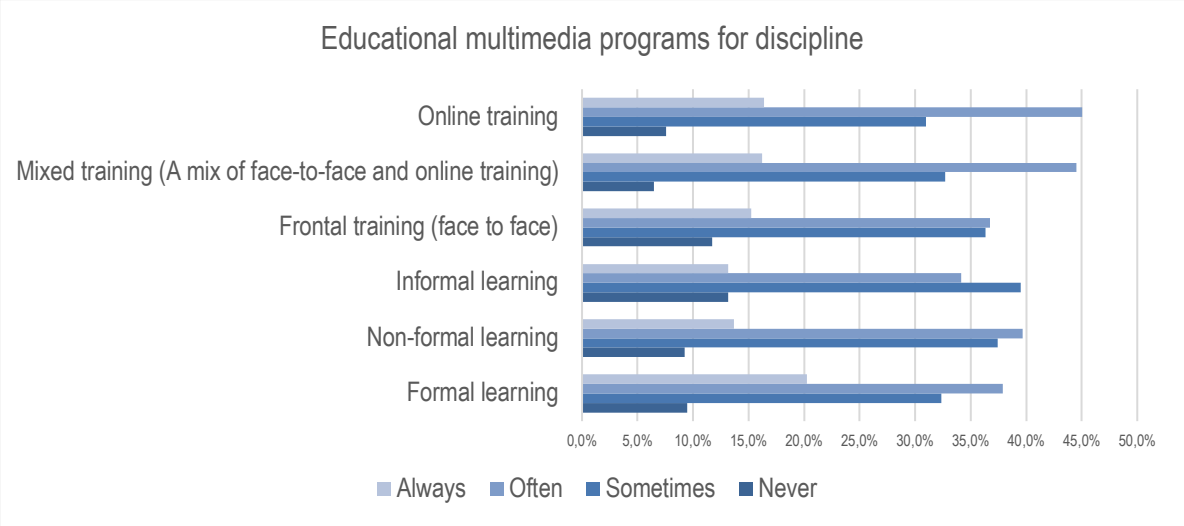

Chart 5.30 - Frequency of use of Educational multimedia programs in the classroom for teaching activities

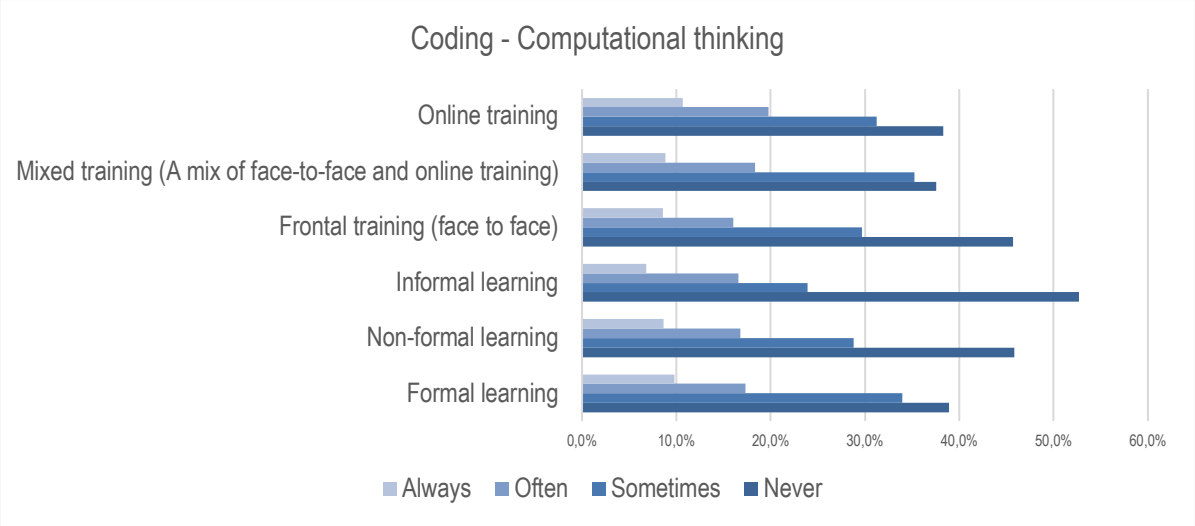

Chart 5.31 - Frequency of use of Coding - Computational thinking in the classroom for teaching activities

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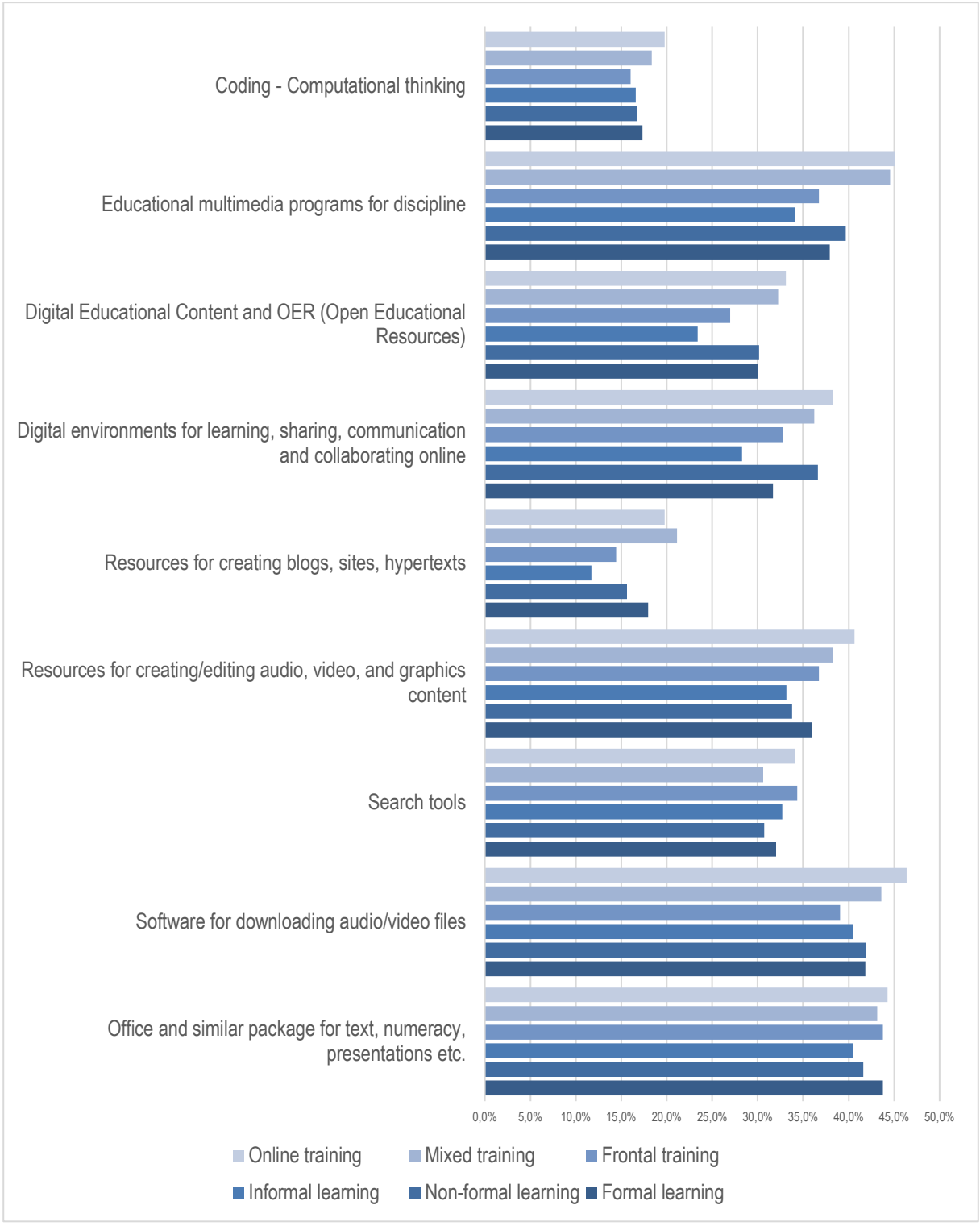

Chart 5.32 - Digital resources often used in teaching activities

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Office and similar package and software for downloading are the digital resources most used, in all learning contexts and modality. Resources for creating contents and coding are the less used.

The most traditional resources are used, probably the most simple, those do not require to have high-level digital competences.

If we consider digital resources often used by different learning contexts, it is possible to observe that:

In formal learning: resources that are more traditional are used, i.e. office and similar package and software for downloading

In non -formal learning: educational multimedia programs are also used.

The hypothesis is that what teachers do in formal learning, they repeat in other contexts or it is difficult to drive what they do in informal to formal learning. Because tendencies in different contexts are similar.

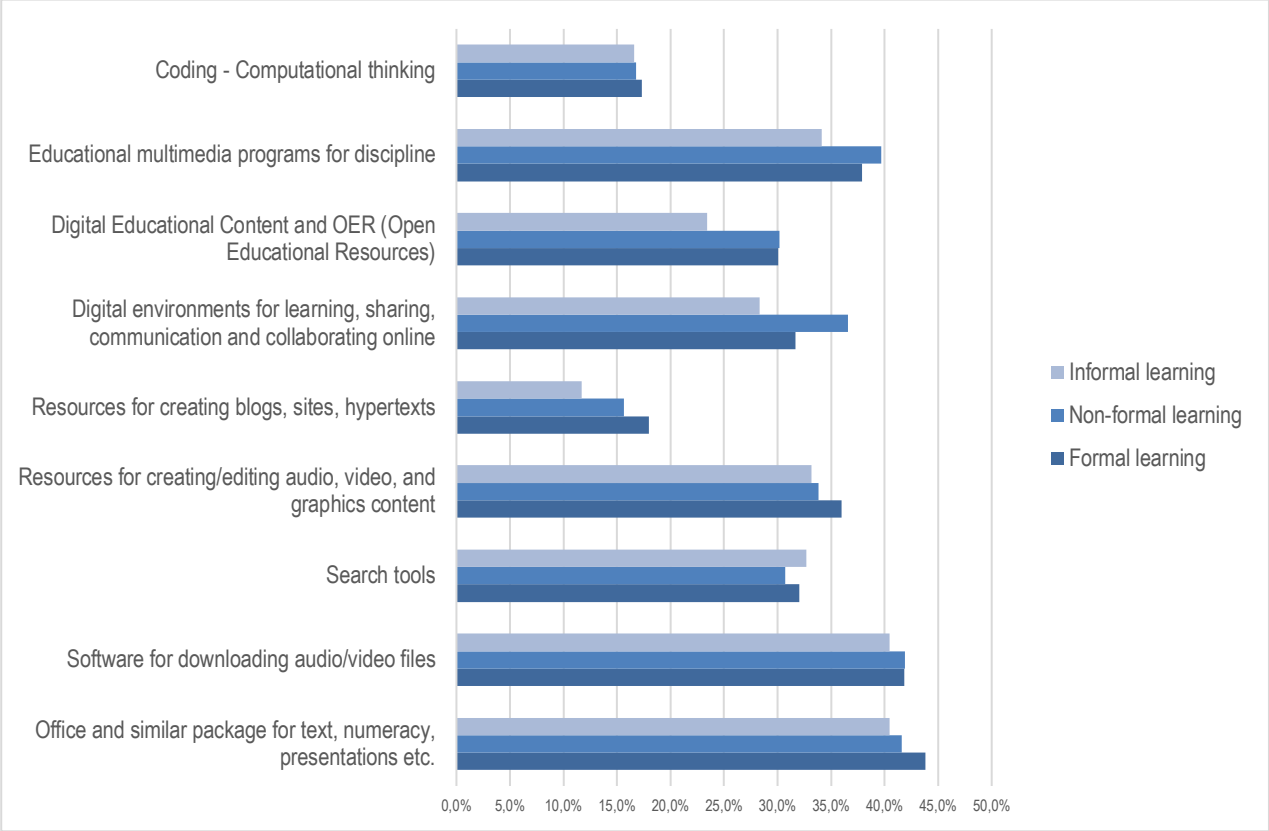

Chart 5.33 - Digital resources often used in different learning contexts

The same tendency emerges considering the different training modality.

