



# **Boosting digital skills for education**

## *A “cookbook” style training manual*

**This document represents the Intellectual Output of the ERASMUS+ project  
“Think Global, Act Digital - Strong partnerships to support digital education”**

Intellectual output responsible:

ALUMNI Asociation of Petru Maior University, Targu Mures, Romania

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## Introduction

This document is a training manual aimed to boost digital skills of educational institutions members and represents an Intellectual output developed within the context of the ERASMUS+ project entitled: “*Think Global, Act Digital - Strong partnerships to support digital education*”. The aim of the project is to improve access to high quality inclusive education through increased ICT competences among 130 teachers and 30 learners, development of innovative digital learning resources and extended adoption of open pedagogies and collaborative learning in education in 6 countries.

By following this document, participants will be able to increase the efficient use of collaborative learning tools in their schools and create more interactive and inspired educational content based on attractive ICT, e-tools and open pedagogy approaches.

The training manual will be a text file with self-assessment section for participants, external links to official website of E-learning platforms and available tools for digital content development. The manual will have a friendly and attractive “cookbook style” interface with short demo tutorials integrated in its final version.

Before we pass to next chapter, we must understand what an E-learning Platform is. *An E-learning platform is a system which provides integrated support for the six activities—creation, organization, delivery, communication, collaboration, and assessment—in an educational context*<sup>1</sup>. The author explained in detail these six main functions:

1. **Creation** refers to the production of learning and teaching materials by instructors;
2. **Organization** refers to the arrangement of the materials for educational purposes (e.g. combining them into modules or courses);
3. **Delivery** refers to the publication and presentation of the materials, so that they can be accessed by students;
4. **Communication** refers to the computer-mediated communication between students and instructors and among students;
5. **Collaboration** refers to students jointly working on files or projects; it also includes collaboration between instructors;
6. **Assessment** refers to the formative and summative evaluation of learning progress and outcomes, including feedback.

In other words, an E-learning platform can offer live interaction between trainers and learners, cloud storage for E-learning content management as well as students’ assessment and evaluation.

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<sup>1</sup> Yefim Kats, *Learning Management System Technologies and Software Solutions for Online Teaching: Tools and Applications* (Information Science Reference, 2010) <<https://doi.org/10.4018/978-1-61520-853-1>>.



## Digital Competencies for E-learning

For successful implementation of E-learning solution, the management of education institutions must identify the actors involved and the key competences needed for using the solution. Knowing the users and offering them opportunities to improve their digital skills is crucial in this context.<sup>2</sup> Digital readiness of education institutions actors is influenced by more other factors as field of study, level of education and ICT infrastructure accessibility.

In the E-learning activities, digital skills of actors could be divided in four main dimensions: communication, technological, informational, and computational skills. These dimensions were developed by the project team based on other research papers regarding this research topic<sup>3</sup>. Many other key questions were addressed in the survey to identify the ICT infrastructure of the organization, the strategy and leadership of the institutions and some control questions to see the situation before and after pandemic.<sup>4</sup> The aim of this dimensions is to identify the possibilities of educational institutions members to develop digital content, to interact live using video conferencing and manage learning content. But, the dimensions mentioned above could not describe the entire “universe” of E-learning. In this context, the project team presents in the figure 1 below the map of Digital Skills needed for Online Education. In other words, the project team assumes that the path to a truly online education consist of teachers/students journey through all the “stations” illustrated in the figure 1. As in real life, our home (existing digital skills and tools) could be closer or further to our “city center” (digital skills and tools needed for E-learning). As further we are from the “city center” (skills needed for E-learning), as many buses or metro lines we must change to get to our goal.

We can observe that digital skills of actors involved in E-learning could be very numerous, unique from each other and could be attached to specific tool. Project team’s goal is to detect the tools used for E-learning by participants in their own schools, the key competences involved and try then to boost personal competences of the participants and promote efficient usage of these tools.

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<sup>2</sup> Liviu Ciucan-Rusu and others, ‘A Study About the Digital Readiness of Actors During E-Learning System Implementation’, *LUMEN Proceedings*, 14 (2020), 426–35.

<sup>3</sup> Todd J.B. Blayone and others, ‘Profiling the Digital Readiness of Higher Education Students for Transformative Online Learning in the Post-Soviet Nations of Georgia and Ukraine’, *International Journal of Educational Technology in Higher Education*, 15.1 (2018).

<sup>4</sup> Francisco José García-Peñalvo, ‘Avoiding the Dark Side of Digital Transformation in Teaching. an Institutional Reference Framework for ELearning in Higher Education’, *Sustainability (Switzerland)*, 13.4 (2021), 1–17; Kim Bryceson, ‘The Online Learning Environment-A New Model Using Social Constructivism and the Concept of “Ba” as a Theoretical Framework’, *Learning Environments Research*, 10.3 (2007), 189–206; Arnab Kundu and Tripti Bej, ‘COVID-19 Response: Students’ Readiness for Shifting Classes Online’, *Corporate Governance (Bingley)*, October 2020, 2021; Ylber Limani and others, ‘Digital Transformation Readiness in Higher Education Institutions (Hei):The Case of Kosovo’, *IFAC-PapersOnLine*, 52.25 (2019), 52–57.

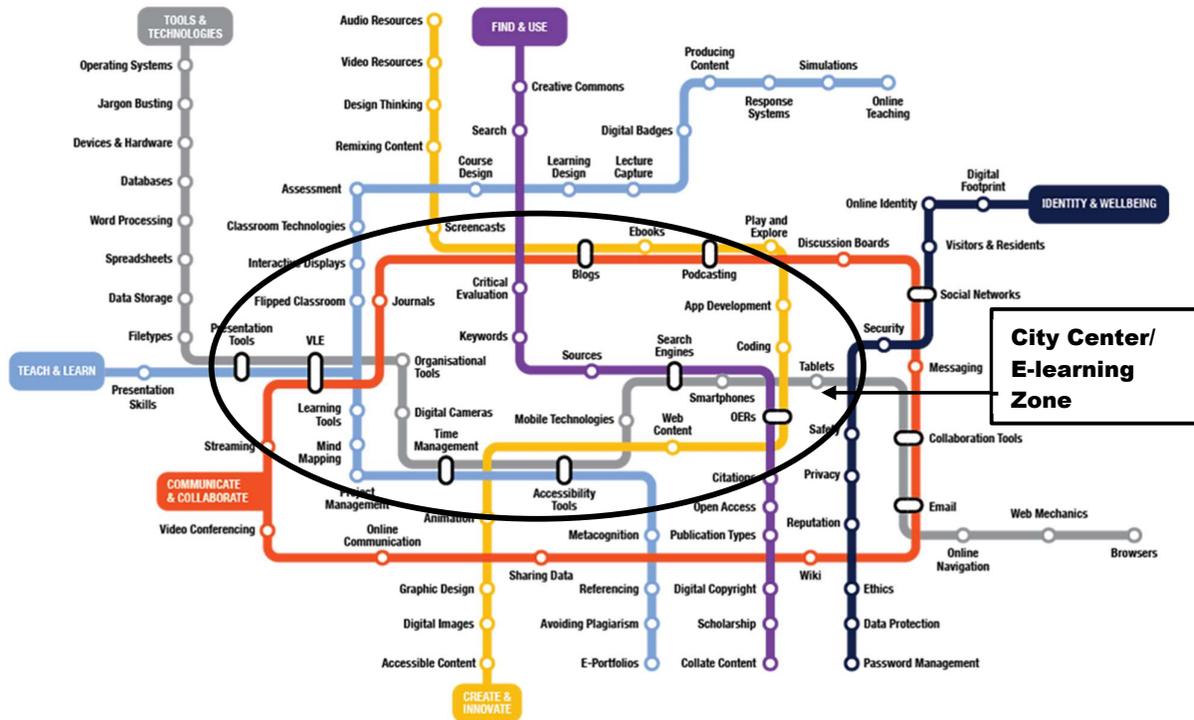


Figure 1. Paths to achieve Digital Skills in Online Education

Source: Authors projection based on <https://www.allboardhe.ie/map/>

Based on the previous experiences of the project team, we assume that each participant of this training can have a different competences background, and the starting “station” could not be the same for everybody. Therefore, participants can get their own profile and help him to take most efficient route to gain new digital skills needed for E-learning. In this context we confirm the need of self-assessment surveys which can be taken by every participant. More details regarding self-assessment survey could be found in a dedicated section below.

## Digital Maturity Report

In the following paragraphs we will present the main findings of the digital maturity survey and what are the pillars /dimensions which needs to be improved. We start with the overall view regarding communication skills, technological skills, informational skills, and computational skills. All these together represent the digital maturity index which is also presented in the figure 2 below. As we see, the line with values between 10 and 20 represents the digital maturity index and is calculated as a sum of four dimension of digital skills (communicational, computational, informational, and technological). The leaders are Netherlands and Spain with scores of 16,1 and 15,3 points. Regarding the specific dimension which composes the digital index, we can see that the most developed are communicational and informational skills, but in the case of technological and computational skills we acknowledge the

lack of expertise. In conclusion, the trainings during the project implementation will be focused on these two dimensions (technological and computational), in other words, the main part of the training will be focused on improving digital content development skills. We intent to obtain that everybody can develop by themselves digital content for education and can use it efficiently.

