



# White paper on Training Faculty on Blended Learning (FABLE)

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## Introduction

Digital learning has emerged since at least a decade. Previously viewed with some reluctance by HE and VET teaching staffs as well as students and trainees, it was merely considered as a stopgap when courses cannot be delivered in class.<sup>1</sup>

Then came the Covid19 pandemic, locking down millions of pupils, students and vocational trainees, their teachers, professors, educators and trainers. Now that it appears increasingly clear that we will never come back to the pre-Covid situation, we should reflect on how to take benefit of distance learning's specificities to make it an innovative, beneficial and sustainable way of teaching.

The primary target groups of FABLE are the HE and VET teaching staffs who want to create or adapt their curricula for blended learning. FABLE has as its aim to help HE and VET organisations design and implement blended learning courses while fully exploiting the advantages offered by this approach.

The white paper addresses also policy actors and decision makers, ensuring that the FABLE interpretation of blended learning has an acceptance on all levels of the education ecosystems. Elaboration of the white paper as policy document use the project platform and website to disseminate and exchange on the first 'public' draft of the white paper. To compile the enhanced final version of white paper embedded of the disseminations' results.

The white paper collection work was organized by SZE University for the entire consortium. All of the consortium partners' contribution is incorporated.

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<sup>1</sup> Of course, when we talk about reluctance, we are only talking about our target audience (the presential schools in initial academic training). Indeed, the market of 100% online education already had followers and customers. In France, for example, since the 2000s, more than 10,000 vocational/non-academic students per year have been enrolled on each of the three campuses specialising in this online sector.

# 1. What is blended learning

In order to provide the best possible support for everyone, whether they are faculties, staff or students, we have sought to create a common language and consensus.

The terminology of 'blended learning' is widely used, but the content and the definition behind might vary among actors and countries. Thus, it is of highest importance to find a common understanding and interpretation how can we define the term and what key elements can we identify when using it. The aim is presenting the blended learning in terms of state of the art, at defining the modalities of blended learning with alternation between face-to-face, distance, online, hybrid and flipped learning, paying attention to student's spatial-temporal environment.

Formal education traditionally means face-to-face education in classrooms. As the demand for individual, independent learning appeared and then increased, new ways of education were developed. Distance learning previously viewed with some reluctance, it was merely considered as a solution for the ones who cannot come to the educational facility. Then the COVID-19 pandemic has a huge impact on education methods worldwide, and which is clear that it cannot be taught as it was before. The crisis caused by the pandemic shows the need and urgency of the digitalization in the education generally.

It was a great pressure on higher education to adapt to the demand of students 'which means more flexible, effective, active, and student-centred teaching method. The common use of World Wide Web in the education transformed both the teaching and learning method. Educational methods need to change and incorporate digital tools into their everyday practice. Among the several type of teaching methods, the blended learning became one of the commonly used and one of the most common solutions and it represents a solution with high potential.

Blended learning the combination of online synchronous and asynchronous sessions with the use of physical classrooms creates learning environments well suited for academic and non-academic students' needs. Computers, mobile devices, networks, really and virtual spaces are increasingly important in the background of blended learning. The blended method tries to combine the best elements of online and face-to-face learning. The goal is to combine the best of both worlds. This seems to be one of the best ways to combining both face-to-face and online learning materials, and the teachers and students are in the same spatial-temporal environment. That is, online education is not the same as distance learning as many interpret it, namely online learning materials are also used for attendance education.

## 1.1. BLENDED LEARNING AND OTHER APPROACHES

Blended learning means many things to many people. Blended/hybrid learning, in general terms, combines online delivery of educational content with classroom interaction and live instruction. Several researchers interpret that "blended learning" is a combination of online and face-to-face teaching or a combination of face-to-face instruction and computer-mediated instruction.

Blended learning and teaching combines in-person training with online learning, including distance learning, e learning and micro learning to benefit from the advantages of each of these methods. Any variation of internet from the student or from the teacher side belongs to the blended learning. This assumes that all the teachers and students have the right tools and they can use them.

