## 3. Successful Blended Learning in the Classroom

## 3.1. Preparing for Blended Learning

Preparing for blended learning involves taking a series of measures to ensure that students and teachers are prepared to engage in this educational approach. We need to highlight some key aspects to consider in order to prepare ourselves:

**Access to technology:** it is important to know what resources students have access to. Do they have an Internet connection? Do they have sufficient Internet speed? Do they have a computer, laptop, tablet, or smartphones?

**Course design:** before implementing blended learning, it is important to carefully design the course. This involves identifying learning objectives, selecting relevant content, determining online and face-to-face activities, and creating a study plan that effectively integrates both environments.

**Selection of tools and technological resources:** identifying and selecting appropriate tools and technological resources is essential for blended learning. This may include online learning management platforms, communication tools, assessment systems, and multimedia resources. We should ensure that we choose technologies that are accessible, easy to use and suitable for the students' level and needs. (Moodle and EVA E-Dixgal, platforms used in virtual classes in state schools from the Autonomous Region of Galicia in Spain, are the ideal platforms for blended learning, as they integrate all the elements listed in this section.)

**Teacher training:** providing good training and support to teachers is crucial to ensure that they are prepared to use and implement blended learning in an effective and efficient way. Teachers should receive training in the use of technological tools, designing online activities, fostering active student participation, and providing appropriate and meaningful feedback.

**Student guidance and support:** in blended learning it is important to offer students clear guidance on how to participate in the learning process. This should include detailed instructions on how to access online resources, participate in online discussion activities and effectively manage their time. It is also important to create clear communication channels so that students can ask questions and receive appropriate support from the teacher to address their doubts.

**Evaluation and feedback:** planning student assessment and providing feedback is a must in blended learning. Teachers will determine how to evaluate students' progress through online activities, in-class practical work or mixed evaluations. We

must ensure to provide timely and meaningful feedback to help students improve their learning.

**Effective communication:** we must create clear and regular communication with students, parents, and tutors. It is necessary to inform them about the objectives of blended learning, expectations for participation, deadlines, and communication channels. Maintaining open communication to address any issues or concerns that students have is essential.

**Continuous evaluation and improvement of teaching practice:** blended learning is an education approach that can be continuously improved and adapted. Surveys and feedback collected from students about the teaching experience allows necessary adjustments in order to optimize the teaching and learning process.

**Safety and protection:** we must raise awareness about the illicit purposes of the internet and ensure the implementation of security measures against unethical learning practices, academic dishonesty, identity theft, and bullying.

In summary, preparation for blended learning involves considering both technological and pedagogical aspects. Ensuring that the resources, tools and support are appropriate, we will be able to effectively implement blended learning and provide students with an enriching learning experience.

## 3.2. Integrating In-Class and Online Activities

Blended learning is an educational methodology that combines classroom teaching with online learning. This technique offers a more complete and effective learning experience and gets the best of both worlds, combining group interaction with the flexibility and personalization of online learning. It is very important to integrate classroom and online activities in an appropriate way, designing exercises that are more suitable for face-to-face learning and combining them with what students can perform online in a more autonomous way.

There are different types of activities to be used in blended learning, which could be combined with face-to-face teaching to create an effective and personalized learning experience. Some types of activities that may be used are:

● **Lectures:** lectures are face-to-face activities in which the reader presents the important concepts and topics of the lesson. They may be complemented with online resources such as videos, readings and exercises.

- **Group discussions:** group discussions are face-to-face activities in which students work in teams to discuss and analyze relevant lesson topics and issues. Online discussions could take place in forums and chats.

- **Teamwork:** teamwork is an online and face-to-face activity in which students work together to complete projects and tasks assigned by the teacher.

- **Virtual simulations:** virtual simulations are online activities in which students experience relevant situations and problems in a virtual environment.

- **Educational games:** educational games are online activities in which students learn and review lesson concepts in a fun and playful way.

- **Online readings and exercises:** online readings and exercises are resources that students use to reinforce the concepts and topics seen in face-to-face teaching.

- **Online tutorials:** online tutorials are online activities where students receive additional support and guidance from the teacher.

- **Online assessments:** online assessments are online activities where students measure their progress and performance in the lessons.

The effective combination of all these types of activities enhances the student learning experience and improves their understanding and application of concepts.

An effective strategy to implement blended learning is through the inclusion of **interactive activities,** both face-to-face and online. Interactive activities are those that require the active participation of the learner and they can include games, simulations and practical exercises, among others.

**In the classroom**: interactive activities that involve students in group discussions, role-plays, problem-solving exercises, and so on. These activities help to foster collaboration and teamwork, which could enhance learning and information retention.

**Online**: interactive activities that include educational videos, virtual simulations, self-assessment exercises, among others. These activities could be personalized for each learner, allowing them to progress at their own pace and receive immediate feedback on their performance.