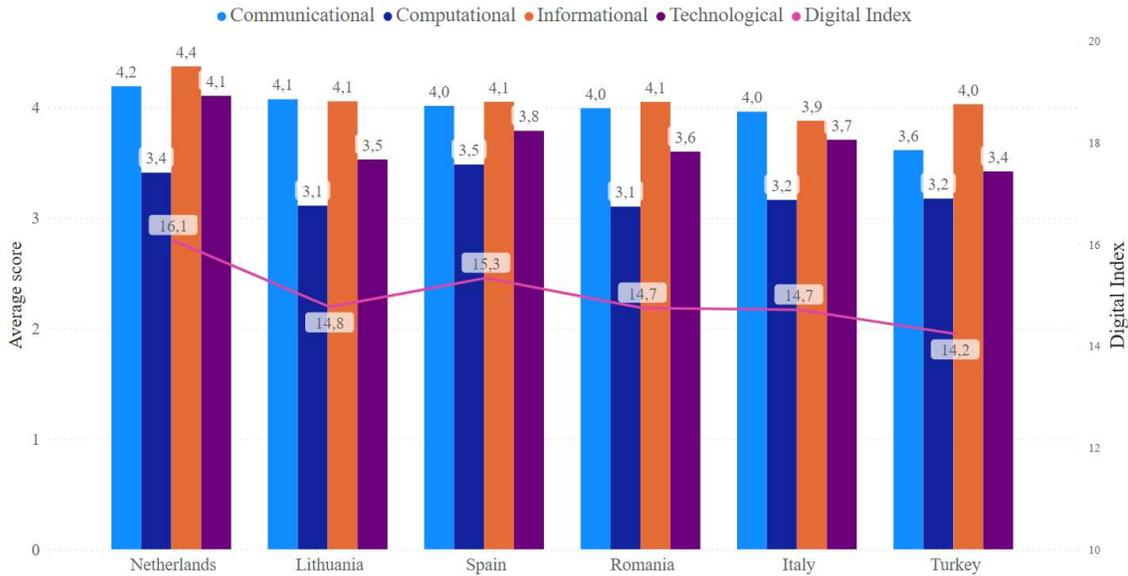


Figure 2. Digital maturity index within the four main dimensions

To deliver a customized trainings we need to identify first the tools educational institutions implemented and which are used by educational staff and students. In this context, we identified the most popular E-learning platforms used in project members’ schools. As we can see in the figure 3 below, the most used platform solutions when it comes to E-learning are Microsoft Teams, Google Classroom and Moodle. The reason behind this is that all of them are open-source platforms, therefore no costs are involved in using them and these platforms also offer a very intuitive User Interface which makes them easy to use, even for the first timers. Another reason is that these platforms offer a complete interactive experience for the users, as long as they give permissions to access their camera and microphone.

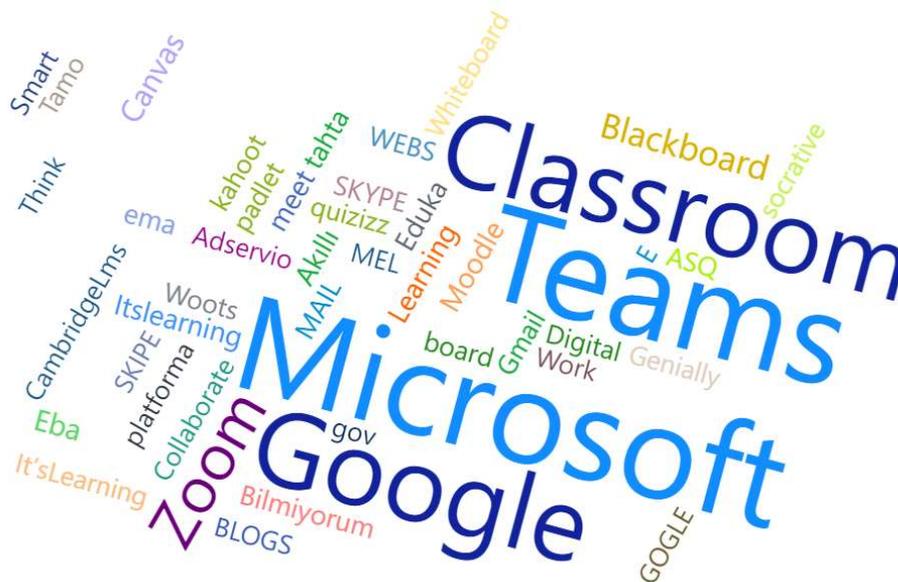


Figure 3. The most used platforms for E-learning from target group’s perspective

The next sections of this training book will focus on the most used E-learning platforms and will include official video tutorials. To make the training manual more interactive, and deliver a more customized training, we included a self-assessment function for those who want to know their digital maturity index for E-learning.

### Evaluation questionnaire – Self Assessment

In this section, participants can access their digital maturity index for E-learning by taking the survey. The survey purpose is to identify the learning path evolution of participants and give a free personal skills evaluation for participants in order to detect the personalized needs of improvement. In the picture below you can find an example of Digital Maturity assessment for E-learning.

Dear respondent,  
 Thank you for taking our training program for boosting digital competences of education.  
 The table below include your digital maturity level.

Age	Gender	Communication	Technological	Informational Skills	Computational Skills	Digital Maturity Index	Institutional Infrastructure
15-20	Male	4.6	4.5	5	4	18.1	4.75

Digital Maturity Score	Meaning
4-9	Low Level
9-15	Medium Level
15-20	High Level

The main dimensions which project teams took in account in the context of self-assessment survey are similar with those of the Digital Maturity Survey described in previous section. Each participant can take the survey and identify the most vulnerable category of skills: in other words, participants will have opportunity to focus their learning path to specific category of skills. The Digital Maturity index is calculated as sum of all 4 dimensions (skills’ category): communicational, technological, informational, and computational. This index can have value starting from minimum 4 and maximum 20 points. For



what concerns institutional infrastructure, this is the average points of key questions of the survey regarding institutional available infrastructure and practiced strategies for implementing new solutions.

The self-assessment survey can be taken by scanning the following QR Code or by accessing the link below:



<https://forms.office.com/r/nj30J1HGj3>

All personal contact information collected will be used exclusively for sending the results to participants and will not be shared with other parties outside the project consortium.

### Ethics and online behavior

During online meetings, participants' behavior is a key element for a successful interaction and collaboration. In this context, several rules must be applied<sup>5</sup>:

- Before Meetings
  - HARDWARE - Test your hardware (Microphone, Camera, and Headsets)
  - BACKGROUND – Check the background and clear the space of any disorder or distractions. You also want to make sure you are not positioned in front of a window as this can cause you to appear like a shadow. Keep your background simple.
  - NOISE – Is there background noise that could prevent participants from hearing clearly? It is recommended to conduct the webinar in an office or quiet room. Shut the door and hang a sign stating you are in a virtual meeting asking people not to enter or knock on the door. Keeping your mic muted when you are not talking can help cut down on excess noise.
  - LIGHTING – Double check the lighting when you launch the meeting, and the video has started. Make sure more light is on your face than coming from behind you. You might also need to adjust where you are sitting so the light is not right above your head and within the camera frame.
  - FRAMING – As an additional consideration, be aware of your distance from the camera (not too close, not too far). You want to try and have the camera at eye level.

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<sup>5</sup> <https://whiztal.io/meeting-etiquette/>



## Training Manual

ERASMUS+ n. 2020-1-RO01-KA226-SCH-095538

- BE APPROPRIATELY DRESSED - Working from online does not necessarily mean you have to dress like you are going out to the office/meeting, but make sure to be in professional attire in meetings depending upon the roles.
- ARRIVE EARLY - By arriving early, you can troubleshoot any problems with the meeting tool like testing the video, audio, and background. You can even check your presentation before sharing it to make sure there aren't any glitches and errors.
- During Meeting
  - MUTE BY DEFAULT - This will give you time to look at your surroundings and analyze for unwanted sounds and visuals. Unmute audio only when it is your turn to speak or when required.
  - STOP MULTITASKING - Multitasking can't be coupled with everything. It is very essential to understand when to indulge in multitasking and when not to.
  - MINIMIZE BODY MOVEMENTS - Avoid quick movements. It makes it difficult for webcams to capture sudden and quick movements. Quick movements may appear blurry or choppy to others on the same call. Maintain eye contact with the camera and try to be more engaging in the meeting.

## E-learning platforms

### Microsoft TEAMS and Microsoft 365 environment

#### Description

Microsoft Teams<sup>6</sup> is a hub for collaboration between teams inside the Microsoft 365 environment. Its main objective is to integrate users and their content with the help of the tools in order for the team to be more engaged and effective. Above all, Teams provides a platform for a better communication, collaboration and a better work management within the organization.

**Please access the Interactive content for a General overview of Microsoft Teams following the [LINK BUTTON](#) or copy the address in your browser:**

**<https://cortexonemsedu.blob.core.windows.net/staticcontent/teams-demo/index.html#/1/0>**

#### Advantages and tools available

Teams<sup>7</sup> facilitates communications and collaboration by bringing chat, calling, meeting, collaboration, and application integration into a single experience. Users can share files and data,

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<sup>6</sup> [What is Microsoft Teams? - Learn | Microsoft Docs](#)

<sup>7</sup> [Explore capabilities in Microsoft Teams - Learn | Microsoft Docs](#)



manage tasks, and collaborate on documents with people inside and outside their organization. Teams can simplify the work by integrating with other apps and processes.

The concept behind the Microsoft Teams<sup>8</sup> platform is that of a modern, digital workspace which allows users to:

- store and access files;
- meet;
- have conversations;
- use apps that help them in getting things done.

Here, users can create **teams** to bring groups of people together around projects, topics, or other collaboration needs. Within those teams, channels can be set up, each of them dedicated to a specific topic, department, or project.

**Chat** in Microsoft Teams is a feature that allows users to have private one-on-one or group conversations, customize their messages with rich text editing, tag people to call their attention, use their favorite apps in chats and customize notifications in order to keep up with important conversations.

Through chat, users can send messages that include:

- files;
- links;
- emojis;
- stickers;
- GIF files.

There are a few different ways to chat<sup>9</sup> with people in Teams:

1. Private chat
  - enables quick chats with a specific person or a group of people;
  - reduces email clutter;
  - makes sharing pictures and documents easier.

Users can start one-on-one or group chats by selecting Chat icon in Teams.

- One-on-one chats: chats with one other person.
- Group chats: chats with a few people at once, but outside of a channel.

2. Channel messages

Channel conversations are public and visible to the members of the channels.

Users can start conversations and make announcements in one or multiple channels simultaneously by selecting “new conversation” in the Posts tab of channels.

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<sup>8</sup> [How to collaborate with Microsoft Teams - Learn | Microsoft Docs](#)

<sup>9</sup> [Explore capabilities in Microsoft Teams - Learn | Microsoft Docs](#)



**Channels** are where:

- team conversations take place;
- files are stored;
- meetings can take place.

Microsoft Teams is flexible, allowing users to set up teams and channels that reflect the culture and needs of each team or organization. Within channels, users can:

- have conversations visible to the members of the channel, by starting and engaging with posts and announcements in the channel;
- share files that are relevant to the conversation as attachments, or upload them directly to the channel for an easy access.

**Outlook** can be used with Teams when needed, allowing users to share conversations from Teams to Outlook, as well as emails to different channels to discuss within Teams. Users can also quickly access files and collaborate within apps like Microsoft Word, Excel, and PowerPoint right within the context of their channels and conversations in Teams.

- **Share to Outlook:** Users can share chats or channel conversations to Outlook without leaving Teams by selecting on the "Share to Outlook" in more options icon in a conversation ("...");
- **Share to Teams:** Users can move an email conversation from Outlook, including attachments, into a Teams chat or channel conversation by selecting on the "Share to Teams" in Outlook;
- **Actionable missed activity emails:** Users can set the notification for missed activity emails to stay on top of missed conversation in Teams. The missed activity emails show the latest replies from the conversation, and allow users to respond directly from within Outlook.