From its first occurrence in 1999, great number of blended learning frameworks and models have emerged. Report on defining blended learning written by Norm Friesen gives an overview and summary of the meaning of "blended learning" which has changed overtime. He suggested a composite definition: "Blended learning designates the range of possibilities presented by combining Internet and digital media with established classroom forms that require the physical co-presence of teacher and students"

There are a number of terms that are often used as synonyms of blended learning. We list and interpret some typical ones.

E learning often regarded as "distance learning", although we also can use Internet-based teaching and learning materials in attendance education, as well. Originally, the first distance

education course was provided in the 19th century, where distance education, also called distance learning means the education of students who may not be physically present at a school. In the modern sense, a distance learning can be completely distance learning, or a combination of distance learning and traditional classroom instruction.

Scholars see flipped learning as a form of blended learning. The flipped learning method is similar in that, but the students' spatial-temporal environment is not the same as their teachers'. Students prepare for lessons at home using the internet. It is said that flipped classroom is a type of blended learning, an instructional strategy aiming to increase student engagement, when students work a lot in their home, for preparing the lessons and in the classroom for discussing the different problem solving or way of thinking in the classroom. A blended learning provides a more effective learning experience for the students, because of the rich online available contents. In this case, both the teacher and students are in the same time in the same place. Unlike in a flipped classroom, when the content is viewed online at home by the students, preparing them for lessons. Surfing on the internet, many of papers can be found positively evaluating flipped education. Quoted the key words from the titles of some below: improvements, fruits of active learning, improve student performance and satisfaction, enhance engagement and promote active learning, the answer to future abstract learning, active, effective and increased learning

According to some authors, blended learning and hybrid learning are similar but not same methods. The difference came from the fact that blended learning is a mix of distance and traditional learning methods, however hybrid learning combines any of online or offline methods. "Hybrid learning is a hybrid approach that builds on the successes of flipped, blended, distance and online learning to intentionally create learner-centred experiences that are profoundly personalized, relevant and engaging".

Stressing the importance of tutoring vs. autonomy, we can put it like that E-learning = little or no tutoring and a lot of autonomy. Blended learning = presence of a lot of synchronous and tutored time.

## **1.2. METHODOLOGY FOR TRANSFORMING COURSES INTO A BLENDED LEARNING FORMAT**

Today there is a huge demand for distance learning, when the teacher and the student are in different space, even at different times. Blended learning can also incorporate the social benefits of the classroom for learning activities requiring a face-to-face interaction with online self-individualized content.

The aim of FABLE is to help higher education teachers to implement blended learning, while fully exploiting the benefits offered by this approach.

Two main lessons emerge from this multi-faceted experience, on which we will focus. On the one hand, hybrid or digital learning is a combination of three distinct universes: pedagogy, digitalization and content publishing; on the other hand, the implementation of hybrid teaching requires the respect of several principles.

### **1.2.1 Understanding the logic of Russian dolls and pedagogical grain**

Unlike traditional teaching, which is subject to linear constraints, hybrid teaching is thought of as a rake. In other words, the learner can follow different courses simultaneously and in the order that corresponds to him/her. It is therefore necessary to design the content starting from the smallest resource, namely: the pedagogical grain! It is commonly defined as follows: "a pedagogical unit is the smallest training unit corresponding to an isolated pedagogical objective. It must be possible to approach it independently of other learning objectives and in this case it is integrated into a digital learning system".

The action of digitising educational content thus follows a logic of successive grains. In the manner of a chaptering system, as can be seen, for example, on the Netflix platform, where episodes of a series follow one another to create a season, a course module will correspond, for example, to a succession of videos.

### 1.2.2 DIY: adapting the syllabus

Digitalising a course means translating a syllabus and its face-to-face sessions into asynchronous teaching content and synchronous virtual sessions. For this DIY, we assume the following:

- you are the author and teacher of the course,
- a distribution platform is already available,
- a template has been provided to you.

Your mission is to :

- scripting your course,
- writing and delivering your content,
- animate it on the platform.