The use of interactive activities in blended learning has several benefits. On the one hand, they increase student participation and motivation by actively involving

students in their own learning. On the other hand, they improve retention of information by allowing students to experience concepts and apply them in practical situations. Furthermore, the immediate feedback received in online interactive activities allows students to correct errors and improve their learning quickly and effectively.

Integrating interactive activities into classroom and online teaching creates a **personalized and motivating learning experience** that enables students to successfully achieve their educational goals.

To effectively combine face-to-face and online activities in blended learning, it is important to follow some key steps:

● **Identifying learning objectives**: it is important to define learning objectives before selecting the teaching activities and resources to be used both online and in the classroom.
● **Providing an online platform**: an online platform should be provided for learners to access online learning resources. The platform should be easy to use and accessible from anywhere.
● **Selecting face-to-face and online activities**: teaching activities and resources to be used both online and in the classroom should be selected to achieve the learning objectives.
● **Integrating face-to-face and online activities**: once face-to-face and online activities have been selected, they should be integrated in a coherent and balanced way. It is important that online activities complement face-to-face activities and vice versa.
● **Communicating the work plan to learners:** it is important to communicate the expectations and requirements of blended learning to students. They should be informed about how to access the online platform, how to participate in the online activities, when the face-to-face activities will take place, etc.
● **Providing feedback and assessment**: feedback should be provided to learners on their performance in the online and face-to-face activities. Learners should also be assessed to measure their progress and performance in the lesson.
● **Evaluating and constantly improving**: it is important to continuously evaluate and improve blended learning. Surveys and feedback from students should be conducted to improve the lesson design and teaching methodology.


### 3.3. Preparing Students for Blended Learning

Preparing learners for blended learning involves providing them with the skills, resources and mindset to successfully participate in a combination of online and face-to-face learning.

The learner has to be the primary focus of any learning process and therefore, when designing a blended learning strategy, it is essential to identify and carefully consider the learner's needs, expectations, background and special characteristics.

The most important aspects to consider when preparing students for blended learning are listed below:

**Well-defined structure:** given that there are several blended learning models and possible variations, it is essential to effectively communicate to learners which blended learning structure will be used, i.e. which part of the process will be face-to-face and which part will be online.

**Clear and concise objectives:** communicating clearly the objectives to be achieved with this type of learning and the advantages for which it is chosen is fundamental for the optimal development of this model.

**Clear expectations:** learners must fully understand what the expectations are for the online and face-to-face components of the blended learning experience. The faculty, as the guide for this process, should provide guidelines for participation, assessment criteria and grading policies to ensure that students understand what is expected from them.

**Ensure access to digital resources** and learning activities for all students. Identify possible problems for learners in terms of availability of electronic devices, such as laptops or tablets, and Internet connection, and try, as far as possible, to solve them.

**Communication skills:** teachers should teach students effective communication skills for both online and face-to-face interactions. This includes appropriate language to use in an email, protocols for online discussion and active listening during face-to-face class discussions. To work on these communication skills, teachers must design activities beforehand both in class and online (using digital platforms such as discussion forums, video conferencing tools...); in this way, they can be sure that students have internalized this fundamental aspect of successful blended learning.

**Digital literacy:** it is essential that learners are able to effectively use the digital tools and platforms to be used in blended learning. Due to the large number of existing digital tools and platforms, it is advisable to focus on a small number of

them to start with. The choice of tools and platforms should be made according to the characteristics of the target learners. This may involve prior training in their use.

**Time management:** it helps learners to develop strong time management skills to balance their online and face-to-face learning activities. Providing guidance on creating weekly schedules, setting goals and prioritizing tasks to stay organized and meet deadlines. Such management is a key pillar for the success of this learning model, as the implementation of this model is a huge change for the learner in terms of control over time and pace of the process.

**Self-directed learning:** the teacher, as the guide of the process, should encourage students to take ownership of their learning by fostering a sense of responsibility and independence. One of the great advantages of this model is the variety of learning opportunities that students can have and they need to be aware of this advantage in order to increase their motivation for the process. In addition, they should be taught to navigate online resources, to find reliable information and to learn at their own pace. It is also important to stress the importance of keeping their digital information well organized.

**Appropriate behavior, online safety and password management.** Students need to be educated about appropriate online behavior so that they act respectfully and responsibly, and the importance of maintaining their privacy and security online. Cyberbullying, the protection of personal information and compliance with the school's digital code of conduct should be discussed. In this learning model, this aspect is perhaps even more important, as part of the process takes place outside the school and they may not have the immediate help of an adult.

**Collaboration and group work:** this is a fundamental aspect in any learning model and for the students' future employment. They must learn to collaborate with their peers both online and in person and be able to see the importance of such collaboration, which leads to enormous enrichment of work. They should be taught to contribute effectively to group projects, communicate ideas and resolve conflicts in virtual environments. It would be advisable to design prior activities using discussion forums, working groups, etc., if students are not used to working in this way.

**Adaptability and flexibility:** here, learners must learn to develop a growth mindset and the ability to adapt to changing learning environments, which will be essential in their future work. Resilience, problem-solving skills and a willingness to seek help when needed should be encouraged. In addition, it is important that

students are aware that each one, adapting to their needs and learning styles, will follow their own path to reach the same common goal.