**Online meetings** in Teams, facilitates the hosting of audio and video conference calls from any device, as well as live events with up to 10,000 people, with the ability to share content and collaborate easily during the meeting through meeting chats. Anyone is able to join easily using a link to the meeting.

#### **Official link to the platform**

One of the main advantages using Teams<sup>10</sup> is that it allows users to communicate and collaborate whether they are in their workspace or not, by using the desktop version in conjunction

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<sup>10</sup> [What is Microsoft Teams? - Learn | Microsoft Docs](#)



with the mobile app version, which can be downloaded from the following link: [Download desktop and mobile app](#)<sup>11</sup>.

Microsoft Teams can be used also as a web version by visiting the following website: [Microsoft Teams Web Version](#)<sup>12</sup>.

### Links to official training materials

✓ Introduction to Microsoft Teams:	<a href="https://web.microsoftstream.com/video/0c8fd9ee-1f3e-40da-84dc-5c029047cee5">https://web.microsoftstream.com/video/0c8fd9ee-1f3e-40da-84dc-5c029047cee5</a>
✓ How to create a Class Team	<a href="https://web.microsoftstream.com/video/c629fc49-bd8b-44a7-a659-143110944232">https://web.microsoftstream.com/video/c629fc49-bd8b-44a7-a659-143110944232</a>
✓ How to schedule an Online Class Lecture	<a href="https://web.microsoftstream.com/video/0217d4d7-f805-46eb-8ca4-88b2f116fb0f">https://web.microsoftstream.com/video/0217d4d7-f805-46eb-8ca4-88b2f116fb0f</a>
✓ How to join Online Class Lecture in Microsoft Teams	<a href="https://web.microsoftstream.com/video/c34b9cfd-1d50-44a7-b7f8-eb3f49f34781">https://web.microsoftstream.com/video/c34b9cfd-1d50-44a7-b7f8-eb3f49f34781</a>
✓ How to share my Desktop during the Online Class Lecture	<a href="https://web.microsoftstream.com/video/4b29f57c-9b2b-421e-ad10-4c400b201869">https://web.microsoftstream.com/video/4b29f57c-9b2b-421e-ad10-4c400b201869</a>
✓ How to use Whiteboard	<a href="https://web.microsoftstream.com/video/664ba9e3-2d86-4d61-8dc0-d825cd52a254">https://web.microsoftstream.com/video/664ba9e3-2d86-4d61-8dc0-d825cd52a254</a>
✓ How to create a quizz in MS forms	<a href="https://web.microsoftstream.com/video/7e8dae74-86a6-49b1-a6cb-9e5662a98a67">https://web.microsoftstream.com/video/7e8dae74-86a6-49b1-a6cb-9e5662a98a67</a>
✓ How to create assignment	<a href="https://web.microsoftstream.com/video/e1671c71-ea11-4ac4-8247-f0bd4fbdbe8a">https://web.microsoftstream.com/video/e1671c71-ea11-4ac4-8247-f0bd4fbdbe8a</a>
✓ How to create an assignment as a quizz in Microsoft Teams	<a href="https://web.microsoftstream.com/video/b653ead0-3e63-4018-ba7f-d167f87151ab">https://web.microsoftstream.com/video/b653ead0-3e63-4018-ba7f-d167f87151ab</a>

### Test your skills:

1. Create a Class Team;
2. Add members to the Class Team;
3. Create a post inside the Class Team;
4. Schedule an Online Class Lecture;
5. Share your Desktop during the Online Class Lecture;
6. Create an assignment;
7. Grade the assignment.

<sup>11</sup> <https://www.microsoft.com/microsoft-teams/download-app>

<sup>12</sup> <https://teams.microsoft.com/>



Google Classroom

Description

Google Classroom is a free tool within Google Workspace for Education, a set of products including:

- Gmail;
Calendar;
Docs;
Drive;
Slides and more.

With Classroom, educators can:

- distribute and collect assignments;
give personalized feedback and grades;
see students' work in one place.

Schools use Classroom to make teaching more productive and meaningful by:

- streamlining assignments;
boosting collaboration, and fostering communication.

Advantages and tools available

According to Classroom Help13 here is a list of things users can do with the help of Google Classroom:

Table with 2 columns: USER and ACTIVITY. Row 1: Teachers | Start a video meeting; Create and manage classes, assignments, and grades online; Add materials to the assignments, such as YouTube videos, a Google Forms survey, and other items from Google Drive.; Give direct, real-time feedback; Use the class stream to post announcements and engage students in question-driven discussions;

13 About Classroom - Classroom Help (google.com)



	<ul style="list-style-type: none"> <li>• Invite parents and guardians to sign up for email summaries with a student's upcoming or missing work.</li> </ul>
Students	<ul style="list-style-type: none"> <li>• Track classwork and submit assignments;</li> <li>• Check originality, feedback, and grades;</li> <li>• Share resources and interact in the class stream or by email.</li> </ul>
Guardians	<ul style="list-style-type: none"> <li>• Get an email summary of the student's work;</li> <li>• Review announcements and activities.</li> </ul>
Administrators	<ul style="list-style-type: none"> <li>• Protect data and set permissions for the users;</li> <li>• Set up classes and rosters;</li> <li>• Add or remove students and teachers from classes;</li> <li>• Get 24/7 support.</li> </ul>

**Official link to training materials**

Introduction to Google Classroom	<a href="https://youtu.be/UEFgW--0094">https://youtu.be/UEFgW--0094</a>
How to use originality reports in Google Classroom and Assignments	<a href="https://youtu.be/lw0T0uotAE8">https://youtu.be/lw0T0uotAE8</a>
How to Create a New Class in Google Classroom	<a href="https://youtu.be/xUF9c5sk4YY">https://youtu.be/xUF9c5sk4YY</a>
How to Create an Assignment and Add a Topic in Google Classroom	<a href="https://youtu.be/o3gHDxFxfx4">https://youtu.be/o3gHDxFxfx4</a>
How to Add Students and Guardians in Classroom	<a href="https://youtu.be/OrDvdNnKgTI">https://youtu.be/OrDvdNnKgTI</a>
How to Create a Quiz from Classroom	<a href="https://youtu.be/l-GgDeAaZow">https://youtu.be/l-GgDeAaZow</a>
How to Use the Grading Tool in Classroom	<a href="https://youtu.be/YX4HxzB1xIQ">https://youtu.be/YX4HxzB1xIQ</a>
How to Use the Stream Page	<a href="https://youtu.be/tomD7kCjf6E">https://youtu.be/tomD7kCjf6E</a>
How to Add Materials	<a href="https://youtu.be/tLxn3BMmBKs">https://youtu.be/tLxn3BMmBKs</a>
How to Create Different Assignments in Classroom	<a href="https://youtu.be/ZSs0P_TpVcA">https://youtu.be/ZSs0P_TpVcA</a>
How to Copy a Course	<a href="https://youtu.be/Oaa116XTLDA">https://youtu.be/Oaa116XTLDA</a>

**Official link to the platform**

Depending on your learning setting, you can sign in to Classroom with one of the following accounts:

- School account;
- Personal Google Account;
- Google Workspace account.



Google Classroom can be used both on PCs and on mobile devices as well.

In order to use it on a PC, users must follow the steps :

1. Go to [Classroom | Google for Education](#) and click “Go to Classroom”;
2. Enter the email address for your Classroom account and click “Next”;
3. Enter your password and click “Next”;
4. If there is a welcome message, review it and click “Accept”;
5. If you're using an Google Workspace for Education account, click “I’m A Student” or “I’m A Teacher”;
6. Click “Get Started”.

For the mobile version, users need to open [Google Classroom – Apps on Google Play](#) and install the app.

**Test your skills:**

1. Create a New Class;
2. Add Students and Guardians to the Class;
3. Add Materials to the Class;
4. Create a new Assignment;
5. Add a Topic to the Assignment;
6. Grade the students using the Grading Tool;
7. Create a quiz.

## Moodle

Moodle is one of the most widespread LMS platforms in the world, being the choice of a large number of universities and schools. Its structure is based on the constructivist approach to learning.

Although Moodle may seem complicated at first glance, it is considered an optimal LMS for collaborative learning models. The educational process can be carried out with Moodle's own activities such as wikis, glossaries, workshops, progress tracking, custom dashboards, calendars, etc.

Considered at this time as an e-learning platform on several directions with clear distinctions such as the following:

1. The pre-university environment, with some main characteristics as below:
  - Posts of lessons, bibliography, themes;
  - Evaluation and self-evaluation of knowledge;
  - Creation of virtual learning environments between several organizations (I.e. between different schools);
  - Organization of competitions;
  - Preparation for various competitions;
  - Communication and socialization.



2. University environment:

- Posting courses, laboratories, homework, exams;
- Posting schedules, bibliography, virtual secretariat;
- Evaluation and self-evaluation of knowledge;
- Online courses and seminars;
- Project development;
- Communication and socialization.

3. Administrative environment:

- Preparation of training and professional training elements within the organization;
- Online seminars;
- Internal training and specific professional training;
- Project development;

Below all these facilities can be seen as:

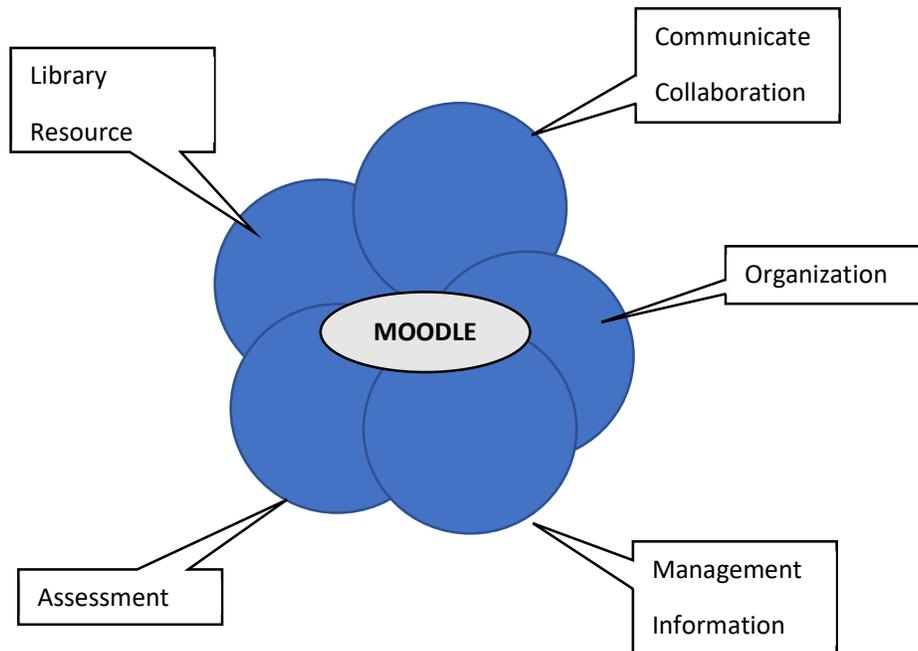


Figure 4. MOODLE facilities

Communication and collaboration is extremely effective in this case, using forum templates or interactive chat, the use of general announcements or questions of common interest. The collaboration offers the possibility to work in groups with the help of the tools provided (editing documents in groups, testing different ideas or approaches, or organizing debates).