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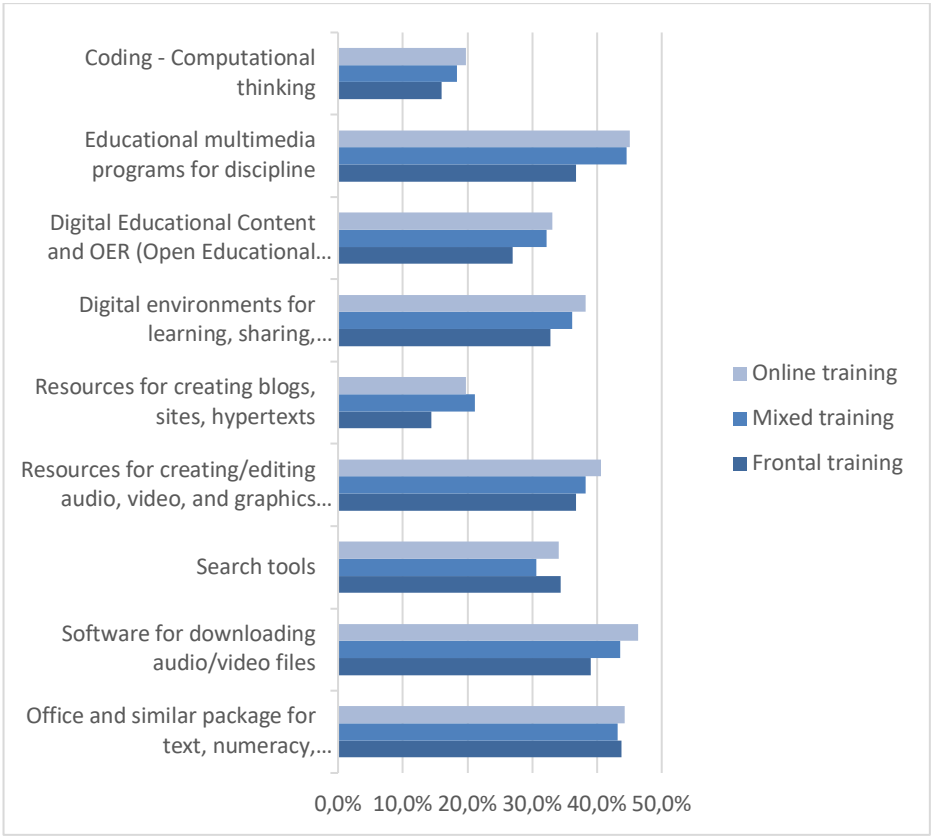

Chart 5.34 - Digital resources often used by different modality

- ***Familiarity with the main teaching practices in use (q0010)***

It is possible to observe the familiarity with the main teaching practices in use (q0010) among the following digital teaching methods:

- Active methodologies (such as Flipped Classroom)
- Collaborative learning
- Project-based learning
- Problem-based learning
- Case-based learning

One answer per row is requested.

Within training attained, more relevant results are the following.

Active methodologies (such as Flipped Classroom) are aware used by about the 50% of teachers and the percentage goes up to 60,5% in frontal training. Within the variable, 50,5% use them more in non-formal learning and 54,0% in online training (Tab. 5.7).

Collaborative learning is used by about the 80% of teachers, 73% in frontal training. Within the variable, 47,8% use it in non-formal learning and 59,3% in mixed training (Tab. 5.8).

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Project-based learning is used by 62,0% in informal learning and by 56,8% in mixed training. Within the variable, 48,4% use it in non-formal learning and 60,8% in mixed training (Tab. 5.9).

Problem-based learning is used by 62,4% in frontal training and by about 64% in mixed and online training. Within the variable, 47,2% use it in non-formal learning and 60,3% in mixed training (Tab. 5.10).

Case-based learning is aware used by 52,9% in formal learning and by 51,8% in online training. Within the variable, 46,6% use it in aware way in non-formal learning and 65,0% use it in mixed training (Tab. 5.11).

5.3.2 Evaluation of the digital competency level of teachers (DigCompEdu) (q0015-q0020)

In this paragraph, we analyse digital competences self-evaluation of teachers with the following variables.

They are:

- Professional Engagement,
- Digital Resources,
- Teaching and Learning,
- Digital Assessment,
- Empowering Learners,
- Facilitating Learners' Digital Competence.

And the crossed variables are:

- age (q0003),
- gender (q0004),
- type of contract in the school (q0006),
- teaching role (q0007),
- motivation to use digital instruments in your didactic and professional practice (q0024),
- needs of training to be able to use digital technologies effectively in the classroom (q0021).

One answer per row is possible.

In this serie of data, analyzing them, we have considered only the most relevant group of responses for each variables.

Possible scenarios are:

- A1 = Making little use. Being Unsure - Very limited knowledge; little usage
- A2 = Being aware. Basic tools use - Limited knowledge; basic usage
- B1 = Effective use; responsible use, experimentation - Functional knowledge; effective usage
- B2 = Structured, Creative, Responsive, Transparent, Reflective practice - Good knowledge; creative usage
- C1 = Critically, Strategically, Evaluating, Discussing, Reflecting - Excellent knowledge; strategic usage

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- C2 = Re designing, Innovating - Expert knowledge; innovative usage

1. Professional engagement (q0015, 1-4)

Dimensions of Professional Engagement are:

- 1.1 Organisational communication (q0015_0001)
- 1.2 Professional collaboration (q0015_0002)
- 1.3 Reflective practice (q0015_0003)
- 1.4 Digital Continuous Professional Development (CPD) (q0015_0004

1.1 Organisational communication (q0015_0001)

28,5% of respondents (221) state they have good knowledge (B2) in organisational communication (q0015_0001). Within the 28,5%: 38,9% are in the age group 51-60; 84,2% are of female sex; 95,9% have a permanent contract; within B2, 96,4% are teachers. Within teachers, 28,5% have a B1 level. The level is improved thanks to the self-evaluation of leaders and managers. Concerning motivation to use digital instruments in didactic and professional practice (q0024): 41,2% (91) use sometimes Social Networking (SN); 43,0% (95) use sometimes Professional Networking (PN); 52,9% of B2 use often digital instruments in personal and professional growth and 47,7% of total use digital instruments often for leisure. Concerning needs of training to be able to use digital technologies effectively in the classroom (q0021) (respondents are 755), 52,6% (397) are interested in professional development.

1.2 Professional collaboration (q0015_0002)

28,7% of respondents (223) state they have good knowledge (B2) in professional collaboration (q0015_0002). Within them, 38% are in the age group 41-50; within them, 28,1% have a B2 level. With regard to age (q0003), gender (q0004) and type of contract in the school (q0006), tendencies are the same above described. Concerning motivation to use digital instruments in didactic and professional practice (q0024): within 28,7%, 39,5% (88) use sometimes SN; 41,7% (93) use sometimes PN; out of those who use sometimes PN; 57,4% (128) state they use often Personal Professional Growth (PPG); 49,8% (111) state they use often digital instruments for leisure. Concerning, needs of training to be able to use digital technologies effectively in the classroom (q0021) - respondents are 755 - within B2 level, 47,7% are interested in Communication and collaboration. Same tendencies are observable among the data related to: 1.3 Reflective practice (q0015_0003) and 1.4 Digital Continuous Professional Development (CPD) (q0015_0004).

2. To use digital resources for Continuous Professional Development (q0016, 1-3)

Dimensions of Digital Resources are:

- 2.1 Selecting digital resources (q0016_0001)
- 2.2 Creating and modifying digital resources (q0016_0002)
- 2.3 Managing, protecting and sharing digital resources (q0016_0003)

2.1 Selecting digital resources (q0016_0001).

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27,6% of respondents (214) state they have good knowledge (B2) in Selecting digital resources (q0016_0001). Within them: 39,3% (84) are in the age group 41-50; 80,7% are of female sex; 96,3% have a permanent contract; 97,2% (208) are teachers. About 50% use often Office and similar packages, Software for downloading audio/video files, Search tools, OER, Coding and Multimedia programs relevant for their discipline; lower percentage use Resources for creating/editing audio/video content and graphic, Resources for creating blogs, websites, Digital environments for learning, sharing, communication and collaborating. 49,5% need training in Professional development and 48,6% need training in Communication and collaboration.

2.2 Creating and modifying digital resources (q0016_0002)

22,6% of respondents (175) state they have good knowledge (B2) in Creating and modifying digital resources (q0016_0002). But, in this case, the sample distribution is greater: we have a 22,6% (175) of B1 level; a 21,3% (165) of A2 level. Out of those who think they have good knowledge (B2) in Creating and modifying digital resources: 34,9% are in the group of 41-50; 80% are of female sex; 95,4% have a permanent contract; 96,0% are teachers. Within them, about 50% use often Office, Software for downloading audio/video files, Resources for creating/editing audio/video content and graphics, Digital environments for learning, sharing, communication and collaborating. Less then 50% use Resources for creating blogs, websites, Digital Educational Content and OER and Coding - Computational thinking. 53,8% (93) need training in Professional development; within 22,5% of B1 level, 54,7% need Professional Development; within 21,7% of A2 level, 48,8% need also Professional Development.