**Ongoing support:** teachers should offer ongoing support and resources to students throughout the blended learning process. This may include access to online tutorials, virtual meeting times or peer support networks to address any problems they may encounter. Learners should be aware of and make use of this ongoing support at any point in the process.

**Regular and immediate feedback:** providing regular and prompt feedback on learner progress and performance is very important to help learners assess their understanding, make necessary adjustments and build self-confidence, especially in the early stages of the process. The importance of reflective learning should be emphasized and learners should be encouraged to seek feedback from teachers and peers.

## 3.4. Teaching Principles that Support Blended Learning

Combined or mixed learning (blended learning, b-learning) is defined as learning that takes place partially or completely through the Internet. This definition excludes education purely by correspondence, broadcast by television, radio, video conferencing, or stand-alone educational software.

B-learning is the most efficient educational model (in terms of speed and ease of student learning) compared to the 100% face-to-face or 100% online model (Department of Education of the US Government, 2010). However, success resides in a good design of the learning experience.

Thus, many variants within b-learning arise, all of them valid, which do not significantly affect the learning outcome. Blended learning is based on a set of pedagogical principles that support it and that are characteristic of mixed or combined teaching.

### 3.4.1. Self-regulation or Autonomy of Students in their Own Learning Process

This kind of learning promotes autonomy and motivation of the students, their self-regulation for homework and study and progress in breaking passive dependence on teachers. It adapts to different rhythms and learning styles.

Blended learning is based on the current pedagogical philosophy that places students at the center of learning and turns teachers into mediators or facilitators of learning. It goes beyond traditional methodologies focused on the figure of

teachers. It benefits from the face-to-face system and virtual platforms, creating effective interactions through active learning methodologies.

A change is required in the role of teachers, that will be further developed, and also in the role of students: they must be willing to learn, to be digitally updated and to be autonomous in the use of very varied and different materials.

### 3.4.2. Flexibility of Times and Spaces

The limits are no longer in the four walls of a physical classroom, but are expanding towards new virtual spaces, offering students a diversity of learning environments.

The blended learning system is perfect for the student, whatever their pace and level, to assimilate knowledge and become enthusiastic about learning. In this hybrid learning, face-to-face classes must have a clear objective and must be used to address those issues in which it is essential to share physical space and time.

Learning environments, spaces and times get blurred and become limitless when considering face-to-face, virtual and autonomous work. The flexibility offered to students allows enriching the teaching-learning process with unconventional environments. B-learning creates new modes of interaction between students and teachers and between students. It also allows teachers to keep track of students to know their progress individually and thus adapt to each learning rhythm.

### 3.4.3. Didactic Methodologies for Active Learning

Teachers can use classic methodologies during face-to-face sessions and activities, taking advantage of the social proximity offered by face-to-face learning, and combining it with the use of digital resources (video conferencing systems, forums, chats, gamification, etc.) to make the blended learning a perfect modality to provide students with true, varied and motivating learning experiences. At the same time, the use of these digital resources facilitates collaborative work and increases self-esteem.

It must be understood that blended learning means going beyond the simple introduction of ICT in the classroom, it means a renewal of the roles of teachers and students. This model allows part of the students to be present in face-to-face sessions and others remotely, with enough flexibility to move all that learning to a virtual space if necessary.

In this way, many types of blended learning arise, depending on the type of content to be transmitted, the appropriate activities for that content, and the organization and distribution of the students.

### 3.4.4. Increase in the Digital Competence of Teachers and Students

**Teachers**

Teachers must assume a new role in order to succeed: it must be a mediator and facilitator of learning, but the true protagonists are the students who have to build their own learning.

The methodological change implies both the compulsory nature of the training technology of teachers and updating in terms of educational innovation and application of ICT to teaching.

To develop teaching/learning practices based on b-learning, teachers must have digital training in the following aspects:

- **Information:** to identify, locate, retrieve, store, organize and analyze digital information, evaluating its purpose and relevance, as well as having the capacity to use the technological tools that serve that purpose.
- **Planning the learning experience:** what to teach in person and what to teach at a distance.

As stated by Save the Children (2020), distance learning does not depend only on digital platforms and resources. The role of **teachers** and families is essential. On the one hand, the need for teachers to receive training for the correct implementation of new technologies and, on the other, it is also recommended that families and students have **technical support service assistance** at their disposal. For this, it is essential to coordinate among departments, levels, etc., in order to plan a teaching-learning proposal in the medium or long term that involves the regular use of technology within school life and the consensus of a series of practices supported by cognitive processes:

- Activation of prior knowledge.
- Clear explanations.
- Well-cured examples.
- Comprehension and practical application questions.

- Literacy.
- Spaced practice.

Thus, it is possible to correctly plan the implementation of the curriculum. Sharing the work across department/cycle/level would also reduce the workload in the long run. These prior agreements and the mechanisms to coordinate and communicate at a distance would help to maintain the structure when it comes to taking our activity to a virtual space.