Organization includes capabilities to reserve classrooms, schedule meetings, set schedule schedules, or schedules for activities.

Information management offers the possibility of storing and accessing specific information that is located in a single point of access, the information being of the form of absences, notes, library / books, resources used by different forms, etc.

Evaluation in this case is a suite of different assessment tools that help to build quantitative and qualitative assessment methods that are more evolved and closer to needs. Here we can also mention the way to observe the average level of knowledge and the involvement of learners.

In the case of the resource library, we can remember how students can exchange resources between themselves independently and/or helped by the teacher, integrating teaching materials and courses.

Being supported by the OpenSource community, Moodle presents a wide variety of additional elements that can also be added and used without any restriction on the part of those who have developed these tools.

**Official link to training materials**

Finding your way around	<a href="https://youtu.be/p2TzL09NbdQ">https://youtu.be/p2TzL09NbdQ</a>
What is a course in Moodle?	<a href="https://youtu.be/ZsNK44EqRkg">https://youtu.be/ZsNK44EqRkg</a>
Dashboard	<a href="https://youtu.be/zHQNLf9ZgL8">https://youtu.be/zHQNLf9ZgL8</a>
How to lay out a course	<a href="https://youtu.be/y12xYdGOq0s">https://youtu.be/y12xYdGOq0s</a>
Edit course sections	<a href="https://youtu.be/FIUhzBR2C9I">https://youtu.be/FIUhzBR2C9I</a>
Add and Edit text in Moodle	<a href="https://youtu.be/nK62ihGcl3M">https://youtu.be/nK62ihGcl3M</a>
Quiz	<a href="https://youtu.be/Gi9qX-5GbwY">https://youtu.be/Gi9qX-5GbwY</a>
Gradebook	<a href="https://youtu.be/AeSpzWyYDSs">https://youtu.be/AeSpzWyYDSs</a>
Enrolling Learners	<a href="https://youtu.be/hTx9ZM7X7yl">https://youtu.be/hTx9ZM7X7yl</a>
Uploading files into Moodle	<a href="https://youtu.be/fcikQXrfNrM">https://youtu.be/fcikQXrfNrM</a>
Assignment	<a href="https://youtu.be/S4VqOEAsijk">https://youtu.be/S4VqOEAsijk</a>

**Official link to the platform**

PC	<a href="#">Moodle downloads</a>
mobile	<a href="#">Moodle - Apps on Google Play</a>

**Test your skills:**

1. Create a new course;
2. Add topics to the course;
3. Upload files to the course;
4. Enroll learners in the course;
5. Create a new quiz;
6. Grade students.



## OpenOLAT

OpenOLAT is a web-based e-learning platform for online teaching and learning. Compared to other LMS platforms, OpenOLAT impresses with its simple and intuitive operation and interface.

The built-in modular toolkit offers course authors a wide range of teaching possibilities. Each installed instance of OpenOLAT can be significantly expanded, adapting to the needs of the educational institution. Integration into existing IT infrastructures is also possible.

OpenOlat is not a content management system (a CMS system as some systems are called), it emphasizes supporting the process of creating learning material. Additional tools specialized in content management should be used to create and edit learning content, the import in this case being carried out with the help of standardized interfaces. In this way for creating simple pages there are dedicated tools (own HTML editor).

It contains some elements typical of learning management systems:

1. Creating and managing learning content using integrated editors;
2. Course tools;
3. Personal learning environment (learning, assessment, evidence of the personal notes);
4. Working in groups using facilities associated with related groups;
5. Course catalogs;
6. Journaled structures of the working documents;
7. Evaluations and self-tests;
8. Editor HTML;
  - a. Integration with existing systems (at the organizational level users are managed through different mechanisms);

As mentioned above, the central element in this case is the course and the learning resource. Both the course in our case and the learning resources are separated into access areas for authors/teachers and for learners involved in the educational activity. Users with associated roles by authors or teachers can create and manage courses and learning resources in the platform's native environment. Learning resources can be created or imported and integrated into multiple educational materials by creating references without the need to multiply them as content on the platform.

Tests and assessments are used to prepare learners for assessments. These tests can be created and managed in the created environment or directly in the course editor, and can be imported or created using an included text editor (built-in QTI editor). Assessment tools and their management is enhanced with known or controlled on-site access procedures and can be complemented with kiosk accesses by adding connections from unsafe equipment.

The teacher's own editing environment for both courses and/or educational resources and elements of the course are combined in progress allowing for much easier management, their instantiation for



each target group is one of the biggest advantages. Sharing between the different instances is done at the level of the link and for the use of as little space as possible in the library are used archives which in turn are versionalized. Some of the facilities in this case are: the use of predefined templates, specified layout including for previewing, QTI standard support, IMS Content Packaging, SCORM, versioning and metadata, WYSIWYG editor for import, import and video and audio files. The integrated editor presents the facilities for preparing content and testing it and can create content packages in IMS and test formats in QTI format.

**Official link to training materials**

How to Login	<a href="https://youtu.be/Sy5cXJL7K90">https://youtu.be/Sy5cXJL7K90</a>
How to Navigate	<a href="https://youtu.be/kxfVVbfDXMw">https://youtu.be/kxfVVbfDXMw</a>
Dashboard	<a href="https://youtu.be/WbD6ZSgZ02Y">https://youtu.be/WbD6ZSgZ02Y</a>
Main Menu	<a href="https://youtu.be/VxK1EKV7_rc">https://youtu.be/VxK1EKV7_rc</a>
Create and edit tests	<a href="https://youtu.be/eNNdDdQDifs">https://youtu.be/eNNdDdQDifs</a>
Correct and evaluate tests	<a href="https://youtu.be/dNu88gPaq2w">https://youtu.be/dNu88gPaq2w</a>
Share test results	<a href="https://youtu.be/G5rWpmuQ7cU">https://youtu.be/G5rWpmuQ7cU</a>
View test results	<a href="https://youtu.be/6xh4cXqR_7E">https://youtu.be/6xh4cXqR_7E</a>

**Official link to the platform**

[GitHub - OpenOLAT/OpenOLAT: Learning Management System OpenOlat](#)

**Test your skills:**

1. Create and edit a test;
2. Correct and evaluate a test;
3. View test results;
4. Share test results.

## Chamilo – eLearning, and Collaboration Software

Chamilo is a free software, providing a platform for e-learning and collaboration. It is what is often inferred as a learning management system (usually abbreviated to "LMS") - a popular term to describe any type of software platform designed to facilitate the management and delivery of courses and monitor student progress. Fundamentally, an e-learning platform provides you with the means to store and organize your educational materials online and share them with your students. But this is just the "tip of the iceberg" in terms of what you can achieve with an LMS like Chamilo. It can save time by taking on a range of repetitive administrative tasks, allowing you to focus on supporting learners. It can be used to create many types of teaching materials. More importantly, it can provide learners with a range of motivational tools to support effective independent study at their own pace, as well as a means to interact more fully with their teachers and peers.



This product appears after 2010 using web technologies just like other software products mentioned (PHP and Javascript environment), similar to Moodle but with fewer facilities. The open-source community that maintains the product is not at the "height" of the Moodle community but manages to bring the basics (chat, group work elements and messaging tools) in a more efficient and simpler way than Moodle, a much easier-to-use user interface and by default the user experience is much more intuitive.

Connectivity with other CMS elements/platforms is achieved for the following products:

1. Drupal;
2. Joomla;
3. PrestaShop;
4. Open ERP.

The elements of the administrative environment associated with academia are much more pronounced than in other platforms and can be illustrated as follows:

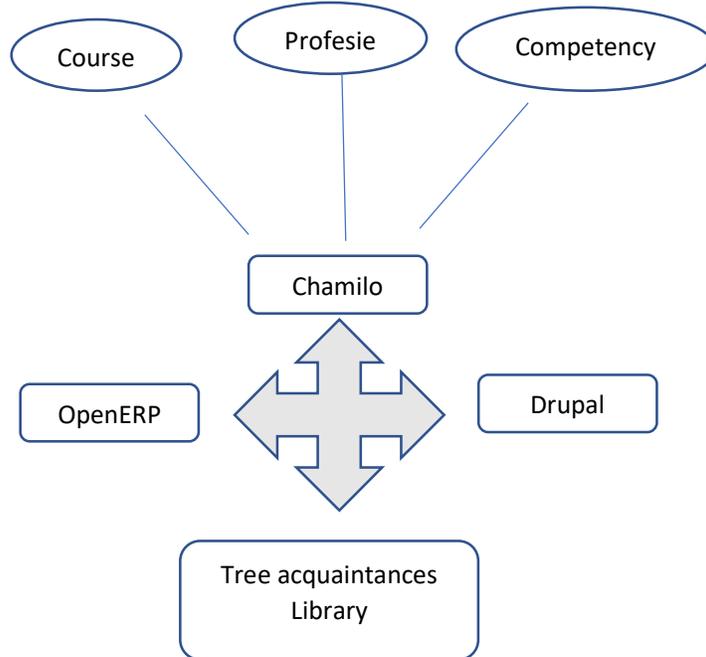


Figure 5. Chamilo facilities

**Official link to training materials**

What is Chamilo?	<a href="https://youtu.be/r7TSFQLpqVM">https://youtu.be/r7TSFQLpqVM</a>
Getting started as Chamilo admin	<a href="https://youtu.be/GlsOogC1ByY">https://youtu.be/GlsOogC1ByY</a>
The course homepage	<a href="https://youtu.be/WOkbylWXaYs">https://youtu.be/WOkbylWXaYs</a>



Creating content	<a href="https://youtu.be/ijvgcvQvls">https://youtu.be/ijvgcvQvls</a>
The admin page	<a href="https://youtu.be/SyiJfDVPE8">https://youtu.be/SyiJfDVPE8</a>
Managing users	<a href="https://youtu.be/DX1CKObp0BQ">https://youtu.be/DX1CKObp0BQ</a>
Sessions	<a href="https://youtu.be/ut9kHZi5IcE">https://youtu.be/ut9kHZi5IcE</a>
Generate Certificates with Chamilo	<a href="https://youtu.be/un7R6xQgvWw">https://youtu.be/un7R6xQgvWw</a>

**Official link to the platform**

[Download – Chamilo.org](https://www.chamilo.org)

**Test your skills:**

1. Create a course;
2. Add users to a course;
3. Create a session;
4. Add courses to a session;
5. Generate a certificate.