2.3 Managing, protecting and sharing digital resources (q0016_0003)

23,6% of respondents (183) state they have functional knowledge (B1) in Managing, protecting and sharing digital resources (q0016_0003). Within them: 42,6% are in the group of 41-50; 82,0% are of female sex; 94,0% have a permanent contract; 96,2% are teachers. Within total of respondents, 23,7% (179) state that they have level B1; within them, 53,6% (96) need Professional development and 41,9% (75), Organisation and management of educational spaces and resources.

3. Teaching and learning (q0017, 1-4)

Dimensions of Teaching and learning are:

- 3.1 Teaching (q0017_0001)
- 3.2 Guidance (q0017_0002)
- 3.3 Collaborative learning (q0017_0003)
- 3.4 Self-regulated learning (q0017_0004)

3.1 Teaching (q0017_0001)

26,0% of respondents (202) state they have a Functional knowledge (B1) in Teaching. Within them: 40,6% (82) are in the age group 41-50; this is the most represented group (38%); 82,7% 167 are of female sex; 95,5% 193 have a permanent contract; 96,5% (195) are teachers. 75,2% use Collaborative learning. Within

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total of respondents, 26,4% (199) state that they have level B1; within them, 50,8% (101) need Professional development and 48,7% (97), Communication and collaboration.

3.2 Guidance (q0017_0002)

24,5% of respondents (190) state they have a Functional knowledge (B1) in Guidance. Within them: 37,4% (71) are in the age group 41-50; 79,5% (151) are of female sex; 97,9% (186) have a permanent contract; 97,9% (186) are teachers. 76,3% use Collaborative learning. Within total of respondents, 25,0% (189) state that they have level B1; within them, 56,1% (106) need Professional development.

3.3 Collaborative learning (q0017_0003)

26,0% of respondents (202) state they have a Functional knowledge (B1) in Collaborative learning. Within them: 40,1% (81) are in the age group 41-50; 81,7% (165) are of female sex; 97,5% - 197 have a permanent contract; 97,0% (196) are teachers. About 73% use Active methodologies and Collaborative learning. Within total of respondents, 26,4% (199) state that they have level B1; within them, 51,8% (103) need Professional development and 49,2% 98 Communication and collaboration.

3.4 Self-regulated learning (q0017_0004)

27,3% of respondents (212) state they have a Functional knowledge (B1) in Self-regulated learning. Within them: 42,5% (90) are in the age group 41-50; 83,5% (177) are of female sex; 94,8% (201) have a permanent contract; 97,6% (207) are teachers; 77,8% use Collaborative learning. Within total of respondents, 27,8% (210) state that they have level B1; within them, 58,1% (122) need Professional Development.

4. Digital Assessment (q0018, 1(3) by

Dimensions of digital assessment are:

- 4.1 Assessment strategies (q0018_0001)
- 4.2 Analyzing evidence (q0018_0002)
- 4.3 Feedback and Planning (q0018_0003)

4.1 Assessment strategies (q0018_0001)

26,9% of respondents (209) state they have a Functional knowledge (B1) in Assessment strategies. Within them: 41,6% (87) are in the age group 41-50; 79,9% (167) are of female sex; 95,7% (200) have a permanent contract; 98,1% (205) are teachers; use of different digital technologies for assessment methods (q0011) is less than 50%. Frequency of activities as part of teaching (q0012) is about 50%. Concerning perception of the utility of digital tools and technologies (q0013), data most significant are: 45,5% (95) think digital tools and technologies are useful to Empower students in their own education; 44,0% (92) think Integrate formal, non-formal and informal learning is useful. Within total of respondents, 27,0% (204) state that they have level B1; within them, 57,8% (118) need Professional development and 41,7% (85) Digital ethics.

4.2 Analysing evidence (q0018_0002)

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25,9% of respondents (201) state they have a Functional knowledge (B1) in Analysing evidence. Within them: 40,3% (81) are in the age group 41-50; 76,6% (154) are of female sex; 94,0% (189) have a permanent contract; 97,0% (195) are teachers; use of digital technologies for assessment methods (q0011) is about 30%. Concerning perception of the utility of digital tools and technologies (q0013): 47,3% (95) think digital tools and technologies are useful to Empower students in their own education. Within total of respondents, 19,5% (147) state that they have level B2; within them, 50,3% (74) need Professional development and 69 46,9% Digital ethics.

4.2 Feedback and Planning (q0018_0003)

25,5% of respondents (198) state they have a Functional knowledge (B1) in Feedback and Planning. Within them: 43,9% (87) are in the age group 41-50; 78,3% (155) are of female sex; 94,9% (188) have a permanent contract; 97,0% (192) are teachers. 46,0% use Self and peer assessment; 49,0% (97) ask never students to document online what they have learnt. 48,0% (95) think digital tools and technologies are useful to Empower students in their own education. Within total of respondents, 25,6% (193) state that they have level B1; within them, 58,0% need Professional development and 44,0% Communication and collaboration.

5. Empowering Learners (q0019, 1-3)

Dimensions of Empowering Learners are:

- 5.1 Accessibility and inclusion (q0019_0001)
- 5.2 Differentiation and personalization (q0019_0002)
- 5.3 Actively engaging learners (q0019_0003)

5.1 Accessibility and inclusion (q0019_0001)

29,9% of respondents (232) state they have a functional knowledge (B1) in Accessibility and inclusion. Within them: 39,7% (92) are in the age group 41-50; 78,4% (182) are of female sex; 97,0% (225) have a permanent contract; 97,4% (226) are teachers. 76,3% (177) use Collaborative learning. Less than 41% use digital technologies for assessment methods (q0011). 52,2% (121) never ask students to document online what they have learnt. 44,4% (103) think that digital tools and technologies are useful to Empower students in their own education. Within total of respondents, 30,7% (232) state that they have level B1; within them, 54,7% (127) need Professional development. 44,4% (103) Communication and collaboration.

5.2 Differentiation and personalisation (q0019_0002)

27,8% of respondents (216) state they have a Functional knowledge (B1) in *Differentiation and personalisation*. Within them: 39,4% (85) are in the age group 41-50; 82,4% (178) are of female sex; 98,1% (212) have a permanent contract; 98,1% (212) are teachers. - 77,3% (167) use Collaborative learning. Less than 41% use digital technologies for assessment methods (q0011). 59,7% (129) never use online student assessment. 49,1% (106) think digital tools and technologies are useful to Empower students in their own education. Within total of respondents, 28,5% (215) state that they have level B1; within them, 53,0% (114) need Professional development, and 51,2% (110) Communication and collaboration.

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5.3 Actively engaging learners (q0019_0003)

27,2% of respondents (211) state they have a Functional knowledge (B1) in Actively engaging learners.

Within them: 38,4% (81) are in the age group 41-50; 82,0% (173) are of female sex; 95,7% (202) have a permanent contract; 98,1% (207) are teachers. 74,4% (157) use Collaborative learning. Low percentage use digital technologies for assessment methods (q0011), less than 39%. 58,8% (124) never ask students to document online what they have learnt. 46,9% (99) think digital tools and technologies are useful to Empower students in their own education. Within total of respondents, 27,8% (210) state that they have level B1; within 490 responses of level B1; within them, 54,3% (114) need Professional development and 51,9% (109) Communication and collaboration.

6. Facilitating Learners' Digital Competence (q0020, 1-5)

Dimensions of Facilitating Learners' Digital Competence are:

- 6.1 Information and media literacy (q0020_0001)
- 6.2 Digital communication & collaboration (q0020_0002)
- 6.3 Digital content creation (q0020_0003)
- 6.4 Responsible Use (q0020_0004)
- 6.5 Digital problem solving (q0020_0005)

6.1 Information and media literacy (q0020_0001)

29,5% of respondents (229) state they have a Functional knowledge (B1) in Information and media literacy. Within them: 40,2% (92) are in the age group 41-50; 83,8% (192) are of female sex; 96,5 (221%) have a permanent contract; 97,8% (224) are teachers. 52,0% (119) use Office and similar packages often and 54,1% (124) use Coding - Computational thinking never.62,9% (144) are aware of Active methodologies (such as Flipped Classroom). Within total of respondents, 30,3% (229) state that they have level B1; 527 responses in level B1; within them, 55,0% (126) need Professional development and 45,0% (103) Communication and collaboration.

6.2 Digital communication & collaboration (q0020_0002)

27,6% of respondents (214) state they have a Functional knowledge (B1) in Digital communication & collaboration. Within them: 40,2% (86) are in the age group 41-50; 78,0% (167) are of female sex; 97,7% (209) have a permanent contract; 96,7% (207) are teachers. They use often Office and similar packages, Software for downloading audio/video files, Digital Educational Content and OER Multimedia programs relevant for the discipline, 50,5% (108) never use Coding - Computational thinking. 76,6% (164) use Collaborative learning. Less than 39% use digital technologies for assessment methods (q0011). 48,6% (104) use sometimes creative work using online applications. Within total of respondents, 28,1% (212) state that they have level B1; within 493 responses, 56,1% (119) need Professional development and 46,2% (98) Digital ethics.

6.3 Digital content creation (q0020_0003)

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24,7% of respondents (192) state they have a Functional knowledge (B1) in Digital content creation. Within them: 43,2% (83) are in the age group 41-50; 81,8% (157) are of female sex; 95,3% (183) have a permanent contract; 97,4% (187) are teachers. 48,4% (93) use often Office and similar packages. 83,9% (161) use Collaborative learning. Self and peer assessment is used by 44,3% (85). 49,5% (95) ask never students to document online what they have learnt. 45,8% (88) think digital tools and technologies are useful to Empower students in their own education. Within total of respondents, 25,0% (189) state that they have level B1; within 416 responses, 51,3% (97) need Professional development and 43,9% (83) Digital ethics.

6.4 Responsible Use (q0020_0004)

27,8% of respondents (216) state they have a Functional knowledge (B1) in responsible Use. Within them: 42,1% (91) are in the age group 41-50; 86,1% (186) are of female sex; 97,2% (210) have a permanent contract; 97,7% (211) are teachers. 54,6% (118) use sometimes Digital Educational Content and OER. 76,9% (166) use Collaborative learning; 37,5% (81) Self and peer assessment; 49,1% (106) involve never students in collaborative online; 47,7% (103) think digital tools and technologies are useful to Empower students in their own education and 47,7% (103) to Integrate formal, non-formal and informal learning. Within total of respondents, 25,4% (192) state that they have level B1; within 391 responses, 56,3% (108) need Professional development.