## Students

If the role of the teacher is important, so is that of the student. If the student does not change the traditional role of a passive receiver in the training and becomes an **active and conscious receiver** of it, the educational action will fail. At the same time, it is important that the student is self-motivated for the study. Attitude matters, and not all students have the right attitude for this procedure, as some prefer face-to-face training. It is also necessary for the student to master certain intellectual work techniques, especially those related to independent study and carrying out actions supported by collaborative work. In short, the e-learning student must master a series of skills:

- To know when there is a need for information and identify it.
- To know how to work with different fonts and symbolic systems.
- To master information overload, evaluate and organize it.
- To have the ability to express thoughts.
- To be effective in using information to address the problem.
- To know how to communicate the information found to others.

### Communication
To be able to coordinate and communicate in digital environments effectively, share resources through online tools, connect and collaborate with others through digital tools, interact and participate in communities and networks; intercultural awareness.

### Content creation
To create and edit new content (texts, images, videos...), integrate and rework previous knowledge and content, make artistic productions, multimedia content and computer programming, know how to apply intellectual property rights and use licenses.

 What do we have to take into account before implementation?

When implementing b-learning, different variables must be taken into account:

- General ideas: topicality, relevance, scientific relevance, transfer to different learning situations.
- Inclusion of objectives.
- Incorporation of concept maps.
- Presentation of different perspectives.
- Presentation of non-complete materials.
- Progressive difficulty.
- Elaboration of materials with a hypertext structure.
- Significance of case studies.

## Security

For personal protection, data protection, digital identity protection, security use, safe and sustainable use.

## Problem solving

To identify digital needs and resources, make decisions when choosing the appropriate digital tool, according to the purpose or need, solve conceptual problems through digital media, solve technical problems, creative use of technology, update one's own competence and that of others and provide guidance and feedback to your students.

### 3.4.5. The Availability of Online Teaching Environments and Materials

For blended learning to be successful, the availability of accessible and easily usable environments for students and teachers is essential. The educational administrations must provide the necessary tools, as well as different materials so that teachers can have them and adapt them to their needs. The necessary elements are:

**E-learning platform**: it is the center of the digital facet of blended learning. Here the majority of digital resources will be incorporated, from self-assessments to didactic material in different formats. Without a doubt, it is a piece that should not be missing if you decide to bet on this educational model.

**Discussion forums**: they allow students, after face-to-face classes, to have a space where they can share impressions and enrich their visions. They also allow them to request the help of other colleagues.

**Social networks**: like forums, social networks allow students to create synergies with each other to answer questions or even build support groups.

**Physical environment**: the development of physical actions must take place in a physical space (classroom).

**Communication skills**: at a distance, the communication between teacher and student is more "cool", but when blended learning is carried out in person, it does require social skills to deal "face to face" with students. It is necessary to take into account the availability of communication tools that are made available to teachers and students, tools that allow for written communication (email, chat, bulletin board, etc.) to an audiovisual and audiovisual (audio conference and video conference), and that They promote both synchronous communication (chat, video conference, etc.) as asynchronous (bulletin board, email, etc.) and that require a special preparation of the teaching staff to incorporate them without difficulty into the educational practice.

**The importance of OER:** Open Educational Resources arise from the development of Open Source Software. Flexible licensing standards and the development of open content in university education. The term Open Educational Resources was adopted by UNESCO, with the aim of promoting free access to educational materials for use for non-commercial purposes.

In the year 2002, UNESCO educational institutions were called to share their materials for general training and research and to do so free of charge. The main universities began to open their courses by placing them on virtual platforms so that they are accessible to everyone. This is the Open Educational Movement whose idea is based on promoting, sharing, using and reusing knowledge.

OER can be defined as resources for teaching, learning and research, that reside on a site in the public domain or that have been published under an intellectual property license. This allows other people to use it freely or for purposes other than those contemplated by its author.

The use of Open Educational Resources allows new experiences and learning flexibility, provides equity in educational opportunities for different locations, offers alternative low-cost learning resources, and promotes collaborative work, among other advantages.

OERs can be reused, shared, combined with other original content, readjusted or improved on original content, and translated into other languages. They benefit both the students and the rest of the education community. There are three types of open resources: educational content, tools and implementation resources.

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**4. Designing Lessons For Blended Learning**

**4.1. Writing Learning Objectives and Learning Outcomes**

Blended learning is a formal education programme in which students learn through a combination of online and traditional face-to-face tuition. Its learning objectives are the following and aim to:

● **Improve accessibility and flexibility:** enable students to access course content, participate in online learning activities anytime and from anywhere, providing them with greater flexibility to adapt to their schedules and individual needs.

● **Promote interaction and collaboration:** foster active student participation through online discussion forums, workgroups, collaborative activities, and peer feedback, both in the online and face-to-face environment.

● **Personalize learning:** use online tools and resources to adapt course content to students' individual learning needs and styles, offering them more personalized and adaptive learning opportunities.