## Open edX

Open edX is an open-source LMS platform created as a joint initiative between Harvard University and the Massachusetts Institute of Technology (MIT). It uses the same code as edX, the popular Massive Open Online Course (MOOC) platform, but it stands out for its robust and flexible architecture. It can be connected to any type of application and includes its own development module.

The platform is divided into two main parts:

1. on the one hand, Open Edx Studio, which is designed for teachers who want to create courses for the platform;
2. and on the other hand, Open Edx LMS, the learning management system, has focused on learners who are practically participating in the teaching process.

The content that can be integrated into a course is multimedia and supports various formats such as books or videos, tailored to the needs of the learning process. In addition, it has integration in social networks, discussion forums, where both students and teachers can participate. It allows teachers to communicate with students to track their educational progress. The tools used can be seen from the perspective of face-to-face education as below:

Elements of face-to-face education	Elements of online education
Reading	Presentations in different standardized formats
Classroom discussions	Online discussion forum
Working groups / working teams	On-line working groups
Exams	Online exams



Class examinations	Answers to online exams
Study program / learning curve	Digital elements for monitoring the learning curve
Realization of practical elements	Presentation of helpful and interactive guidance materials

The platform has some main elements that reflect on the content:

- setting tasks and problems, in order to set certain targets for the learner or learners (the platform presents several types of assignment/problem associations);
- creating blocks of data in HTML formats for presentation/testing materials for learners;
- the creation of discussions within the platform, they can also be part of the form of the final evaluation;
- video elements, the platform allows the creation of different types of videos where text and images are not enough.

The assessment elements that can be addressed to the learners present a much greater freedom for the teacher through changes in the classification policy. The policy of classification, the award of grades/ratings, can be granulated until detailed analyses for each element of the evaluation, changes in working intervals or changes in deadlines being possible both for a working group or for each individual.

Like all the LMS and Open edX platforms, it presents the three ways of delivering educational materials for your students:

- synchronous, the training in this case being carried out under the strict supervision of the teacher (the interaction between the participant and the teacher takes place in real time);
- asynchronously, the method is the opposite of the previous one, the participant establishing an individual program for going through the materials and completing the themes;
- hybrid, the method that combines the previous two characteristics, becoming more and more popular lately. This method incorporates both the interactivity of synchronous learning, the flexibility of the asynchronous method and the courses with an advanced degree add practices to the face of it.

Increasing the attractiveness of the asynchronous method leads to the development of practices such as:

- analysis of the educational materials presented;
- monitoring the feedback given by both learners and other participants or monitors in educational materials;
- refreshing educational materials by updating information, adding new classification methods or established tasks, or other relevant information.

**Official link materials to the training**

How to Add Problems	<a href="https://youtu.be/PXzewIHF_gk">https://youtu.be/PXzewIHF_gk</a>
Working with Files & Uploads	<a href="https://youtu.be/RqyTB6ZILvY">https://youtu.be/RqyTB6ZILvY</a>



How to Set up Entrance Exams	<a href="https://youtu.be/WHxQXTEpt28">https://youtu.be/WHxQXTEpt28</a>
How to Make a Course By Invitation Only	<a href="https://youtu.be/5xrOVwRX6GJ">https://youtu.be/5xrOVwRX6GJ</a>
How To Create a Course	<a href="https://youtu.be/xz6zWiq5-sk">https://youtu.be/xz6zWiq5-sk</a>
How to Enroll Students	<a href="https://youtu.be/-Xqr2lpoPG8">https://youtu.be/-Xqr2lpoPG8</a>
How to Add a Team Member	<a href="https://youtu.be/-4TcSeG8LAo">https://youtu.be/-4TcSeG8LAo</a>
How to Add Instructors	<a href="https://youtu.be/QScvSCTMzWI">https://youtu.be/QScvSCTMzWI</a>

**Official link to the platforms**

PC	<a href="#">Open edX Cloud Hosting, Open edX Installer, Docker Container and VM (bitnami.com)</a>
Mobile	<a href="#">edX: Online Courses by Harvard, MIT, Berkeley, IBM - Apps on Google Play</a>

**Test your skills:**

1. Create a course;
2. Enroll Students to the course;
3. Add Team Members/ Add Instructors;
4. Add Problems to the course;
5. Upload files to the course;
6. Set up Entrance Exams.

## Educational content creation tools

### Microsoft 365 Power point / Whiteboard

The e-learning creation tools market offers numerous options for educators to assemble a number of diverse features, such as text, illustrations, animations, audio, video and interactivity, for creating their own course.

Eliminating the technical complexity of writing codes and scripting in a programming editor, they are suitable for independent authors, e-learning professionals and educators.

At the simplest level, presentation tools such as PowerPoint (PPT) or even word processors are considered e-learning tools. However, they are limited to interactive features, linear navigation structure and lack of support for e-learning standards, make such tools not suitable for learning management, systems for tracking the progress and completion of users.

Many creation tools were simple PowerPoint "add-ons", the ability to convert a set of slides directly from PowerPoint. Here we can remember, **iSprin Converter Pro** or **Presenter360** that are commonly used to quickly convert presentations into highly engaging and interactive e-learning course formats.

Creation tools fall into several categories, depending on their characteristics, level of complexity of personalization and installation mode (e.g., desktop or cloud), ranging from simple PowerPoint



converters (mentioned above), built-in tools inside the LMS, to powerful standalone packages that give educators the freedom to create the entire e-learning course in a single set of integrated tools.

Some of the basic functionalities for these tools are:

- navigation, to be either linear or personalized;
- simple and conditional branching, more precisely the transition from the course section to another to be based on results;
- content editor or to modify/updates as easily as possible;
- visual elements as more explicit as possible, using buttons, icons as edifying as possible;
- the capabilities of inserting, modifying, storing the audio/video materials easy as possible;
- the characteristic of the evaluation systems that are easier to use, a wide variety of types of questions, the possibility of randomizing questions, the follow-up of the assessment;
- the use of animations and interactions as more exhilarating;
- use of templates and visualization mode;
- using programming languages and scripting support to collect data from students and create certain events;
- preview, the ability to view and edit a model in the process of creating it;
- interoperability and operation on a wide variety of platforms;
- interoperability and operation for any browser;
- integration, i.e. integration with leading e-learning applications and compliant with the Sharable Content Object Reference Model SCORM, Aviation Industry CBT (Computer-Based Training Committee) (AICC);
- different ways of publishing SCORM for LMS and WEB;
- multi-location and support with large coverage area.

#### **Test your skills - Whiteboard:**

1. Insert an image;
2. Insert a document;
3. Insert a text box;
4. Export content.

Below are some of the tools with which it is possible to create educational content:

#### **WandEducation**

- Authors can create educational content, content that can be downloaded on local devices (this in HTML format without the need for adjacent applications for running the created material);
- Using customized elements offered by the platform;
- Test modules;



- Evaluation modules according to the chosen curriculum;
- The possibility of measuring the progress achieved and quantifying them.

Wand Education Video Explainer	<a href="https://youtu.be/L_yhdKLxiYU">https://youtu.be/L_yhdKLxiYU</a>
Wand Phonics Edit Mode	<a href="https://youtu.be/UfJR2CdxvXk">https://youtu.be/UfJR2CdxvXk</a>
Wand Phonics Reports	<a href="https://youtu.be/KqZzaqq6H1s">https://youtu.be/KqZzaqq6H1s</a>
How to use Wand Resources	<a href="https://youtu.be/TM6BPEX5ywg">https://youtu.be/TM6BPEX5ywg</a>
Wand Admin - How to Setup a School Account	<a href="https://youtu.be/7klONUWqx_E">https://youtu.be/7klONUWqx_E</a>

**Test your skills:**

1. Create and deliver a lesson;
2. Add groups;
3. Add students/ add Teachers to the group.

**AdobePresenter**

- Transforming the presentations into interactive formats with built-in questionnaires;
- Editing video elements and transforming them into HTML5 publishable formats;
- Integration of elements created in HTML5 and SCORM formats with LMS applications used within the organization;
- It incorporates content that can be of various forms, both static and dynamic, without the need for physical inclusion within the material;
- Transforming the following transitions into HTML5 formats: cover, blinds, fade, push, pan, split, random, split, wipe, zoom, door, comb, etc.;
- Versatility in publishing materials in HTML5 formats, the video elements thus created will run directly in web browsers;
- Use on different devices, with different operating systems with identical functionalities.

Introduction to Adobe Presenter Video Express 11 - Detailed	<a href="https://youtu.be/5TeVKBHAKYU">https://youtu.be/5TeVKBHAKYU</a>
Transform slides into interactive eLearning	<a href="https://youtu.be/daS1uO96yw">https://youtu.be/daS1uO96yw</a>
Analytics for actionable insights	<a href="https://youtu.be/ssxStqojkV4">https://youtu.be/ssxStqojkV4</a>
Publish to HTML5	<a href="https://youtu.be/s2zOhTGkZWI">https://youtu.be/s2zOhTGkZWI</a>

**Test your skills:**

1. Create a tutorial using your webcam;
2. Use characters to animate your slides;
3. Publish your work to HTML5.



## Udutu

- Create content based on predefined templates;
- Support for video and audio multimedia files;
- Import of educational materials (e.g., import of PowerPoint files);
- Publishing of elements built in HTML5 format;
- Collaborative solution for the construction of educational materials;
- Export in SCORM format (integration of all built elements and inclusion in the export format).