6.5 Digital problem solving (q0020_0005)

24,7% of respondents (192) state they have a Functional knowledge (B1) in Digital problem solving. Within them: 41,7% (80) are in the age group 41-50; 78,6% (151) are of female sex; 96,9% (186) have a permanent contract; 96,9% (186) are teachers. Office and similar packages: 52,1% (100) use them often and Software for downloading audio/video files: 52,6% (101) use them often. 77,6% (149) use Collaborative learning and 46,9% (90) Self and peer assessment. 47,4% (91) use sometimes creative work using online applications and 46,4% (89) think Integrate formal, non-formal and informal learning is useful. Within total of respondents, 25,0% (189) state that they have level B1; 410 responses of level B1, within them, 57,1% (108) need Professional development.

5.3.3 Needs of training to be able to use digital technologies effectively in the classroom (q0021)

In this paragraph, the main results of the following crossed variables are presented: the need of further training to be able to use digital technologies effectively in the classroom (q0021):

- q0021_0001 Basic uses of ICT (Training in how to use ICT and digital technologies from a novice level)
- q0021_0002 Design, planning and classroom delivery (Training in how to use ICT and digital technologies to aid with lesson planning and preparation)
- q0021_0003 Organization and management of educational spaces and resources (Training in how to use ICT and digital technologies to facilitate and improve working environments)

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- q0021_0004 Communication and collaboration (Training in how to use ICT and digital technologies to communicate, collaborate, create, share content and build knowledge in the classroom)
- q0021_0005 Digital ethics (Training in how to use ICT and digital technologies for issues relating to legality, security and digital identity)
- q0021_0006 Professional development (Training in how to use ICT and digital technologies to for your own teaching development)
- q0021__ Other (Please specify)

with:

1. Age (q0003)
2. Gender (q0004)
3. Type of contract in the school (q0006)
4. Teaching role (q0007)
5. Frequency of use of digital resources in the classroom for teaching activities (q0009)
6. Familiarity with the main teaching practices in use (q0010)
7. Use of digital technologies for assessment methods (q0011)
8. Frequency of activities as part of teaching (q0012)
9. Perception of the utility of digital tools and technologies (q0013)

Basic Uses ICT by:

Age (q0003)

The age groups 41-50 and 51-60 are those that confirm the need for a more in-depth training in all the variables (Basic uses of ICT, Design, planning and classroom delivery, Organisation and management of educational spaces and resources, Communication and collaboration, Digital ethics and Professional Development).

Gender (q0004)

About gender, of 67 women's respondents 80,7% declares to have need about Basic uses of ICT. About total male number (16), 19,3% confirms to have need of more training.

Type of contract in the school (q0006)

The 78 respondents with permanent contract (94% of the total) 10,8% declares to have need of further training; 13,9% of 5 respondents with temporary contract instead declare to have need of more training.

Teaching role (q0007)

3,6% of total leaders (5) declares to have need of further training.

5,4% of total managers (13) declares to have need of further training.

11% of total teachers (81) declares to have need of further training.

Frequency of use of digital resources for teaching activities (q0009)

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About Office resources, all respondents declares to need further training about this variable. That confirm what emerge about their self-assessment about ICT competences.

What emerges on the variable Office confirms what was declared by teachers on their skills in this area, except for cases in which the teachers have answered or "often" and "always", who then explained that they need further training in this regard. In particular, the two variables Communication and collaboration and Professional Development present high percentages of training needs.

Software for downloading audio/video files q009_002

Percentages over 40% of respondents who often use software for downloading audio / video files, declare that they need further training in this regard.

Search Tool q0009_003

With regard to the Search tool, which are those most used by teachers in teaching, the data still have need training also for the teachers who have declared that they use it “often”, especially for Communication and Collaboration and Professional Development variables.

Resources for creating/editing audio, video, and graphics content q0009_004

About Resources for creating/editing audio, video, and graphics content the teachers have training needs, both those who never use these tools, both those who instead use them “sometimes”,” often” and “always”

Resources for creating blogs, sites, hypertexts q009_005

About Resources for creating blogs, sites, hypertexts, the survey shows a low percentage of training needs for basic ICT, over 30% are instead the percentages for the other variables. Over 50% of all respondents need further training on Professional Development.

Digital environments for learning, sharing, communication and collaborating online q009_006

About Digital environments for learning, sharing, communication and collaborating online, if for variables related to the Design, organization, Digital Ethics emerging training needs in percentages around 30%, for Communication and collaboration variables and Professional Development these increase up to 50%.

Digital Educational Content and OER (Open Educational Resources) q009_07

About Digital Educational Content and OER (Open Educational Resources), excluding the variable Basic ICT for which the percentages of training needs are very low, all other variables have percentages between 30% and 40%. Also in this case the percentage increase for the two variables: Digital Ethics and Professional Development. In the specific case we have interesting data on the percentage of those who declares to use “often”/”always” these tools: these, in fact, are very high.

Educational multimedia programs for discipline q0009_008

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In the case of educational multimedia programs for disciplines, the highest percentages that have need of further training are the following areas: Design, organization, Communication, Digital Ethics and Professional Development. Even among those who use these programs "sometimes" and "always" is an apparent need for further training on.

Coding - Computational thinking q0009_009

Overall, higher percentages of respondents say they “never” use in the classroom Coding-computational thinking. But it is interesting that in the case represented by teachers who “always” use Coding for Digital Ethics, the percentage of whom needs further training the percentage is of 51,1%. Communication and Collaboration, Digital Ethics and Professional Development are the variables that show more training needs by teachers interviewed.

Familiarity with the main teaching practices in use (q0010)

Active methodologies (such as Flipped Classroom) q0010_01

The variables in which teachers seem without distinction need training are Design, Communication, Digital Ethics and Professional Development: this area present percent values are high: 67.4% for anyone who does not know the instrument, 50% for those who know and 54.2 for those who use it.

Collaborative Learning q0010_02

For Collaborative learning area the major training needs as from Communication and Collaboration for which also the teachers who say they use this practice the percentages are very high (not aware of 50%, aware of 48.4% use 43%). Similar results come from Professional Development: not aware of 75%, aware of 60% use 50%.

Project Based Learning q0010_03

For Project Base Learning topic the major training needs come from Communication and Collaboration for which also the teachers who say they use this practice the percentages are very high (not aware of 60%, aware of 43.6% and use 42.1%). Similar results come from Professional Development: not aware of 47.7%, aware of 57.7% use 49.5%

Problem based Learning q0010_04

About Problem Base Learning, all teachers declares to need further training for Communication and Collaboration. It is important underline that the percentages of teachers who say they “use” is high (not aware of 60%, aware of 46.3% and use 42.2%). Similar results come from Professional Development: not aware of 56.4%, aware of 52.2% use 52.4%.

Case based learning q0010_005

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About Case based learning q0010_005 the most interesting data are the percentage of teachers who declare to need further training: in the Professional development area who "not aware" the tool is represented by 47.6%, who "aware of" 54.2% and who confirms that use it 53.5%.

Activities as part of teaching in the past two years q0012

q00012_001 Regular contact with my students through online communication (email, forums, blogs etc.) to continue the learning process outside the classroom

About teachers who usually keep in touch with their students by email, forums, blogs etc. to continue the learning process outside the classroom, the higher percentage of them who needs further trainings is for their Professional Development (51.7%). Instead the teachers who "never" contact their students the training needs are focused on Communication (50.9%) and Professional Development (49.8%). The teachers who "sometimes" contact their students are 51.7% for Communication and 47.8% for Professional Development; who says "often" are represented by 56.3% for Communication and 42.6% for Professional Development.

q_0012_002 Ask students to document online what they have learnt

Among all the teachers is a common need training on all areas. In particular it should be noted that for Digital Ethics and Professional Development percentages are the highest. The teachers who says "always" and "often" ask student to document online what they have learnt are the higher for Digital Ethics (59.3%-45.4%) and for Professional Development (51.9%- 60.8).

q0012_003 Involve students in collaborative online work

Teachers who declares to involve "always" students in collaborative online work needs further training in Digital Ethics (57.5%) and in Professional Development (55%). Always for Professional Development the percentage are the highest for all respondents ("never" 50.8%, "sometimes" 51.8, "often" 57.6%).

q0012_004 Online student assessment

About online assessment, the highest training needs are for Professional Development ("never" 47.5%, "sometimes" 55.5, "often" 57.5%, "always" 64.7%).

q0012_005 Creative work using online applications

The teachers who use "always" and "often" using online applications for creative work declare to needs further training for Digital Ethics (58.5%) and Professional Development (56.6%).

q0012_006 Encourage interdisciplinary projects through the use of online technologies

The respondents who says to "always" and "often" Encourage interdisciplinary projects through the use of online technologies declare to need further training on Digital Ethics ("always" 51.9%, "often" 44.9%) and Professional Development ("always" 59.3%, "often" 59.3%).

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The data emerging on the training needs of teachers who often use technology to involve their students or for teaching activities are those that focus more on Communication and collaboration, Digital Ethics and Professional Development. It therefore seems that those who use the technologies on a daily basis for teaching are more aware of improving their skills.

To what extent do digital tools and technologies support the following q0013

q0013_001 Make students more autonomous

Among the teachers who responded that the use of digital technologies makes students more independent, 58.9% believe they need further in Professional development, in Digital Ethics (46.1%) and in Communication and collaboration (43.3%). On the other hand, for those who answered that technologies do not make students more autonomous, they need training in 33% of cases in all areas (Basis use, Design, Organization, Digital Ethics, Communication and collaboration and Professional Development).

q0013_002 Empower students in their own education

Among the teachers who responded that the use of digital technologies supports students in their education, 58.9% believe they need further in Professional development, in Digital Ethics (46.1%) and in Communication and collaboration (43.3%). On the other hand, for those who answered that technologies do not make students more autonomous, they need training in 33% of cases in all investigated area (Basic use, Design, Organization, Digital Ethics, Communication and collaboration and Professional Development).

q0013_003 Make the learning process more meaningful for the student

Among the teachers who declares that the use of digital technologies support the student in their meaningful learning process, needs further training in Professional development (55.2%), in Digital Ethics (48.3%) and in Communication and collaboration (45.8%) areas.

q0013_004 Make the learning process more effective (students achieving higher results than expected)

Among the teachers who declares that the use of digital technologies is useful to support the student in their achievement with high results, more than 56% needs further training in Professional development, and more than 40% in Digital Ethics and in Communication and collaboration areas.

q0013_005 Make the learning process more efficient (achievements with less effort and/or lower costs)

The areas in which the respondents have declared that they have need of further training are Professional development, in Digital Ethics and in Communication and collaboration.

q0013_006 Integrate formal, non-formal and informal learning

Among the teachers who declares that the integration of formal, non-formal and informal learning is useful to support the learning, 52.3% needs further training in Professional development, 44.7% in Digital Ethics, 40.1%) in Communication and collaboration and Organisation and management of educational spaces and resources (41.1%) contexts.