● **Improve feedback and evaluation:** use online tools to provide quick and detailed feedback to students regarding their progress and performance capabilities, employing multiple evaluation methods both online and in face-to-face teaching to measure student learning.

● **Integrate multimedia resources and technology:** employ a variety of multimedia resources such as videos, simulations, and interactive online activities to enrich the learning experience and facilitate a deeper understanding of concepts.

● **Develop digital skills:** help students develop digital competencies and skills for online learning, facilitating a deeper understanding of concepts.

● **Improve efficiency and optimize classroom time:** use online learning to cover theoretical and foundational concepts, allowing classroom time to be dedicated to more practical or interactive activities such as discussions, application exercises, problem-solving, etc.

In the same way, the achievements or outcomes expected when using blended learning are to:

● **Improve academic performance:** several studies have shown that blended learning can lead to improvements in students' academic performance. The combination of online and face-to-face instruction, along with available activities and resources, can facilitate a deeper understanding of concepts and competencies.

● **Increased participation and engagement:** blended learning promotes greater student participation and engagement. The integration of interactive online activities, discussion forums, collaboration tools... fosters student participation and interaction with the teacher.

● **Flexibility and personalization:** blended learning allows a greater flexibility and personalization of the teaching-learning process. Students can access online materials at any time and at their own pace, adapting learning to their individual needs. Furthermore, online resources can be designed to accommodate different learning styles and allow students to explore or go deeper into topics of interest.

● **Develop digital competencies:** blended learning encourages the development of digital skills and technological competencies as students interact with online platforms, various digital tools and a multitude of multimedia resources. These skills are increasingly necessary and relevant in today's world, where technology plays an essential role in many areas of life and work.

● **Improve feedback and evaluation:** blended learning offers opportunities for immediate and detailed feedback on student progress. Online learning management systems can provide automatic evaluations, quick feedback, and performance tracking, allowing students to discover their strengths as well as areas for improvement.

● **Transfer of skills and knowledge:** blended learning can facilitate the transfer of skills and knowledge to real-world situations. By integrating practical projects, problem-solving activities, and real-world applications, students can

connect what they learn online and apply it in real-life situations, improving their ability to apply knowledge in different contexts.

## 4.2. Consider How Subject Matter May Influence Blended Learning

We know that teaching, instructional design and online learning are affected by the subject matter being taught (Arbaugh, Bangert, & Cleveland-Innes, 2010). Some subjects may be best supported through in-person practical learning, such as those which take place in science labs or art showrooms. That does not mean that it is not possible to simulate science labs online or teach art through video presentations or video conferences with students. The choice of which learning activities to assign to online spaces and which ones to assign to face-to-face learning should be made taking into account the subject you are teaching.

Depending on the subject to be taught, we will make one design or another, but this should not lead us to understand that there are subjects that cannot be taught through blended learning. Numerous studies and previous experiences show success in different subjects and examples of blended learning in subjects at all levels.

In addition, when designing activities, we must take into account the level of each student. Younger students (preschool, primary) do not have as much autonomy as the older ones, so the time dedicated to autonomous learning at each stage should be different.

We must also take families into account and inform them of our activity design, since on many occasions, especially with younger students, their support from home (as we have seen during Covid-19) is essential and we will need them to inform us about which digital resources and materials are available to students.

As regards blended learning, the teacher must ask, according to each subject, which methods, exercises, activities and interactions will ensure students accessibility and understanding of the content, and activities that will ensure that they can recognize, identify, understand and act knowledgeably in all situations or problems that require some knowledge of the subject matter.

Table 1 is used to assist the teacher in the process of analyzing the activities included in his or her subject. The first column refers to the activities used in the typical stages of the teaching process: presentation of topics, guiding the student towards understanding, practice or activities that reinforce knowledge, and evaluation. The second column shows the most common strategies used in the different stages. This table was created for the teacher to identify the strategies

used in their face-to-face class by marking them with a cross in the third column. To complete the fourth column, the teacher must know the options offered by technology to complete these strategies remotely, that is, in the virtual environment. At this point, the teacher decides whether to include or change the format of some strategies commonly used in the face-to-face class. For example, if the teacher gives a master class in every face-to-face meeting, they decide to keep that strategy, and combine it with group discussion, not done in class but through the use of a discussion forum in the virtual environment. The table tries to make explicit this process of analysis that allows the identification, organization, and determination of the teaching strategies to be combined in a blended learning system.

| TEACHING STAGES | STRATEGIES | ON SITE | ON LINE |
|---|---|---|---|
| INTRODUCTION OF NEW TOPICS | Master class<br>Previous reading or in class<br>Discussion in class or in groups<br>Visual presentation<br>Multimedia presentation (film, audio...)<br>Others | ✔<br>✔<br>✔ | ✔<br>✔ |
| GUIDING STUDENT TOWARDS COMPREHENSION | Questions and answers<br>Discussion<br>Debate<br>Practice/lab<br>Application<br>Exercise<br>Others | ✔<br>✔ | ✔<br>✔<br>✔ |
| ACTIVITIES TO PRACTICE | Exercise<br>Essay<br>Discussion<br>Debate<br>Presentation<br>Collaborative exercise (group work)<br>Others | ✔ | ✔<br>✔ |
| EVALUATION | Quiz<br>Essay<br>Test<br>Project<br>Presentation<br>Others | ✔ | ✔ |

**Table 1:** Guide for the design and combination of strategies in a blended learning class. Taken from "Blended Teaching: Integrating technology in your teaching" by N.I.Scagnoli, 2007.