Udutu introductory Video Craig Weiss	<a href="https://youtu.be/tEdMXd5G4ms">https://youtu.be/tEdMXd5G4ms</a>
Adding Content to Your Library	<a href="https://youtu.be/JLh4RpMN7Ok">https://youtu.be/JLh4RpMN7Ok</a>
How To Create a Basic Screen	<a href="https://youtu.be/Et-eHUR0lt8">https://youtu.be/Et-eHUR0lt8</a>
How to Create an Assessment Screen	<a href="https://youtu.be/pd_EXJgG1KQ">https://youtu.be/pd_EXJgG1KQ</a>
How to add Images, Media, or Animation to a Course	<a href="https://youtu.be/c4X9pGthwO0">https://youtu.be/c4X9pGthwO0</a>
How to Create a Course	<a href="https://youtu.be/YdZ5HiT65Yo">https://youtu.be/YdZ5HiT65Yo</a>
How to Create an Exam From a Pool of Questions	<a href="https://youtu.be/2ZHgW9LpVg4">https://youtu.be/2ZHgW9LpVg4</a>
How to Import a Course	<a href="https://youtu.be/djgWxJESlaY">https://youtu.be/djgWxJESlaY</a>

### Test your skills:

1. Create a basic screen/assessment screen;
2. Create/import a course;
3. Add animation to the course;
4. Create an exam from a pool of existing questions.

## Composica

- Create content using or not predefined templates;
- Personalized design possibilities with the help of elements of stylization, modification and positioning of objects;
- Using single-choice or multiple elements, elements that support partial, total or blank completion;
- Possibilities of sorting, matching, drag-and-drop and "hot spots";
- Realization of complex conditional feedback elements or with multiple response variables;
- Questionnaires, evaluations or controllable tests by sections or categories, customizable options for completing sections;
- Import converted PowerPoint items into activities with fully editable content;
- Control of the navigation flow and ways of viewing the learner's progress (customization of menus, graphic elements, etc.).



History	<a href="https://youtu.be/cPkRY2EmJMY">https://youtu.be/cPkRY2EmJMY</a>
Sets	<a href="https://youtu.be/H91d_5hsTOY">https://youtu.be/H91d_5hsTOY</a>
Responsive Authoring	<a href="https://youtu.be/ZMI-mlpl0vo">https://youtu.be/ZMI-mlpl0vo</a>
New Project Wizard	<a href="https://youtu.be/rgl_WcZCWsc">https://youtu.be/rgl_WcZCWsc</a>

**Test your skills:**

1. Create a new project;
2. Insert media into the project;
3. Import files into the project;
4. Publish your project.

**iSpring Suite**

- Support for items in PowerPoint presentations;
- Synchronization of audio and video elements with certain static elements;
- Using the template elements made available by the platform;
- Writing elements (characters) can be used both those local to the user and those in the library offered;
- Ways to use icons and buttons offered by the app or other custom ones;
- Using photos from the app library or other custom ones.
- The possibility of collaborative work on the construction of elements;
- Publication in HTML5 and SCORM formats.

What's New	<a href="https://youtu.be/D704XgVw7cA">https://youtu.be/D704XgVw7cA</a>
How to Assign Points to Quiz Questions	<a href="https://youtu.be/66gJnwj8T6k">https://youtu.be/66gJnwj8T6k</a>
Creating a Course with a Quiz	<a href="https://youtu.be/tvwoVi-93BY">https://youtu.be/tvwoVi-93BY</a>
How to create an Online Course	<a href="https://youtu.be/cXuQo-9nae8">https://youtu.be/cXuQo-9nae8</a>
How to Make Multiple Choice Quizzes	<a href="https://youtu.be/fCWVA3dBtVk">https://youtu.be/fCWVA3dBtVk</a>
How to Create a True False Quiz	<a href="https://youtu.be/9v2EcvCfsbw">https://youtu.be/9v2EcvCfsbw</a>
How to Work with Quiz Result Slides	<a href="https://youtu.be/L9UBMnn8neA">https://youtu.be/L9UBMnn8neA</a>

**Test your skills:**

1. Create an Online Course;
2. Create a Multiple-Choice Quiz;
3. Assign Points to Quiz Questions;
4. View and share Quiz Results.

**Vyond**

- Creating scenes with the help of customizable templates;
- Simple and complex actions with the help of elements from the internal library;



- Using animation elements without the use of related drawings;
- Expanding customizable characters within libraries;
- Automatic synchronization in the case of video elements;
- Teamwork and the possibility of moderation of the team;
- The possibility of using libraries and bookstores jointly;
- Versioning available for multiple supported formats.

What is Vyond	<a href="https://youtu.be/KP8EC9r0tJ0">https://youtu.be/KP8EC9r0tJ0</a>
How to Make a Video	<a href="https://youtu.be/tR50jRU7KZc">https://youtu.be/tR50jRU7KZc</a>
How to Add Voice To Your Video	<a href="https://youtu.be/DleyTVogqyY">https://youtu.be/DleyTVogqyY</a>
Creating Custom Characters	<a href="https://youtu.be/FMY5QS3uZM">https://youtu.be/FMY5QS3uZM</a>
Sharing	<a href="https://youtu.be/5h_2Zaqi25c">https://youtu.be/5h_2Zaqi25c</a>

**Test your skills:**

1. Create a Video;
2. Add Voice to Your Video;
3. Create a Custom Character;
4. Share your video.

**Articulate360**

- The solution proposes an interoperability between the different functionalities given by the LMS;
- Contains its own library for the integration of educational materials;
- The library with audio/video content is available for all types of materials built;
- Allows the use of included templates or the construction of new ones;
- The use of recordings and implicitly of synchronizations with audio/text systems for a good understanding and multi-lingual localization of educational material;
- Granular control over educational elements (text, different test scenarios, etc.);
- Certain elements of the application can be run on the user's devices, integrated into other software solutions (e.g., within the PowerPoint application);
- The built/optimized content is HTML5 compatible (use with touch equipment);
- The publication of the control look elements is available in different formats (HTML5 and SCORM);
- Includes support for material accessibility (WCAG 2.0).

Meet Articulate 360	<a href="https://youtu.be/EbKAqjbVE4s">https://youtu.be/EbKAqjbVE4s</a>
How to Create Your First Quiz in Quizmaker 360	<a href="https://youtu.be/W9XQ7U7tWUU">https://youtu.be/W9XQ7U7tWUU</a>



How to Use Rise 360 to Create Courses That Are Responsive	<a href="https://youtu.be/g8Co8y2nBfY">https://youtu.be/g8Co8y2nBfY</a>
Overview of Articulate Review to Share Courses & Collaborate with Others	<a href="https://youtu.be/kAP8hKc4ZSU">https://youtu.be/kAP8hKc4ZSU</a>
Overview of Content Library 360	<a href="https://youtu.be/Ct4M2F0Yos">https://youtu.be/Ct4M2F0Yos</a>
How to Use Peek to Create Screencasts for Windows	<a href="https://youtu.be/3ccrdJdlmUs">https://youtu.be/3ccrdJdlmUs</a>

**Test your skills:**

1. Create a Quiz in Quizmaker 360;
2. Create a Responsive Course;
3. Share your Course Create;
4. Create a Screencast for Windows.

## Digital storage, digital libraries

The content libraries used by E-learning platforms are rethought for users to interact on all levels of content. The seamless integration of library resources and digital services is an important step in defining the technical infrastructure that will ensure the 'convergence of services'. LMS platform applications work closely with content management applications that can be directly contained within the LMS but can also be separate management solutions for educational materials/courses. For better interoperability, LMS platforms often develop portal products and for managing hybrid systems more precisely and for content management. Because users from educational environments work in informational environments, the management system of "learning" is a very important one in the context of choosing "correct" information.

The transition of the "classical" libraries in the direction of the "online resource" establishes a new vector for including information in the activity of transmitting information to pupils / students in a faster form and with forms specific to each educational model chosen. This leads to the integration of courses with tools from the digital library that at this time can increase the capabilities to various other libraries available in the online environment. A paradigm that has emerged and that has created or is still creating certain concerns would be:

- Connection to published literature;
- Saving "persistent" quotes;
- Avoiding the "purchase" of duplicate content;
- Copyright.

An attractive feature of the LMS platforms is the ease with which the information within these systems can be used, the way of loading, editing, modifying and/or deleting and implicitly the information associated with them. The persistence of the information presented within the digital libraries is exclusively an attribute of the content creators and not least of the individual users.

The extension of hybrid services at the level of e-learning platforms that include both the storage of the educational material created and the information from the classical libraries leads to a structure of the following form:

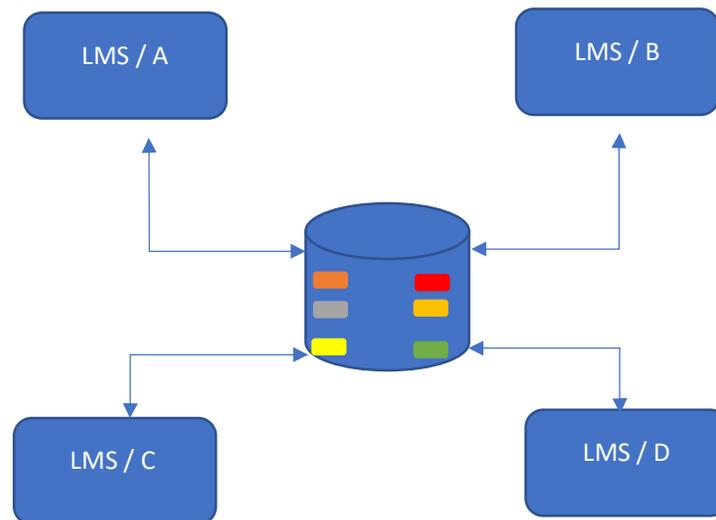


Figure 6. Digital storage/digital libraries usage in E-learning

- The Content is considered a service;
- The information is found on an organizational server;
- LMS platforms call for valid information (validated by the organization);
- With the help of the platforms, the data to the user and access to them are controlled.

The interconnection of services to a single content library has several advantages such as:

- A shorter response time when there is a "significant load" for content creators;
- Much faster access to existing information;
- Increased rights control for content creators;
- Aliasing of data;
- The use of 'dynamic submissions' between certain blocks of data published by different content creators.



## Project Partners Testimonials - Use case of transition to E-learning

Country: Italy

### **Liceo Classico Statale e delle Scienze Umane "Benedetto da Norcia"**

Author: Doriana Abbruciati, teacher

- What were the main challenges of shifting to E-learning (time, resources, competences)?

The transition was not easy as it was immediate and the Italian school was not ready for this change. It happened that some students did not have proper devices to access the online contents or had difficulties to use them. Personally, the biggest challenge was changing my way of teaching.

- What solution did you use during E-learning courses (interaction, content, document management and grading)?

I tried to make the lessons more active, several times asking the students' opinion on topics debated or involving them in didactic games. I mainly aimed for competences and development of students' personal thought on the subject.