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q0013_007 Involve other actors in the learning process

Among those who says that involving other actors in the student learning process is useful needs further training in the field of professional development (57.3%) and Digital ethics (48.3%).

q0013_008 Improve communication, collaboration and coordination between colleagues, students and institutions

Among those who declares that is useful to improve communication, collaboration and coordinations between all learning actors, needs further training in the field of Professional development (56.3%) and Digital ethics (45%).

q0013_009 Improve teacher continuing professional development (CDP)

The importance and the utility of improvement of teachers CDP is fundamental among respondents who says to need further training in the Professional Development (54.9%) Digital ethics (42.9%) Communication and collaboration (41%) contexts.

q0013_0010 Link school activities with work experience placements

Among who thinks that the school activities should connected with work experience needs further training in the following areas: Digital Ethics (46%) and Professional development (62.5%).

In conclusion, it can be said that the contexts in which the majority of respondents who use technological tools or think that these are fundamental in teaching towards students are the following: Digital Ethics, Communication and Collaboration and Professional Development. Specifically, this last area presents the highest percentages of people who claim to have further training and where the greatest training needs are concentrated.

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Conclusions

To make the conclusions of this work, should be useful recall/refer the core questions that have directed the research project in an attempt to offer to the reader a vision of more significant emerged elements.

In fact, although without any claim od representativeness and generalization, this project offers important interesting ideas , also taking into account the initial bias due to the fact that the teachers participated freely in the on-line survey, introducing, presumably, an element of distortion that can be explained by a positive propensity to use digital in the educational field.

Regarding the first point (the daily practice of teaching in relation to the technological equipment provided by the school) the data showing a sort of polarization of the practices among those who, faced with a certain degree of awareness, competence, been able to stimulate the creative work of students through online applications, and those who, showing a lesser mastery of use, let an approach still emerge broadly transmissive: approach in which digital tools tend to be used more to replicate a traditional teaching model than to promote student-centered learning logic. It should also be said that, in general, the participants in this survey show a largely positive view of the contribution that digital technologies can give to teaching (§ 2) in enhancing students' basic skills; in fostering in them the development of a responsible approach, but also in activating virtuous learning processes and self-evaluation processes. However, there are those who highlight the risks associated with the improper use of these tools; risks associated with cyberbullying, distraction, etc.

In relation to the second question (How does the use of technologies and personal resources in daily professional practice and teaching work?) it is interesting observe the choices and behaviours of respondents about variables as social networking, professional networking, personal and professional growth, leisure (culture, hobbies, entertainment, travel, etc.) (§ 2.2). In fact we can see much teachers prefer to use digital technologies for personal and professional growth and for leisure, and less for social and professional networking. In private life, new technologies are practically always used, while for social and professional dimension development they are considered less necessary.

As regards the third issue (the state of the experience and skills most widely used today among our teachers) (§ 3) we observe the most frequent use of digital technology refer Office package for text, numeracy and presentation showing that the acquisition of a progressive mastery of the instruments goes hand in hand with their use in everyday teaching practices while we observe a lack of use of tools for creating multimedia resources or in the use of more sophisticated resources and skills. Nevertheless research evidences show the emerging of a progressive and virtuous process through which the Italian school introduce rich and diversified practices and resources made available by digital environments.

If we consider the self-assessment of digital skills of teachers according to DigCompEdu (§ 4.2), generally the levels more spread are B2 and B1 with a competence to decrease as more technical and more specific skills are invested.

Lastly, related to the last research point (the most relevant experiments carried out) it is interesting to observe the majority of teacher acquired their digital knowledge and skills out of official training course, almost 50% of

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them have no official certification. The majority of our respondents (§ 4) are involved in teaching role bu permanent contract, are female in coherence with our educational system strongly feminized; most represented age classes are those between 41-50 and 51-60, confirming an educational system where a very mature elderly teaching body prevails. Then There are no significant differences in the use of the various teaching practices between male and female teachers.

To conclude we can say/assert/affirm/state, that although there is a certain openness of mind, confirmed by a system of basic assumptions and an overall emotional sphere quite positive towards the usefulness of digital technologies in teaching, there is no automatic transfer of practical knowledge acquired in the extracurricular experience. As for teaching innovation spaces, it is confirmed that, while appreciating and using technology, many teachers are struggling to bring it into the classroom (OECD, 2013 / a: 2013 / b). The objectified capital available to it is not automatically translated into cultural capital for educational use.

A traditional learning approach prevails, guided by habits acquired through practice, able to guarantee the space of the comfort zone. The element of greater fragility is recognized in the difficulty of integrating digital technologies into ordinary teaching practice, too often unable to overcome the mere transmission of knowledge to enhance the subjective and intersubjective dimension so deeply touched by the digital society.

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Appendix tables

1. Sample description

Table 1.1 - School Type

Table 1.1 - School Type		
	%	a. v.
Early Years (3-5 years)	5,9	46
Primary School (6-10 years)	28,0	217
Secondary School (11-14 years)	27,7	215
Secondary School (14-19 years)	37,5	291
VET (Vocational Education and Training) (14-19 years)	,9	7
Tot.	**100,0**	**776**

Table 1.2 - Distribution by Region

Table 1.2 - Distribution by Region		
	%	a. v.
Abruzzo	1,0	8
Basilicata	,6	5
Calabria	1,3	10
Campania	9,5	74
Emilia-Romagna	2,8	22
Friuli-Venezia Giulia	1,7	13
Lazio	49,1	381
Liguria	3,7	29
Lombardia	7,3	57
Marche	1,2	9
Piemonte	3,2	25
Puglia	4,3	33
Sardegna	4,3	33
Sicilia	3,7	29
Toscana	3,9	30
Trentino-Alto Adige	1,3	10
Umbria	,4	3
Veneto	,6	5

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Tot.	**100,0**	**776**

Table 1.3 - Age range

Table 1.3 - Age range		
	%	**a. v.**
25-30	4,1	32
31-40	18,0	140
41-50	38,0	295
51-60	33,1	257
60+	6,7	52
Tot.	**100,0**	**776**

Table 1.4 - Gender

Table 1.4 - Gender		
	%	**a. v.**
Female	80,7	626
Male	19,3	150
Tot.	**100,0**	**776**

Table 1.5 - Teaching area covered over the last three years

Table 1.5 - Teaching area covered over the last three years		
	%	**a. v.**
Literacy	30,7	238
Numeracy	29,1	226
Science	29,6	230
History	24,9	193
Arts	13,3	103
Music	13,7	106
Physical Education	12,2	95
Personal Social and Health Education	0,8	6
Religious Education	2,6	20
Ethics and Democratic Citizenship	0,6	5
Social Science	2,6	20
ICT	18,9	147
Modern Foreign Languages	17,1	133
Learning Approaches	2,1	16
Special Educational Needs	17,1	133
Other	19,2	149
Tot.	**100,0***	**776**

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* Percentages are based on respondents

Table 1.6 - Type of contract in the school

Table 1.6 – Type of contract in the school		
	%	a. v.
Permanent contract	95,4	740
Temporary contract	4,6	36
Tot.	**100,0**	**776**

Table 1.7 - Teaching role covered over the last three years

Table 1.7 - Teaching role covered over the last three years		
	%	a. v.
Leadership role	18,0	140
Management role	32,2	250
Teaching role	97,3	755
Tot.	**100,0***	**776**

* Percentages are based on respondents

Table 1.8 - Role as digital coordinator in the school

Table 1.8 - Role as digital coordinator in the school		
	%	a. v.
Yes	29,8	231
No	70,2	545
Tot.	**100,0**	**776**

2. Teachers' personal views regarding using digital technologies

2.1 Beliefs on uses and benefits of digital teaching tools

Table 2.1 - Beliefs on uses and benefits of digital teaching tools

Indicate how strongly you agree or disagree with the following list of statements	Strongly disagree	Disagree	Agree	Strongly agree
The use of digital technologies helps when designing and organising educational materials	0 %	1%	66%	33%
The use of digital technologies promotes the development of basic skills (reading, writing, comprehension)	0 %	7%	60%	33%
The use of digital technologies promotes the development of responsible media and digital skills	4%	25%	57%	4%
The use of digital technologies creates positive learning	2%	17%	65%	16%

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outcomes by influencing how learners behave				
The use of digital technologies should not replace traditional teaching methods	2%	12%	58%	28%
The use of digital technologies encourages self-assessment among students	2%	27%	59%	12%
The use of digital technologies increases the level of cyberbullying	14%	53%	27%	6%
The use of digital technologies is a distraction for students	3%	61%	20%	16%
Digital technologies do not improve education processes, learning, etc.	20,9%	62%	13,7%	3,1%
It is necessary to integrate e-learning into teaching activities, alongside traditional classroom-based teaching methods	1%	6%	62%	31%
Daily use of technology in the classroom is not enough, students need to learn how to use books	NA	NA	NA	NA

Table 2.2 – ICT and educational materials

Table 2.2. The use of digital technologies helps when designing and organising educational materials		
	%	a.v.
Strongly Disagree	0,4	3
Disagree	1,2	9
Agree	66,0	512
Strongly Agree	32,5	252
Tot.	100,0	776

Table 2.3 – ICT and the development of basic skills (reading, writing, comprehension)

Table 2.3 The use of digital technologies promotes the development of basic skills (reading, writing, comprehension)		
	%	a.v.
Strongly Disagree	4,1	32
Disagree	25,4	197
Agree	56,8	441
Strongly Agree	13,7	106
Tot.	100,0	776

Table 2.4 – ICT and the development of responsible media and digital skills

Table 2. 4 The use of digital technologies promotes the development of responsible media and digital skills		
	%	a.v.
Strongly Disagree	0,4	3
Disagree	7,2	56
Agree	59,8	464

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Strongly Agree	32,6	253
Tot.	100,0	776

Table 2.5 – ICT and learning outcomes

Table 2.5. The use of digital technologies creates positive learning outcomes by influencing how learners behave		
	%	a.v.
Strongly Disagree	1,7	13
Disagree	17,4	135
Agree	64,8	503
Strongly Agree	16	125
Tot.	**100,01**	**776**