Ingredients:

- your syllabus and pedagogical note,
- your course materials already created for the classroom (PPT presentation, case studies, exercises, articles, etc.),
- the template provided and its user guide,
- the list of methods offered by the delivery platform (video, quiz, audio, adaptive learning, etc.),
  - the level of granularity required by the platform (Programme, Block, Module, Theme, Chapter, Grain, etc.),
- the editorial and graphic charter of your training organisation,
- examples of already digitised courses,
- a pre-established synchronous session volume or one that you define yourself
- a final exam subject,
- a proof-reader and a tester.

Process:

1 - Analyse the syllabus to produce a course outline

- divide the sessions and expectations into chapters,
- identify perennial and non-perennial topics,
- assign perennial elements to written, audio or video content,
- assign non-permanent elements to specific formats (additional resources) or synchronous formats (oral facilitation),
- validate your lesson plan.

2 - Scripting your sample chapter

- produce a plan for each chapter,
- at least indicate in your plan a summary, the knowledge, objectives and skills,
- place an interactive modality (quiz or other) every 10 to 15 minutes of reading or viewing,
- produce a summary sheet of what the learner should learn,

- conclude with a different, cross-cutting format, e.g. a practical case, for each chapter.

### 3 - Organise your timetable

- allow 1 to 2 days of writing time for a chapter,
- take up your overall course plan,
- build your production schedule (writing and delivery).

### 4 - Writing and production

- take your standard script,
- adapt it to the template provided,
- write your first chapter,
- have a third party check the quality of the rendering,
- iterate until the first chapter is validated,
- produce the following chapters on the same model.

### 5 - Publication

- export your deliverables in a format recognised by your distribution platform,
- have a third-party tester check for conformity,
- publish the content.

### 6 - Operation

- schedule all the synchronous times identified in the first point,
- present the asynchronous content during the first virtual class,
- give a theme for each masterclass in a reverse teaching logic,
- regularly improve your content according to user feedback.

## 2. Blended learning use cases

The objective was to create a knowledge bank, to better identify the needs and expectations of students on the one hand, professors, educators, and administrative staff on the other hand, regarding online learning and trainings, reaching to the opinions towards blended learning.

Students, faculty, and administrative staff were the targets in this survey to examine their needs and expectations regarding online and blended learning. The survey was complemented with online questionnaires with students, faculty and administrative staff and furthermore, with in-depth interviews with faculty and administrative staff to deepen the knowledge and additionally to investigate experiences and best practices.

### 2.1. BLENDED LEARNING BY STUDENTS

The majority of respondents in the survey were Students. Most of those students had 100% face-to-face lectures before Covid-19 and this changed during the pandemic, as most of them then had 100% online studies.

For the purposes of general audiences, it was decided to not use online learning, blended learning or hybrid learning as separate options, but to discuss just about “online studies” as there was evidence based on prior data that the students might struggle with the definitions and distinguishing the differences between these educational approaches.

Their response reveals that **social challenges dominate over technological ones**. Students do not have a big problem with technology and in how to handle the online environment apparently. Most students did not find the use of multiple interfaces for learning problematic. In addition, it was easy to organise different online materials and resources for the majority of students. Overall, the students reported that they have no issues with the online education tools. The online participation tools or their usability is not the issue; students can use the tools and even have usages for them, in which they prefer the online tools to face-to-face events.

**However, the social aspect, time management, motivation, and procrastination were challenges students dealt with.** Developing an online social presence was challenging for the participating students. Moreover, they indicated that they procrastinated more online than in face-to-face lectures and felt unmotivated. For time management, the result was more mixed, for some students it is more time consuming to learn online, but for some others not. The low interaction with lecturers and peers was the element, which most hindered the student’s studies.

Furthermore, when it comes to the benefits, **the most relevant benefit is flexibility** according to the students participating in the survey. Finally, students prefer synchronous delivery according to our survey and actually have a slight positive satisfaction level overall.

Indeed, the digitalisation of course does not replace the human dimension of training. More than that, it requires particular vigilance to prevent drop-out and to ensure learner engagement.

By the principle of commitment, we mean all the support systems and tools to be implemented for the success of the learner:

- tutoring by teachers in virtual classrooms and in paired session,
- individual pedagogical coaching,
- job placement coaching,
- technical assistance in the use of the tools,
- digitalized individual administrative support.