- What were the advantages of switching to E-learning?

Developing the digital competences. Personally, I took advantage of this situation to invite several experts from my field, even not from Rome, to the digital classroom in order to give the students a different voice to discuss with.

- What was the feedback from the students?

Many students suffered from a situation that has created an inevitable distance between the teacher and the students and among the students themselves. However, there have been some cases in which this new way of teaching has made some students emerge, even though at school they were passive and fearful.

- What was the feedback from educational and administrative staff?



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At the beginning many were scared but thanks to the cooperation between colleagues it was possible to face this new challenge in an appropriate way. Many then have decided to integrate some distance learning modalities into their traditional lessons once they have come back to face-to-face teaching.

- Lesson learned during E-learning in the context of Covid-19 pandemic?

We have learned that it is necessary to be always ready for new challenges and that the digital is a very useful and necessary tool for current teaching.



## **Liceo Scientifico “Asisium”**

*Author: Annamaria Cecchetto, teacher*

- What were the main challenges of shifting to E-learning (time, resources, competences)?

The transition to online learning required a review of the educational programs and methods, as well as a reworking of the competences to be acquired in order to guarantee a quality, equal and inclusive education.

- What solution did you use during E-learning courses (interaction, content, document management and grading)?

I have adopted different communication strategies: I have defined an easy and intuitive type of browsing, organizing the virtual classroom in a clear and available way; I have realized summary modules to support learning; I have adopted an evaluation method, suitable to the subject in order to give constant feedback along the way.

- What were the advantages of switching to E-learning?

Providing the students with innovative and captivating educational experiences; stimulating the development of new learning logics; allowing the students to organize the time to be dedicated to their own education; promoting the individual responsibility; giving them more autonomy to build their educational paths.

- What was the feedback from the students?

Most of the students enjoyed the digital review process of education; still the lack of sensory feedback put some limits to their learning.

- What was the feedback from educational and administrative staff?

The educational and administrative staff understood that technology and education can and must be intertwined; however, a constant and continuous training seems to be necessary.

- Lesson learned during E-learning in the context of Covid-19 pandemic?



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Asynchronous education, during the pandemic, became a crucial learning method: it taught us that school could be done even without a physical classroom; that new technologies can integrate perfectly with traditional teaching methods; that the centrality of the person can be put in the foreground, although teachers and pupils interact in a hybrid context.



### **Liceo delle Scienze Umane “Maria Immacolata”**

Author: Angela Scozzi, on behalf of the Erasmus+ team

- What were the main challenges of shifting to E-learning (time, resources, competences)?

The main challenge was the lack of time: online lessons could not last as a normal lesson. During a normal lesson, we are used to question the students, correct the homework and deal with a new topic but it was impossible to do all of this during single online lessons. Every time we had to wait at least 5 minutes until all the students were connected, moreover they had to have a 10-minute break before the next lesson as they couldn't stay in front of the screen for a long time. Another obstacle was the internet connection: sometimes it slowed down, for this reason the students could not see or hear each other well.

- What solution did you use during E-learning courses (interaction, content, document management and grading)?

To keep the interaction active, we tried to constantly call each one of the students to correct an exercise, to read a paragraph and explain it, or to express their thoughts on a particular topic. For each lesson, we usually prepared a PowerPoint presentation which we used to explain the new topic and which we posted on Google Classroom for the students so they could use it to study. Also, we watched and chose YouTube videos which we proposed to students as introduction to a new topic.

Students had to post their assignments on Google Classroom: it was easier to correct them on a Word file, but the problem was that most of the students did not write on a Word file and they preferred to send pictures of their notebooks.

- What were the advantages of switching to E-learning?

We did not find remarkable advantages in switching to the E-learning, apart from being able to continue the school activities during a global pandemic. We certainly improved our digital competences and explored new ways of teaching. Now we often use digital devices during a normal lesson at school.

- What was the feedback from the students?



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Some students, who already had some difficulties at school, found themselves in a more difficult situation with the E-learning. At the same time, we think other students liked to experience this new way of learning.

- What was the feedback from educational and administrative staff?  
Not all the teachers were prepared to switch to the E-learning, but we all learnt how to do it. Fortunately, some teachers were already able to use all the digital devices, so they helped the other teaching team and created a collaborative environment.
- Lesson learned during E-learning in the context of Covid-19 pandemic?

We learnt that it is necessary to be able to use digital tools at school, but it is even more important not to lose the human contact between students and teachers.



## Liceo delle Scienze Umane “Maria Immacolata”

### Students interviewed

- What were the main challenges of shifting to E-learning (time, resources, competences)?

“The biggest challenges of shifting to E-learning, which helped consistently to reduce the negative effects of the pandemic, were the breaking of the school routine, the various difficulties in the use of technology and the absence of reference points (teachers, classmates...)”.

“Together with the swifiting to E-learning, most of the students got used to this new way of school, but in the meanwhile, everyone understood the importance of the pre-pandemic everyday life and its social relations and physical relationships. The importance of the Internet and social networks that helped us to keep in touch with the others has also emerged significantly”.

“The main difficulty was to stay focused on the classes while in front of a screen; at the main time, social interactions decreased significantly”.

“E-learning entailed several challenges for the adolescents, especially in those who did not have access to technological devices (not every student is equipped with a personal computer, a stable internet network and/or free and silent spaces at home). In addition to this, difficulty in focusing on the classes was also complicated due to the distractions we find in a crowded place”.

“Interfacing with technology in the didactic and pedagogical fields, creating or maintaining interpersonal relationships, adapting to a new routine: what a tough task!”.



“E-learning destabilized that group of students accustomed to interacting live with teachers and their classmates: unfortunately, they had to follow classes from their rooms, thus lowering their attention and their school performance”.

“The transition to E-learning allowed students to understand the true value of live-school, the importance of sociality, but also the fundamental role of technology which has proved to be indispensable in our modern times”.

- What solution did you use during E-learning courses?

“We tried to make a wiser use of technology and our electronic devices, and above we worked to improve the quality of time spent in front of a screen, creating moments to relax and give the eyes a break”.

“To keep fit during the months of E-learning, given the lack of practical hours of physical education, we often trained individually at home as much as possible”.

“To overcome the difficulties of E-learning, many students created online study groups, giving a chance to friendship-making situations too”.

- What were the advantages of switching to E-learning?



“There was nothing positive in this long E-learning period. It compromised relationships, made us forget our everyday life and routine, as well as deprived us of the best school years”.

“The advantage of shifting to E-learning was the improvement of our computers skills, making everyone more comfortable in his relationship with technology”.

“E-learning allowed many students to learn technologies related to the world of the internet, which today represents the main mean of sharing and making knowledge”.

## Country: Spain

### Santa Elena School

Author: Andrés Figueroa (schools head)

- What were the main challenges of shifting to E-learning (time, resources, competences)?

The Spanish central and regional governments have put all its faith in face-to-face teaching respecting the great challenges of the COVID-19 protocol. The entire organisation and operation of the schools have been subordinated to strict compliance with the measures articulated in the COVID-19 protocol. In this sense, compliance with the security protocol designed by each centre has meant important modifications in the daily life of the educational community.

The main concern at the beginning of the academic year was to maintain interpersonal distance in the classroom. For that reason, classrooms were measured, plots were drawn on the floor of classrooms or playgrounds, differentiated timetables were established for access to the school, and the flow of people in the corridors was studied to avoid unnecessary contact. In many cases, according to informants, these measures were difficult to maintain and comply with due to infrastructural problems at the centres.

In this restructuring of teaching programmes, teachers have had to make concessions in terms of methodology, and in some cases in relation to objectives and contents. As a head teacher in Secondary Education told us, *"the programmes of the subjects are the same as in previous years in terms of content, but at the methodological level they had*



*to be completely reformed, because what you cannot do is pretend to do the same thing when the system or the platform on which you are going to work is different." (Secondary school principal/head)*

*"At a methodological level, new technologies have been introduced this year. For example, I am a teacher of Therapeutic Pedagogy and Hearing and Speech. With the mask, how do I tell the child how to pronounce? I have to put on a screen or use the computer and the tablet to use more visual games or watch a video where they can see the pronunciation." (secondary teacher)*

Blended learning was allowed from the third year of Secondary Education (+14 years) and upwards. However, in practice, many schools have opted for face-to-face teaching as soon as teachers and spaces became available to allow groupings that met the maximum group size set by the central government, trying to avoid blended learning as much as possible.

- What solution did you use during E-learning courses (interaction, content, document management and grading)?

This year, teachers have become aware of the importance of improving the level of digital competence of their students through the explicit use of educational technology. In this sense, teachers try to maintain a certain level of digital activity, at least linked to the use of platforms and the assignment of digital tasks, whenever the availability of digital resources allows it, either because these belong to the pupils (their smartphones, for example) or because the educational centre has sufficient resources:

*"A lot of teachers, who had never worked with their students digitally at all, this year all teachers had to have at least one workspace to work with their students digitally and from time to time, this is a slogan that we were given from the beginning at the centre, that is, from time to time we had to upload some task to Teams or to the virtual classroom so that the students could also continue to work on this digital part. Progress has been made in this area." (secondary teacher)*

However, problems in access to technology continue to be observed in certain regions and schools. Thus, at the time the interviews were conducted, with barely three months to go until the end of the school year, the electronic devices promised by the educational administration were arriving at several of the schools participating in the test; this suggests that some schools did not have the necessary technological equipment and that this year there may also have been difficulties for some students in accessing digital resources when these were used at schools (particularly with the impossibility of sharing



digital resources and the difficulties to access ICT rooms) and, more importantly, when they were claimed to be used at home.

Some "dissident" movements have arisen in families who had a family member at risk, refusing to take their children to class, thus failing to comply with the compulsory nature of education up to the age of 16. This has generated situations of administrative tension in schools, which in some cases has led to the activation of the absenteeism protocol or to having to seek individualised solutions for specific students and families with health problems and fear of contagion.

At the same time, students showed a resilient approach to the situation: *"It has been a very strange and very different year. It is true that we have had a very bad time but we have learnt a lot of things."* (student) In that sense, students seem to have adapted themselves quite efficiently to the changes provoked by the COVID protocols, particularly well in the case of those schools with face-to-face teaching and with some more problems in blended situations. Considering the situation, strict obedience to the safety measures has been the norm at schools and students do not express bad feelings against these norms.

- What were the advantages of switching to E-learning?

Schools seem to have realized important efforts as well as those reached by teachers and students alike, and have willingly kept using technology this year, even if mainly as a repository for school tasks or homework or as a communication tool between teachers and students.