Table 2.6 – ICT and traditional teaching methods

Table 5. The use of digital technologies should not replace traditional teaching methods		
	%	a.v.
Strongly Disagree	1,7	13
Disagree	12,6	98
Agree	57,7	448
Strongly Agree	28	217
Tot.	**100,0**	**776**

Table 2.7 – ICT and self-assessment among students

Table 6. The use of digital technologies encourages self-assessment among students		
	%	a.v.
Strongly Disagree	2,4	19
Disagree	26,9	209
Agree	59,1	459
Strongly Agree	11,5	89
Tot.	**100,0**	**776**

Table 2.8 - ICT and cyberbullying

Table 7. The use of digital technologies increases the level of cyberbullying		
	%	a.v.
Strongly Disagree	14	109
Disagree	53,1	412
Agree	26,8	208
Strongly Agree	6,1	47

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Tot.	**100,0**	**776**

Table 2.9 – ICT as a distraction for student

Table 8. The use of digital technologies is a distraction for student		
	%	a.v.
Strongly Disagree	16,1	125
Disagree	60,7	471
Agree	19,6	152
Strongly Agree	3,6	28
Tot.	100,0	776

Table 2.10 – ICT and improvement of education processes and learning

Table 9. Digital technologies do not improves education processes, learning, etc		
	%	a.v.
Strongly Disagree	20,9	162
Disagree	62,4	484
Agree	13,7	106
Strongly Agree	3,1	24
Tot.	100,0	776

Table 2.11 – ICT and integration of e-learning into teaching activities

Table 10. It is necessary to integrate e-learning into teaching activities, alongside traditional classroom-based teaching methods		
	%	a.v.
Strongly Disagree	1,0	8
Disagree	5,8	45
Agree	61,9	480
Strongly Agree	31,3	243
Tot.	100,0	776

2.2 Use of digital instruments in didactic and professional practice

Table 2.12 - Social networking

Table 2.12. Social networking		
	%	a. v.
Never	27,3	212

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Sometimes	36,9	286
Often	25,6	199
Always	10,2	79
Tot.	100,0	776

Table 2.13 - Professional networking

Table 2.13. Professional networking		
	%	a. v.
Never	22,6	175
Sometimes	42,1	327
Often	26,8	208
Always	8,5	66
Tot.	100,0	776

Table 2.14 - Personal and professional growth

Table 2.14. Personal and professional growth		
	%	a. v.
Never	2,1	16
Sometimes	18,2	141
Often	48,8	379
Always	30,9	240
Tot.	100,0	776

Table 2.15 - Leisure

Table 2.15. Leisure (culture, hobbies, entertainment, travel, etc.)		
	%	a. v.
Never	1,9	15
Sometimes	13,8	107
Often	47,7	370
Always	36,6	284
Tot.	100,0	776

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3. Teaching practice in ICT

3.1 Use of digital tools and technologies

Table 3.1 – Use of digital tools and technologies in teaching activities

Table 3.1 Use of digital tools and technologies in teaching activities	Never		Sometimes		Other		Always		Tot.	
	%.	a.v.	%.	a.v.	%.	a.v.	%.	a.v.	%.	a.v.
Office and similar package	4,1	32	14,7	114	43,9	341	37,3	290	100	776
Software for downloading audio/video files	7,7	60	31,8	247	43,5	338	17	132	100	776
Search tools	2,6	20	8,6	67	35	272	53,8	418	100	776
Resources for creating/editing audio video content and graphics	13,4	104	37,8	294	35,3	274	13,5	105	100	776
Resources for creating blogs, websites, etc.	40,3	313	37,2	289	16,2	126	6,3	49	100	776
Digital environments for learning, sharing, communication and collaborating	14,4	112	33,5	260	33,5	260	18,7	145	100	776
Digital Educational Content and OER (Open Educational Resources)	25,2	196	40,8	317	28,2	219	5,8	45	100	776
Multimedia programs relevant for your discipline	10,4	81	36,8	286	40,3	313	12,5	97	100	776
Coding – Computer Thinking	46,8	364	30,6	238	16,1	125	6,4	50	100	776

Table 3.2 – Use of digital teaching methods

Table 3.2 Use of digital teaching methods	Not aware of		Aware of		Use		Tot.	
	%.	a.v.	%.	a.v.	%.	a.v.	%.	a.v.
Active methodologies (such as Flipped Classroom)	6,1	47	57,0	442	37,0	287	100	776
Collaborative Learning	2,1	16	20,6	160	77,3	600	100	776
Project Based Learning	8,5	66	39,6	307	51,9	403	100	776
Problem Based Learning	7,2	56	33,8	262	59,0	458	100	776
Case Based Learning	22,3	173	51,2	397	26,5	206	100	776

Table 3.3 – Use of digital technologies for assessment methods

Table 3.3 Use of digital technologies for assessment methods	a. v.	%
Portfolios	162	20,9
Rubrics	273	35,2
Conceptual Maps	318	41,0

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Self and peer Assessment	316	40,7
Nothing	173	22,3
Other	30	3,9
Total	**1272**	**100,0**

Table 3.4 – Frequency of activities as a part of teaching

Table 3.4 Frequency of activities as a part of teaching	Never		Sometimes		Other		Always		Tot.	
	%.	a.v.	%.	a.v.	%.	a.v.	%.	a.v.	%.	a.v.
Regular contact with my students through online communication	36,3	282	26,5	206	25,1	195	12,0	93	100	776
Ask students to document online what they have learnt	49,4	383	30,0	233	17,0	132	3,6	28	100	776
Involve students in collaborative online work	43,2	335	32,7	254	18,4	143	5,7	44	100	776
Online students assessment	53,1	412	20,5	159	14,9	116	11,5	89	100	776
Creative work using online applications	25,4	197	40,3	313	27,1	210	7,2	56	100	776
Encourage interdisciplinary project through the use of digital technologies	25,5	198	39,0	303	28,1	218	7,3	57	100	776

4. Training needs of teachers

Table 4.1 – Types of training around using digital technologies in education

Table 4.1 - Types of training around using digital technologies in education		
Please indicate the types of training you have attended around using digital technologies in education:	**a. v.**	**%**
Formal learning	306	39,4
Non formal learning	358	46,1
Informal learning	205	26,4
Face to face	256	33,0
Blended	431	55,5
Fully Online	384	49,5

Table 4.2 – DigCompEdu: Professional Engagement

Table 4.2		
Professional Engagement	**a. v.**	**%**

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Organisational communication	A1	39	5
	A2	104	13,4
	B1	219	28,2
	B2	221	28,5
	C1	124	16,0
	C2	69	8,9
	Tot.	**776**	**100,0**
Professional collaboration	A1	27	3,5
	A2	107	13,8
	B1	207	26,7
	B2	223	28,7
	C1	145	18,7
	C2	67	8,6
	Tot.	**776**	**100,0**
Reflective practice	A1	55	7,1
	A2	132	17,0
	B1	207	26,7
	B2	224	28,9
	C1	107	13,8
	C2	51	6,6
	Tot.	**776**	**100,0**
Digital Continuous Professional Development	A1	19	2,4
	A2	81	10,4
	B1	187	24,1
	B2	220	28,4
	C1	160	20,6
	C2	109	14,0
	Tot.	**776**	**100,0**

Table 4.3 – DigCompEdu:Digital resources

Table 4.3			
Digital resources		**a. v.**	**%**
Selecting digital resources	A1	23	3,0
	A2	107	13,8
	B1	207	26,7
	B2	223	28,7
	C1	145	18,7

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	C2	67	8,6
	Tot.	**776**	**100,0**
Creating and modifying digital resources	A1	101	13,0
	A2	165	21,3
	B1	175	22,6
	B2	175	22,6
	C1	93	12,0
	C2	67	8,6
	Tot.	**776**	**100,0**
Managing,protecting and sharing digital resources	A1	100	12,9
	A2	154	19,8
	B1	183	23,6
	B2	173	22,3
	C1	109	14,0
	C2	57	7,3
	Tot.	**776**	**100,0**

Table 4.4 – DigCompEdu:Teaching and learning

Table 4.4			
Teaching and learning		**a. v.**	**%**
Teaching	A1	86	11,1
	A2	160	20,6
	B1	190	24,5
	B2	179	23,1
	C1	105	13,5
	C2	69	8,9
	Tot.	**776**	**100,0**
Collaborative learning	A1	60	7,7
	A2	134	17,3
	B1	202	26,0
	B2	193	24,9
	C1	122	15,7
	C2	65	8,4
	Tot.	**776**	**100,0**
Self regulated learning	A1	117	15,1
	A2	155	20,0
	B1	212	27,3

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	B2	166	21,4
	C1	90	11,6
	C2	36	4,6
	Tot.	**776**	**100,0**

Table 4.5 – DigCompEdu:Digital assessment

Table 4.5			
Digital assessment		**a. v.**	**%**
Assessment strategies	A1	126	16,2
	A2	178	22,9
	B1	209	26,9
	B2	153	19,7
	C1	80	10,3
	C2	30	3,9
	Tot.	**776**	**100,0**
Analysing evidence	A1	133	17,1
	A2	176	22,7
	B1	201	25,9
	B2	153	19,7
	C1	78	10,1
	C2	35	4,5
	Tot.	**776**	**100,0**
Feedback and Planning	A1	163	21,0
	A2	160	20,6
	B1	198	25,5
	B2	134	17,3
	C1	87	11,2
	C2	34	4,4
	Tot.	**776**	**100,0**

Table 4.6 – DigCompEdu:Empowering learners

Table 4.6			
Empowering learners		**a. v.**	**%**
Accessibility and inclusion	A1	71	9,1
	A2	140	18,0
	B1	232	29,9

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	B2	196	25,3
	C1	96	12,4
	C2	41	5,3
	Tot.	**291**	**100,0**
Differentiation and personalisation	A1	69	8,9
	A2	151	19,5
	B1	216	27,8
	B2	208	26,8
	C1	92	11,9
	C2	40	5,2
	Tot.	**291**	**100,0**
Actively engaging learners	A1	43	5,5
	A2	121	15,6
	B1	211	27,2
	B2	205	26,4
	C1	133	17,1
	C2	63	8,1
	Tot.	**291**	**100,0**

Table 4.7 – DigCompEdu: Facilitating Learners' Digital Competences

Table 4.7 **Facilitating Learners' Digital Competences**		**a. v.**	**%**
Information and media literacy	A1	64	8,2
	A2	136	17,5
	B1	229	29,5
	B2	178	22,9
	C1	114	14,7
	C2	55	7,1
	Tot.	**776**	**100,0**
Digital communication & collaboration	A1	80	10,3
	A2	146	18,8
	B1	214	27,6
	B2	179	23,1
	C1	108	13,9
	C2	49	6,3
	Tot.	**776**	**100,0**