## 4.3. Student Needs Assessment

The Sustainable Development Goal 4 of the 2030 Agenda states that we must ensure inclusive and equitable quality education and promote lifelong learning opportunities for all. In order to aim for this, student needs assessment is one of the main keys.

As the European Commission (2021) explains, students are the main focus of any learning process, hence their needs, expectations, backgrounds and personal characteristics should be assessed; and blended learning is not an exception. Therefore, one of its aims is to address learners' needs and develop their motivation and, consequently, contribute to an effective, inclusive, supportive of wellbeing and engaging education (European Commission, 2023).

In order to create an accurate assessment, not only teachers and students must be involved, but also families as they can play a major role and be a key resource, especially in online learning (Hertz, 2022).

**a) First Approach**

In any learning scenario, one of the first steps is designing an effective initial assessment. To ensure a successful implementation of blended learning, multiple studies (European Commission, 2021; Group of 20. Education Working Group, 2021; Hertz, 2022; UNESCO, 2020) encourage gathering of information regarding important subjects such as:

- **Students needs and capabilities**
- **Learner wellbeing:** ensuring the development of positive relationships.
- **Learning styles:** acknowledgment of their preferences in onsite and online learning, digital tools preferences…
- **Background and families**, especially in primary and secondary education.
- **Accessibility and effectiveness**
- **Remote learning access:** awareness of the availability of electronic devices and internet connection.
- **Blended learning quality:** satisfaction and comfort with methodology and blended learning model, time management and self-adjustment abilities, quality of the peer relationships or the interactions with the teacher.
- **Diversity and equity:** ensuring that blended learning approach does not create or worse inequities. Besides, students with special education needs or whose personal circumstances may have a negative impact on their learning will require a specific consideration.

This data can be collected through surveys and forms, implementing tools such as: Google Forms, Mentimeter, PollEverywhere, Wooclap, Slido, Socrative…

## b) Positive and Prompt Feedback

Detection and assessment of students' needs is not only required at an early stage. Consequently, encouraging positive, effective and prompt feedback, enabling students to share their needs and concerns about blended learning, is advised. In order to do so, we can design:

**Timely and recurring feedback sessions:** the given feedback should be positive and driven with empathy. It should cover not only academic needs, but also those related with the implemented methodology and the wellbeing of the student. As Hertz (2022) states, identifying and implementing regular and effective assessment and feedback techniques is even more important in an online context where little nuances or signals, for instance body language, cannot be easily detected.

**Online discussion:** this can be synchronous or asynchronous. For instance, chats, forums or virtual spaces allow learners to share their needs, doubts and questions. Educators should encourage and supervise the use of these tools and give adequate feedback.

**Student feedback:** it is important to highlight that feedback or assessment is not a one-way road, so it is important that teachers can receive feedback from students about the efficacy of the blended learning practice. Regular surveys can help to assess student satisfaction, their use of digital tools or the effectiveness of the communication with their peers and teachers. Besides, virtual or physical suggestion mailboxes, which ensure confidentiality and anonymity, can provide data to be analyzed to improve the implemented system.

**Tailored communication:** in order to know students' personal needs and reinforce positive relationships, an individual and personal communication with each learner is advised. This can be done in person, online, by email…

## c) Continuous Assessment

In blended learning, assessments need to be reconsidered and adapted (UNESCO, 2021). It is well known that continuous assessment gives a constant feedback of the student progress, not only based on exams or test results, and allows the detection of needs and specific supports. Besides, blended learning presents the chance of using, in addition to traditional assessment instruments, those automated or semi-automated, taking advantage of online tools to track student progress (Deyamport, 2020). Accordingly, educators can apply:

**Initial assessment:** its aim is to retrieve previous knowledge and to get familiar with the tools, techniques and methodology that will be used in the learning process.

**Short tests:** to be done at the end of each topic and with the aim of assessing the immediate comprehension of the students. It can be done online or in-person.

**Interactive activities and gamification:** the design of interactive online activities such as quizzes, games or simulations will allow students to apply and show their competences. These activities will give immediate feedback to the learners and it will increase their engagement.

**Project-Based Learning (PBL):** proposing practical activities or projects will allow students to develop their competences. These activities can require the use of digital tools, the creation of e-portfolios or the submission of writing essays and will bring a nice opportunity to assess the application of their knowledge in real life situations.

**Real time observation:** observing students during their remote or in-person learning allows teachers to assess their level of interest, participation and comprehension, detecting reinforcement needs or adaptations.