The problems of access to technology and the possible use made of it are particularly relevant in those school levels that have undergone a process of hybridisation. On the one hand, when students or classes have been confined, hybrid teaching has been used at all stages of the educational system, normally forcing the teacher to pay attention, in theory, to face-to-face teaching and virtual teaching at the same time; on the other hand, the norms dictated by the central government establishes that from the third year of Compulsory Secondary Education onwards, students may receive teaching by telematic means, and many centres have opted for alternating students and days (half the students attending the first week on Mondays, Wednesdays and Fridays and the second week only on Tuesdays and Thursdays, and viceversa). Some schools and territories have opted to use time slots, dividing the morning into two sections with a central period for sanitising the school, and half the students attending one or another of these time sections.



*"This is another of the great efforts, of the great organisational changes this course, the development of strategies to deliver the synchronous class as well as possible, attending simultaneously to those who were at home and those who were in the classroom."*  
(Secondary school principal/head)

Furthermore, during this year, teachers have come to realise that learning and teaching remotely is highly challenging. Teachers have needed to find ways to ensure that the students are engaged but many of them explain their difficulties to avoid their students feeling gradually disengaged.

- What was the feedback from the students?

In general, there are reasonable complaints from teachers, students and families about the effectiveness of this type of "simultaneous" face-to-face and distance teaching in Secondary Education and Bachillerato, especially in relation to students with more difficulties or less family support, as described by a head teacher in Secondary Education:

*"It is very difficult to manage this blended learning system without the students who have the most difficulties paying a price, which is what has worried me personally from the beginning; that is to say, those students who have a family at home that supports them, that provides them with resources, that is engaged, they have coped reasonably well, although they have missed those social moments, but those who have difficulties in learning, those who do not always have that family behind them to support, they have clearly noticed it and that is what has worried us most about blended learning at all times"* (Secondary school principal/head)

In practice, this simultaneous face-to-face and distance solution has generated problems of study habits, learning difficulties and demotivation among pupils: *"What they tell me most is that they lack a work routine. For them, the high school is a routine of socialisation and work, and we have taken this away from them."* (Secondary teacher)

*"I teach them on Mondays, Tuesdays and Thursdays. So, I see a group on Monday and I don't see them again until Tuesday of the following week, and that's how it's been all year. It's a disaster, even the good ones get disconnected. How can they not get disconnected?"* (Secondary teacher)



Students are also critical with some inefficient uses of technology by teachers, particularly in Secondary Education and at those centres which opted for a blended learning solution. One of the students describes it very graphically:

*"The teachers were not used to recording themselves teaching or explaining; they might put a student to record in one part of the class and the teacher would go to the other part to give the class and continue with the syllabus; or the explanations on the digital screen could not be followed... Afterwards, we were very distracted at home because spending three hours looking at a device and listening to a person talking without being able to do practically anything was boring."* (student)

Students miss group work and other activities (such as projects) they were used to and which they seem to enjoy: *"One thing I really liked about the classes was when we worked in groups, which we can't do now because of the distance and the mask."* (student) Also, concerning spaces other than the classroom, they explain that *"we can hardly ever go to the computer rooms in Technology; we can't go to the workshops because we are in the same classroom all the time."* (student)

- What was the feedback from educational and administrative staff?

*"I am also missing a lot the contact with colleagues; that is, the fact that there is no staff room, I need that daily communication with the teachers who teach in the educational team, that you meet them: "So-and-so, So-and-so, what are you doing, what are you not doing, how are you doing". I miss that a lot, because the teachers' meetings are very limited via videoconference or are reduced to nothing, to departmental meetings and evaluations. And that, I miss a lot of information, for example, about what is being done."* (secondary teacher)

*"This has made us realise that there has to be much more coordination between the staff. We are specialist teachers, but just because we are specialists in one thing doesn't mean that you can only talk about it on your own, but I think that this makes us right, in the sense that there has to be the possibility of working in different areas."* (Secondary teacher)

*"I believe that work should be done on teaching by areas in the lower grades of secondary school. As a result of the health crisis, there was talk that this year we were going to work in the first and second years of secondary school by areas, but that was forgotten."*



*(...) But for that to happen, it must be well structured, which does not mean that the same teacher teaches the whole subject of the area separately. No, no, it means unifying them and seeing them from the same point of view."* (secondary teacher)

- Lesson learned during E-learning in the context of Covid-19 pandemic?

*"I see the fourth-year computer science students two weeks in a row and two weeks not; two weeks I see them and two weeks I don't, every shift."* ( Secondary teacher)

*"With the assessment in the third and fourth year (of secondary school) it has been the opposite. In other words, the school has become muted with blended learning. It's not working well, it's not working well and, look, it's not so much to do whether students have access to the Internet or having resources. No, those who don't have it were given computers and now have a device. And, well, we have worked hard to make sure that no one lacks anything, or lacks anything at all. And today there is no family or pupil in the centre who can say that they don't have a computer if they need one, because they already have them in that sense. But sometimes it has less to do with material things than with disconnection, with mental disconnection. Fourth grade (Secondary Education) is being dramatic because they are also students who are about to graduate, who will graduate in June. And the feeling I have is that on the days they are at home, no, we don't get there. We are not getting there."* (Secondary school leader)

Families are especially concerned about the emotional state of their children. One mother explains it clearly: *"We are talking about children - children have feelings, they have emotions and none of this is has being managed. In other words, the emotional damage that is going to happen, the impact that is going to happen because we are forbidding children to be with each other, to play naturally, to use and manipulate materials, to experiment, that is going to make a big, big, big harm... Children are sad, but not only mine, but all of them have a sad soul. They don't play, they don't interact with each other. We are with this social distance that we are instilling in them and in the end, they are isolating themselves. Yes, I am not seeing it well. And the evolution worries me much more."* (mother)

Families are also concerned with the teachers' digital competence and use of technology. Particularly, families emphasize the existence of different typologies of teachers: those with good competence and who are familiar with technology;



those who urgently trained themselves and learned how to use technology during the lockdown or this academic year; and a minority of teachers who, from the parents' perspective, were not willing to make that effort: *"What has happened with the teaching staff? Well, a little bit, as we were saying, teachers who do not have digital competences and have tried, OK, it has taken a while, but that's the way it is. But there is a part of the teaching staff that neither has them nor wants to have them. It is as clear as that."* (mother).

So, after one of the hardest academic years in the history of Spanish education, a mixture of feelings permeate schools: a sense of survival; the intuition that the hygienic and safety measures have worked, although on some occasions at the expense of important pedagogical and personal sacrifices ; the clear perception that some structural flaws of the educational system may put at risk an important number of students, particularly those who need more efficient and egalitarian schools; and, at the same time, the fatigue of a long, pandemic year together with the illusion of a new course to start in a few months, when some of the lessons taken this year may help Spanish education become better, if the correct decisions are made at all levels, from the central and regional governments to schools, teachers and families.

The pandemic has brought to light the weaknesses of the Spanish educational system, but also its capacity to respond to a crisis situation despite these weaknesses. As one of the informants explains very graphically, *"if anything has come to light with this, it is that we were in tatters, but tatters that only we could see and so, at first, the families were quite critical of us but I think they have been much more benevolent because it has been publicly seen that the means we had were just enough, just enough to survive and now they have seen that the extra effort that has been made has been at the cost of everyone's backs, but no one has given us more for this. And I don't mean financially, but in terms of resources."* (secondary school principal/head)

Teachers are satisfied with the experience of working with a reduced ratio of students per teacher, which have confirmed the teachers' historical claim and argumentation that a lower ratio might have a positive impact on learning. Moreover, teachers seem to argue that the results of assessment this year would allow us to infer that there has been satisfactory learning even though the actual teaching hours have been reduced, suggesting a possible compensatory effect



between the reduced timetable students may have enjoyed and the improvement in school climate and coexistence, which requires further investigation to be confirmed.

Finally, technology seems to be consolidated as a valid communication channel for the whole educational community and as an educational tool inside and outside the classroom. Obviously, this trend started last year during the lockdown

Both teachers and parents agree on the fact that vulnerable students and students with special needs and difficulties have been the losers in this crisis. Structural flaws of the Spanish educational system concerning inclusion and attention to diversity have been magnified during the pandemic, reducing the resources and making it more difficult to help some of these students. In that sense, it is urgent to analyse the situation of these students after the lockdown and this academic year as well as to invest adequately to help them and guarantee equality in the educational system.

The pandemic warns us of the need to strengthen three essential aspects of the Spanish education system: firstly, the support and facilitation structures for inclusion and attention to diversity, as the problems in this area have been caused by structural problems such as a lack of available staff in educational centres (educational guidance, pedagogical therapist, hearing and speech therapists, support teachers, social educators, etc.). Secondly, it is necessary to rethink the digital transformation of schools, reinforcing infrastructures, promoting teacher training and linking this transformation with the educational project of the centres, clearly establishing the differences between the emergency schooling which had to be organised during the lockdown, the limitations of the pandemic 2020-2021 academic year and the potential of educational technology in a normal situation. Finally, it is transcendental to strengthen the partnership between schools and families, using technology as another channel of communication but, above all, recovering the presence and participation of families in the life of schools.

Vulnerable students and students with special needs have been the ones to suffer more deeply the consequences of this crisis. In particular, families make clear that they have suffered the pandemic more than the rest of students: *“This has undoubtedly been the area that has taken the worst part by far... The division of*



*teaching staff has been "optimised" [to split classes and maintain distance] to the detriment of attention to diversity and to the detriment of specialities.... Diversity and inclusion have in many cases taken steps backwards or stagnated instead of moving forward."* (father) However, families consider this is not a problem which may have appear due to COVID-19 but to structural features of the Spanish educational system: *"Special educational needs are certainly not being addressed. They have not been addressed historically"* (mother)

*"Chains always break at the weakest link. And I think that students who come from socio-economic, but also socio-emotional, fragile backgrounds have been the first to suffer."* (secondary school principal/head)

*"The problem is that groupings is no longer allowed for cooperative learning in the classroom. And that does improve coexistence a lot, in our experience, if we manage to make very well-designed groups, with guidelines, roles, functions (...) Coexistence improves a lot if you have the patience to put it into practice and this year, as all the desks are islands that cannot be moved or joined together, we are losing that resource."* (secondary teacher)

- Any other experience

Families are particularly critical with blended learning in Secondary Education, as teachers also are. They have seen their children demotivated, with poor study routines and difficulties to follow the lessons, as it has already been described: *"There are tremendous disconnections. There are some subjects that have only a few hours per week... there is a huge disconnection between classes and exams."* (father)



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