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Digital content creation	A1	131	16,9
	A2	160	20,6
	B1	192	24,7
	B2	158	20,4
	C1	87	11,2
	C2	48	6,2
	Tot.	**776**	**100,0**
Responsible Use	A1	67	8,6
	A2	138	17,8
	B1	216	27,8
	B2	194	25,0
	C1	107	13,8
	C2	54	7,0
	Tot.	**776**	**100,0**
Digital problem solving	A1	148	19,1
	A2	180	23,2
	B1	192	24,7
	B2	148	19,1
	C1	67	8,6
	C2	41	5,3
	Tot.	**776**	**100,0**

Table 4.8 – ICT Training needs

Table 4.8		
Where do you feel that you need further training to be able to use digital technologies effectively in the classroom	**a. v.**	**%**
Basic uses of ICT	83	5,0
Design, planning and classroom delivery	264	15,8
Organization and management of educational spaces and resources	267	16,0
Communication and collaboration	334	20,0
Digital ethics	293	17,5
Professional development	397	23,8

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Table 4.9 – Digital skills qualification

Table 4.9		
Please indicate if you have any digital skills qualifications:	**a. v.**	**%**
ECDL	272	29,9
EIPASS	133	14,6
MICROSOFT MOUS	12	1,3
IC3 Global standard	3	0,3
CISCO	13	1,4
PEKIT	2	0,2
I have no official certification	386	42,4
Other	89	9,8

5. The identikit of the "digital teacher". Personal issues and career profiles

*Table 5.1 - Training attended: * School type*

Table 5.1: Training attended: * School type							
Training attended		**School Type**					**Tot.**
		Early Years (3-5 years)	**Primary School (6-10 years)**	**Secondary School (11-14 years)**	**Secondary School (14-19 years)**	**VET (14-19 years)**	
Formal learning	Count	17	96	84	106	3	306
	% within Training	5,6%	31,4%	27,5%	34,6%	1,0%	100,0%
	% within School Type	37,0%	44,2%	39,1%	36,4%	42,9%	199,5%
	% of the total	2,2%	12,4%	10,8%	13,7%	,4%	39,4%
Non-formal learning	Count	19	94	107	137	1	358
	% within Training	5,3%	26,3%	29,9%	38,3%	,3%	100,0%
	% within School Type	41,3%	43,3%	49,8%	47,1%	14,3%	195,8%
	% of the total	2,4%	12,1%	13,8%	17,7%	,1%	46,1%

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Informal learning	Count	12	46	63	81	3	205
	% within Training	5,9%	22,4%	30,7%	39,5%	1,5%	
	% within School Type	26,1%	21,2%	29,3%	27,8%	42,9%	
	% of the total	1,5%	5,9%	8,1%	10,4%	,4%	26,4%
Frontal training (face to face)	Count	18	75	73	86	4	256
	% within Training	7,0%	29,3%	28,5%	33,6%	1,6%	
	% within School Type	39,1%	34,6%	34,0%	29,6%	57,1%	
	% of the total	2,3%	9,7%	9,4%	11,1%	,5%	33,0%
Mixed training (A mix of face-to-face and online training)	Count	13	129	128	157	4	431
	% within Training	3,0%	29,9%	29,7%	36,4%	,9%	
	% within School Type	28,3%	59,4%	59,5%	54,0%	57,1%	
	% of the total	1,7%	16,6%	16,5%	20,2%	,5%	55,5%
Online training	Count	15	119	108	137	5	384
	% within Training	3,9%	31,0%	28,1%	35,7%	1,3%	
	% within School Type	32,6%	54,8%	50,2%	47,1%	71,4%	
	% of the total	1,9%	15,3%	13,9%	17,7%	,6%	49,5%
	Count	46	217	215	291	7	776
	% of the total	**5,9%**	**28,0%**	**27,7%**	**37,5%**	**,9%**	**100,0%**

*Table 5.2 - Training attended: * Age range*

Table 5.2: Training attended: * Age range							
Training attended		**Age range**					**Tot.**
		25 - 30	**31 - 40**	**41 - 50**	**51 - 60**	**60+**	
Formal learning	Count	15	48	125	97	21	306
	% within Training	4,9%	15,7%	40,8%	31,7%	6,9%	
	% within Age range	46,9%	34,3%	42,4%	37,7%	40,4%	
	% of the total	1,9%	6,2%	16,1%	12,5%	2,7%	39,4%

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Non-formal learning	Count	18	58	141	122	19	358
	% within $Formazione	5,0%	16,2%	39,4%	34,1%	5,3%	
	% within q0003	56,3%	41,4%	47,8%	47,5%	36,5%	
	% of the total	2,3%	7,5%	18,2%	15,7%	2,4%	46,1%
Informal learning	Count	12	36	81	61	15	205
	% within $Formazione	5,9%	17,6%	39,5%	29,8%	7,3%	
	% within q0003	37,5%	25,7%	27,5%	23,7%	28,8%	
	% of the total	1,5%	4,6%	10,4%	7,9%	1,9%	26,4%
Frontal training (face to face)	Count	4	36	107	87	22	256
	% within $Formazione	1,6%	14,1%	41,8%	34,0%	8,6%	
	% within q0003	12,5%	25,7%	36,3%	33,9%	42,3%	
	% of the total	,5%	4,6%	13,8%	11,2%	2,8%	33,0%
Mixed training (A mix of face-to-face and online training)	Count	10	65	173	148	35	431
	% within $Formazione	2,3%	15,1%	40,1%	34,3%	8,1%	
	% within q0003	31,3%	46,4%	58,6%	57,6%	67,3%	
	% of the total	1,3%	8,4%	22,3%	19,1%	4,5%	55,5%
Online training	Count	11	55	151	138	29	384
	% within $Formazione	2,9%	14,3%	39,3%	35,9%	7,6%	
	% within q0003	34,4%	39,3%	51,2%	53,7%	55,8%	
	% of the total	1,4%	7,1%	19,5%	17,8%	3,7%	49,5%
	Count	32	140	295	257	52	776
	% of the total	4,1%	18,0%	38,0%	33,1%	6,7%	100,0%

*Table 5.3 - Training attended: * Sex*

Table 5.3: Training attended: * Sex

Training attended		**Sex**		**Tot:**
		Female	**Male**	
Formal learning	Count	250	56	306
	% within Training	81,7%	18,3%	
	% within Sex	39,9%	37,3%	
	% of the total	32,2%	7,2%	39,4%
Non-formal learning	Count	284	74	358
	% within Training	79,3%	20,7%	

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	% within Sex	45,4%	49,3%	
	% of the total	36,6%	9,5%	46,1%
Informal learning	Count	159	46	205
	% within Training	77,6%	22,4%	
	% within Sex	25,4%	30,7%	
	% of the total	20,5%	5,9%	26,4%
Frontal training (face to face)	Count	205	51	256
	% within Training	80,1%	19,9%	
	% within Sex	32,7%	34,0%	
	% of the total	26,4%	6,6%	33,0%
Mixed training (A mix of face-to-face and online training)	Count	349	82	431
	% within Training	81,0%	19,0%	
	% within Sex	55,8%	54,7%	
	% of the total	45,0%	10,6%	55,5%
Online training	Count	308	76	384
	% within Training	80,2%	19,8%	
	% within Sex	49,2%	50,7%	
	% of the total	39,7%	9,8%	49,5%
	Count	626	150	776
	% of the total	80,7%	19,3%	100,0%

*Table 5.4 - Training attended: * Type of contract*

Table 5.4: Training attended: * Type of contract			
Training attended	**School Type**		**Tot.**
	Permanent contract	**Temporary contract**	

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Formal learning	Count	292	14	306
	% within Training	95,4%	4,6%	
	% within Type of contract	39,5%	38,9%	
	% of the total	37,6%	1,8%	39,4%
Non-formal learning	Count	349	9	358
	% within Training	97,5%	2,5%	
	% within Type of contract	47,2%	25,0%	
	% of the total	45,0%	1,2%	46,1%
Informal learning	Count	197	8	205
	% within Training	96,1%	3,9%	
	% within Type of contract	26,6%	22,2%	
	% of the total	25,4%	1,0%	26,4%
Frontal training (face to face)	Count	247	9	256
	% within Training	96,5%	3,5%	
	% within Type of contract	33,4%	25,0%	
	% of the total	31,8%	1,2%	33,0%
Mixed training (A mix of face-to-face and online training)	Count	413	18	431
	% within Training	95,8%	4,2%	
	% within Type of contract	55,8%	50,0%	
	% of the total	53,2%	2,3%	55,5%
Online training	Count	363	21	384
	% within Training	94,5%	5,5%	
	% within Type of contract	49,1%	58,3%	
	% of the total	46,8%	2,7%	49,5%
	Count	740	36	776
	% of the total	95,4%	4,6%	100,0%

*Table 5.5 - Training attended: * Teaching role*

Table 5.5: Training attended: * Teaching role

Training attended		**Role**			**Tot.**
		Leadership role	**Management role**	**Teaching role**	
Formal learning	Count	66	112	298	306
	% within Training	21,6%	36,6%	97,4%	

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	% within Role	47,1%	44,8%	39,5%	
	% of the total	8,5%	14,4%	38,4%	39,4%
Non-formal learning	Count	80	129	350	358
	% within Training	22,3%	36,0%	97,8%	
	% within Role	57,1%	51,6%	46,4%	
	% of the total	10,3%	16,6%	45,1%	46,1%
Informal learning	Count	38	73	199	205
	% within Training	18,5%	35,6%	97,1%	
	% within Role	27,1%	29,2%	26,4%	
	% of the total	4,9%	9,4%	25,6%	26,4%
Frontal training (face to face)	Count	49	87	247	256
	% within Training	19,1%	34,0%	96,5%	
	% within Role	35,0%	34,8%	32,7%	
	% of the total	6,3%	11,2%	31,8%	33,0%
Mixed training (A mix of face-to-face and online training)	Count	98	159	422	431
	% within Training	22,7%	36,9%	97,9%	
	% within Role	70,0%	63,6%	55,9%	
	% of the total	12,6%	20,5%	54,4%	55,5%
Online training	Count	92	146	375	384
	% within Training	24,0%	38,0%	97,7%	
	% within Role	65,7%	58,4%	49,7%	
	% of the total	11,9%	18,8%	48,3%	49,5%
	Count	140	250	755	776
	% of the total	18,0%	32,2%	97,3%	100,0%

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*Table 5.6 - Training attended: * Frequency of use of digital resources in the classroom for teaching activities *Office and similar package*