**Peer assessment, co-assessment and self-assessment:** these are good practice examples as they promote self-reflection and collaborative learning.

### d) Engagement and Performance: Data Analysis

Blended learning offers the gathering of individual data, timely feedback or flexible pathways (Clayton Christensen Institute, 2023). Analyzing that data will provide an objective vision of the student engagement and performance. For instance, student needs can be assessed by:

**Participation and connection-time records:** analyzing these records offers information about the level of engagement and interest or, on the other hand, it reflects online access issues.

**Grades and performance:** reviewing grades or results of the online assessments in order to analyze student performance will allow teachers to identify those learners who are struggling with blended learning and to design reinforcements or changes in methodology.

**Comparing online and in-person learning:** contrasting engagement and performance data between remote and onsite learning is a good practice to

assess the level of adjustment to each solution and to identify if there is any area where scaffolding is needed.

**e) Monitoring and Adjustment**

Continuous monitoring of the students and the teaching and learning process will facilitate a correct adjustment. Accordingly, it is convenient to assess:

- **Engagement and performance:** observing how students interact, pay attention and participate in any activity or task. Identifying those students who may be less involved or those who may need additional support is key.
- **Use of digital tools:** Monitoring how students apply digital tools and resources. In order to identify the possible need of scaffolding, teachers must constantly assess student skills and their digital literacy.
- **Collaboration and communication:** observing how students interact and work with each other, not only in online activities, but also in face to face tasks. Analyzing subjects such as team working, problem solving or collaborative achievements could lead to a successful identification of those in need or in trouble.
- **Behavior and attitude:** monitoring student behavior and attitude through blended learning will help to solve the signs of frustration, disengagement and any other issues that may affect a successful learning.
- **Students, families and teachers feedback:** as it was previously stated, considering the feedback provided by students and families will play a major role in a proper adjustment. In addition to that, teacher feedback must be also tracked and it would be advisable to measure and monitor its impact in order to provide a meaningful and complete assessment.

By doing these periodic monitoring, methodologies, tools and content could be adapted to ensure a meaningful learning and the development of key competences. This is crucial regarding students with special education needs and to ensure a proper inclusiveness.

Overall, a correct assessment of the student needs allows blended learning to emphasize flexibility of time, place and pace of student learning (Jeffrey, Milne & Higgins, 2014). By ensuring inclusiveness, blended learning offers the ability to adapt learning to individual student needs and interests and, therefore, reflects its support in competence development through the application of knowledge in varied contexts and using varied tools and pedagogies (European Commission, 2023).

**4.4. Aligning Assessment and Learning Objectives**

Blended learning is an important approach to teaching; an adaptive and innovative learning and assessment in schools, online and in communities. The objectives of blended learning should be to support inclusion, learner participation and the well-being of all implicated actors and a wide development of competencies.

### 4.4.1. Constructive Alignment

According to Biggs and Tang (2007), understanding how students learn must be the basis for deciding which ways of teaching and assessing will be most effective, and this, combined with the idea of constructive alignment, creates a powerful theoretical basis for teaching assessment and promoting learning.

Constructive alignment involves the design of the learning process aimed at the objectives and assessment. The assessment system should be explicit and explained to the students, for example, using rubrics, which can help them to see the relationship among:

- The objectives
- The learning activities and the opportunities for formative feedback.
- The gradable assessment tasks.

If learning objectives are explicit, students will be able to build their own learning through appropriate activities, being guided by both the objectives and the assessment.