Table 5.6: Training attended: * Frequency of use of digital resources in the classroom for teaching activities *Office and similar package						
		Office and similar package for text, numeracy, presentations etc.				Total
		Never	Sometimes	Often	Always	
Formal learning	Count	10	41	134	121	306
	% within $Formazione	3,3%	13,4%	43,8%	39,5%	
	% within q0009_0001	31,3%	36,0%	39,3%	41,9%	
	% of the total	1,3%	5,3%	17,3%	15,6%	39,4%
Non-formal learning	Count	14	40	149	155	358
	% within $Formazione	3,9%	11,2%	41,6%	43,3%	
	% within q0009_0001	43,8%	35,1%	43,7%	53,6%	
	% of the total	1,8%	5,2%	19,2%	20,0%	46,1%
Informal learning	Count	6	34	83	82	205
	% within $Formazione	2,9%	16,6%	40,5%	40,0%	
	% within q0009_0001	18,8%	29,8%	24,3%	28,4%	
	% of the total	,8%	4,4%	10,7%	10,6%	26,4%
Frontal training (face to face)	Count	10	38	112	96	256
	% within $Formazione	3,9%	14,8%	43,8%	37,5%	
	% within q0009_0001	31,3%	33,3%	32,8%	33,2%	
	% of the total	1,3%	4,9%	14,4%	12,4%	33,0%
Mixed training (A mix of face-to-face and online training)	Count	12	52	186	181	431
	% within	2,8%	12,1%	43,2%	42,0%	

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	$Formazione					
	% within q0009_0001	37,5%	45,6%	54,5%	62,6%	
	% of the total	1,5%	6,7%	24,0%	23,3%	55,5%
Online training	Count	9	42	170	163	384
	% within $Formazione	2,3%	10,9%	44,3%	42,4%	
	% within q0009_0001	28,1%	36,8%	49,9%	56,4%	
	% of the total	1,2%	5,4%	21,9%	21,0%	49,5%
	Count	32	114	341	289	776
	% of the total	4,1%	14,7%	43,9%	37,2%	100,0%

Table 5.7 – Training attended: Active methodologies*

Table 5.7: Training attended: * Active methodologies

		Active methodologies (such as Flipped Classroom)			Total
		Not aware of	Aware of	Use	
Formal learning	Count	12	166	128	306
	% within $Formazione	3,9%	54,2%	41,8%	
	% within q0010_0001	25,5%	37,6%	44,6%	
	% of the total	1,5%	21,4%	16,5%	39,4%
Non-formal learning	Count	15	198	145	358
	% within $Formazione	4,2%	55,3%	40,5%	
	% within q0010_0001	31,9%	44,8%	50,5%	
	% of the total	1,9%	25,5%	18,7%	46,1%
Informal learning	Count	9	112	84	205
	% within $Formazione	4,4%	54,6%	41,0%	
	% within q0010_0001	19,1%	25,3%	29,3%	
	% of the total	1,2%	14,4%	10,8%	26,4%

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Frontal training (face to face)	Count	18	155	83	256
	% within $Formazione	7,0%	60,5%	32,4%	
	% within q0010_0001	38,3%	35,1%	28,9%	
	% of the total	2,3%	20,0%	10,7%	33,0%
Mixed training (A mix of face-to-face and online training)	Count	13	230	188	431
	% within $Formazione	3,0%	53,4%	43,6%	
	% within q0010_0001	27,7%	52,0%	65,5%	
	% of the total	1,7%	29,6%	24,2%	55,5%
Online training	Count	18	211	155	384
	% within $Formazione	4,7%	54,9%	40,4%	
	% within q0010_0001	38,3%	47,7%	54,0%	
	% of the total	2,3%	27,2%	20,0%	49,5%
	Count	47	442	287	776
	% of the total	6,1%	57,0%	37,0%	100,0%

*Table 5.8 - Training attended: * Collaborative Learning*

Table 5.8: Training attended: * Collaborative Learning

		Collaborative Learning			Total
		Not aware of	Aware of	Use	
Formal learning	Count	5	54	247	306
	% within $Formazione	1,6%	17,6%	80,7%	
	% within q0010_0002	31,3%	33,8%	41,2%	
	% of the total	,6%	7,0%	31,8%	39,4%
Non-formal learning	Count	2	69	287	358
	% within $Formazione	,6%	19,3%	80,2%	
	% within q0010_0002	12,5%	43,1%	47,8%	

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	% of the total	,3%	8,9%	37,0%	46,1%
Informal learning	Count	6	34	165	205
	% within $Formazione	2,9%	16,6%	80,5%	
	% within q0010_0002	37,5%	21,3%	27,5%	
	% of the total	,8%	4,4%	21,3%	26,4%
Frontal training (face to face)	Count	7	62	187	256
	% within $Formazione	2,7%	24,2%	73,0%	
	% within q0010_0002	43,8%	38,8%	31,2%	
	% of the total	,9%	8,0%	24,1%	33,0%
Mixed training (A mix of face-to-face and online training)	Count	3	72	356	431
	% within $Formazione	,7%	16,7%	82,6%	
	% within q0010_0002	18,8%	45,0%	59,3%	
	% of the total	,4%	9,3%	45,9%	55,5%
Online training	Count	6	63	315	384
	% within $Formazione	1,6%	16,4%	82,0%	
	% within q0010_0002	37,5%	39,4%	52,5%	
	% of the total	,8%	8,1%	40,6%	49,5%
	Count	16	160	600	776
	% of the total	2,1%	20,6%	77,3%	100,0%

*Table 5.9 - Training attended: * Project based learning*

Table 5.9: Training attended: * Project based learning

	Project based learning			Total
	Not aware of	Aware	Use	

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			of		
Formal learning	Count	18	105	183	306
	% within $Formazione	5,9%	34,3%	59,8%	
	% within q0010_0003	27,3%	34,2%	45,4%	
	% of the total	2,3%	13,5%	23,6%	39,4%
Non-formal learning	Count	31	132	195	358
	% within $Formazione	8,7%	36,9%	54,5%	
	% within q0010_0003	47,0%	43,0%	48,4%	
	% of the total	4,0%	17,0%	25,1%	46,1%
Informal learning	Count	13	65	127	205
	% within $Formazione	6,3%	31,7%	62,0%	
	% within q0010_0003	19,7%	21,2%	31,5%	
	% of the total	1,7%	8,4%	16,4%	26,4%
Frontal training (face to face)	Count	31	98	127	256
	% within $Formazione	12,1%	38,3%	49,6%	
	% within q0010_0003	47,0%	31,9%	31,5%	
	% of the total	4,0%	12,6%	16,4%	33,0%
Mixed training (A mix of face-to-face and online training)	Count	23	163	245	431
	% within $Formazione	5,3%	37,8%	56,8%	

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	% within q0010_0003	34,8%	53,1%	60,8%	
	% of the total	3,0%	21,0%	31,6%	55,5%
Online training	Count	22	154	208	384
	% within $Formazione	5,7%	40,1%	54,2%	
	% within q0010_0003	33,3%	50,2%	51,6%	
	% of the total	2,8%	19,8%	26,8%	49,5%
	Count	66	307	403	776
	% of the total	8,5%	39,6%	51,9%	100,0%

*Table 5.10 - Training attended: * Problem based learning **

Table 5.10: Training attended: * Problem based learning

		Problem based learning			Total
		Not aware of	Aware of	Use	
Formal learning	Count	15	104	187	306
	% within $Formazione	4,9%	34,0%	61,1%	
	% within q0010_0004	26,8%	39,7%	40,8%	
	% of the total	1,9%	13,4%	24,1%	39,4%
Non-formal learning	Count	24	118	216	358
	% within $Formazione	6,7%	33,0%	60,3%	
	% within q0010_0004	42,9%	45,0%	47,2%	

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	% of the total	3,1%	15,2%	27,8%	46,1%
Informal learning	Count	13	64	128	205
	% within $Formazione	6,3%	31,2%	62,4%	
	% within q0010_0004	23,2%	24,4%	27,9%	
	% of the total	1,7%	8,2%	16,5%	26,4%
Frontal training (face to face)	Count	28	82	146	256
	% within $Formazione	10,9%	32,0%	57,0%	
	% within q0010_0004	50,0%	31,3%	31,9%	
	% of the total	3,6%	10,6%	18,8%	33,0%
Mixed training (A mix of face-to-face and online training)	Count	20	135	276	431
	% within $Formazione	4,6%	31,3%	64,0%	
	% within q0010_0004	35,7%	51,5%	60,3%	
	% of the total	2,6%	17,4%	35,6%	55,5%
Online training	Count	22	116	246	384
	% within $Formazione	5,7%	30,2%	64,1%	
	% within q0010_0004	39,3%	44,3%	53,7%	
	% of the total	2,8%	14,9%	31,7%	49,5%
	Count	56	262	458	776
	% of the total	7,2%	33,8%	59,0%	100,0%

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*Table 5.11 - Training attended: * Case based learning*

Table 5.11: Training attended: * Case based learning					
		Case based learning			Total
		Not aware of	Aware of	Use	
Formal learning	Count	51	162	93	306
	% within $Formazione	16,7%	52,9%	30,4%	
	% within q0010_0005	29,5%	40,8%	45,1%	
	% of the total	6,6%	20,9%	12,0%	39,4%
Non-formal learning	Count	79	185	94	358
	% within $Formazione	22,1%	51,7%	26,3%	
	% within q0010_0005	45,7%	46,6%	45,6%	
	% of the total	10,2%	23,8%	12,1%	46,1%
Informal learning	Count	46	93	66	205
	% within $Formazione	22,4%	45,4%	32,2%	
	% within q0010_0005	26,6%	23,4%	32,0%	
	% of the total	5,9%	12,0%	8,5%	26,4%
Frontal training (face to face)	Count	61	124	71	256
	% within $Formazione	23,8%	48,4%	27,7%	
	% within q0010_0005	35,3%	31,2%	34,5%	

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	% of the total	7,9%	16,0%	9,1%	33,0%
Mixed training (A mix of face-to-face and online training)	Count	81	216	134	431
	% within $Formazione	18,8%	50,1%	31,1%	
	% within q0010_0005	46,8%	54,4%	65,0%	
	% of the total	10,4%	27,8%	17,3%	55,5%
Online training	Count	66	199	119	384
	% within $Formazione	17,2%	51,8%	31,0%	
	% within q0010_0005	38,2%	50,1%	57,8%	
	% of the total	8,5%	25,6%	15,3%	49,5%
	Count	173	397	206	776
	% of the total	22,3%	51,2%	26,5%	100,0%

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