The explicit learning objectives define evaluation criteria that are used for the design of the assessment and facilitate the identification of needs to be modified with new learning activities or new learning objectives that are not explicit, but valuable. Thus, objectives and assessment are aligned.
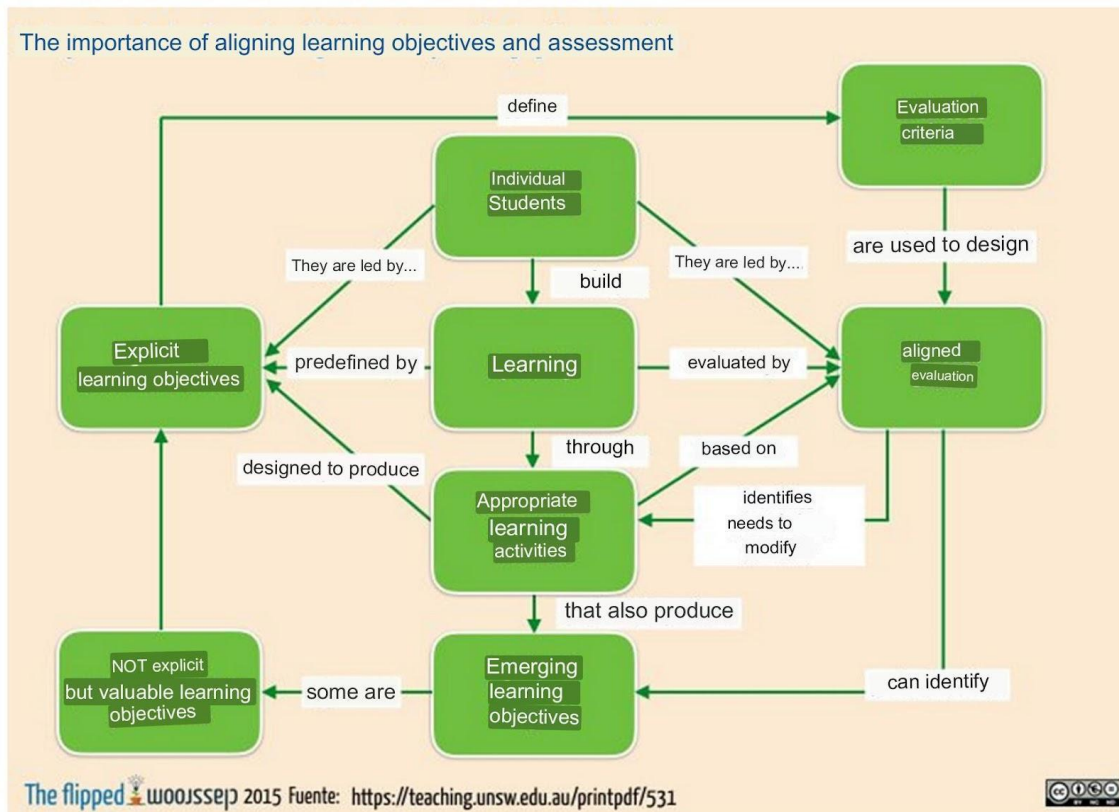
**Diagram 1:** The importance of aligning learning objectives and assessment. Taken from "Teaching for quality learning at university" by Biggs, J. and Tang, C., 2007.

### 4.4.2. Organizing Assessment

Organizing assessment and giving feedback are, for the most part, the same strategies for classroom learning as for online learning, but there are some key considerations that teachers must take into account when dealing with an online context. In the classroom the teacher can perceive, in addition to verbal language, other types of communication such as a nod, a look, a smile, which make the teacher understand if there is progress or response, the contact is greater and the spontaneity and opportunities are also greater (The Chartered College of Teaching, 2022). In an online environment, on the one hand, teachers usually lack this information and, on the other hand, it must be taken into account that assessment and feedback is likely to be more time-consuming, which can be a source of significant pressure and stress for teachers (Kearns, 2012).

Digital technologies can be particularly useful in assessment, making it easier for teachers to register information with instruments that expand the functionalities of the analytics and incorporate other new ones (INTEF, 2011).

The assessment will contemplate the learning objectives in order to send students the correct signals, providing them with precise information about what they should learn and also how they should learn it, since the "what" and "how" of the process depends, to a large extent, on how the student believes they will be assessed.

### 4.4.3. How to Assess?

All educational evaluation should aim to improve the teaching-learning process and measure the acquisition of knowledge and the development of student skills.

A summative evaluation will give us information about learning, a formative evaluation will support learning.

**In summative assessment,** results can send a continuous message to students that they are not achieving the appropriate level, thus creating a negative image of themselves and making it difficult for them to reach the expected level.

**From a formative assessment perspective**, both students and teachers know how learning is developed.

The results of the formative evaluation are used to give feedback during the learning process. This formative feedback can operate both to improve students' own learning and to correct mistakes in the learning process; it is a powerful instrument to detect mistakes; to detect before correcting.

In order to apply an effective formative assessment, the following premises must be taken into account the following premises:

a) Students must have clear learning objectives, this implies that a clear language is used by the teacher and make sure that they are understood so students will know where their activities are going and what is expected from them. When the teacher or their own colleagues point out strengths or weaknesses, they will understand better and will have more elements for self-assessment.

b) Using examples and models of good and bad work will allow them to visualize what is expected of the final result. Understand as a normal part of the process the appearance of difficulties and the importance of self-criticism and feedback for improvement.

c) The importance of feedback. This plays a fundamental role, helping students to situate themselves in the process. It must be descriptive and individualized, offering detailed information, strengths and weaknesses, about each of the learning objectives. It should also be a guiding feedback, offering steps to follow in order to reach these objectives. This feedback should be continuous throughout the process.

d) To teach to self-assess, to enforce their own revision, especially for the weakest students, will facilitate the learning process. For this purpose, students will be required to assess the strengths and weaknesses of some work done and then the teacher will give feedback on it. They can also show other revised work to explain the criteria that were taken into account to assess it, showing how the strengths and weaknesses of the work were identified.

The role of the student as a protagonist in the assessment process is important and implies a transformation in the role of the teacher; in addition to the role as a provider of information for the students; now it will be a motivating element as there will be a continuous feedback in which the progress of the process will be built, acknowledged and promoted until reaching the objective aligned with this formative assessment.

In short, the most important thing will be that students can have access to a clear vision of the learning objectives and then involve them in self-assessment as well as in the exchange of learning with their classmates and teachers.

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