Ideally, each of these supports should be subject to documented procedures and differentiated personnel.

Learner engagement can be measured through the following indicators:

- percentage of completion of the training course for asynchronous content,
- attendance at virtual classes or percentage of replays viewed,



- number of weekly or monthly connections to the platform,
- number of effective hours of connection to the platform,
- completion of the expected coaching deliverables and exercises.

Note that the indicators given are general but may differ from one tool to another.

## 2.2. BLENDED LEARNING BY STAFF

For faculty, most respondents were from engineering (153 faculty, 38%) and business areas (25%), and it can be derived that **pedagogical challenges dominate over technological ones** as well, so lecturers tend to have not much problem with technology, it is more about the pedagogical aspect. In their point of view, adopting to new learning technologies is not an issue, however, the creation of online content and maintaining students engaged represent a problem. In addition, the results reveal that online teaching is more time consuming than “offline”.

Just as in the case of students, **flexibility is the most relevant benefit for them as well and the low engagement the most relevant challenge**. There is still scepticism over the effectiveness of online learning; however, the overall satisfaction level is also slightly positive.

The administrative staff (74), being the one responsible for the student’s and lecturer’s online equipment and development, it is no surprise that they suffer from challenges such as the provision of the right platform, software selection, tools availability, etc. but **the most significant challenge is the provision of adequate training for students and faculty**. In addition, implementation cost is a significant factor when it comes to the online environment. However, respondents cannot agree whether online learning is more cost effective compared to traditional learning. Apart from benefits such as covering of more material, freeing lecture time, self-depending learning, they also think that flexibility is the most relevant benefit.

## 2.3. OTHER USE CASES OF BLENDED LEARNING

For creating a knowledge bank, to better identify needs and expectations of students, faculty, and administrative staff regarding online and blended learning, interviews were conducted (30 interviews, of which 19 were faculty members and 11 administrative staff).

About faculty, the time management and technology were discussed and there was consensus that universities should help with trainings and tools, support and some wishes were exposed. The transfer of the purpose turns out to be important and ideas came to how engage students in an online environment. The shared best practices can help the learning environment to improve and expectations regarding the university infrastructure were highlighted as well. Benefits and the potential of blended learning were also topics talked through.

Overall, relevant insights could be gained and needs, as well as expectations could be identified, helping to create a valuable blended learning experience in the future.

### Summary of use cases

The survey reveals a slightly positive satisfaction level overall for all groups who participated with online learning. The most crucial benefit could be identified on which it should be built on, namely the flexibility. The results show that for students and faculty, social challenges dominate, and building relationships, as well as the pedagogical challenges are controlling lecturers’ problems. Definitely, a need for solutions for those issues could be identified. The most important benefit for all is flexibility and the most important challenge the low interaction. Administrative staff must fight with the training for students and faculty, hence we can see this loop here, as students miss the motivation and the interaction, but for lecturers it is a big challenge to engage students and the administrative staff have the problem to train both stakeholders. Everything comes together and is interdependent.

### 3. Advantages brought by blended learning

Considering the tremendous growth of online that has occurred during the past few years, educators continuously face the significant challenge of ensuring that the quality of online education keeps pace with the quantity of users. The effectiveness of traditional vs. online learning has been vigorously debated and conclusions vary.

The results regarding the effectiveness of these forms of education could not prove and underpin clearly the highest effectiveness neither the face-to-face/traditional education nor blended/flipped classrooms. The combination of these methods are the best. The aim of this mixed method is to make the education personalized and flexible. Focusing on its following five fundamental attributes: complexity, self-organization, adaptability, dynamism, and the ability to co-evolve, we can conclude that the blended learning is an adaptive, dynamic, self-organizing, co-evolving complex system that seamlessly fuses face-to-face with technology-mediated learning.

#### 3.1. PEDAGOGICAL INNOVATIONS

One of the critical aspects of the online/distance education is to design a generic methodology for transforming in-person courses into blended learning courses that takes into account both the topic taught and the level of the students. Defining the pedagogical engineering methodology to be taken into account by determining the most relevant pedagogical tools and modalities of blended learning, and based on these actions defines a recommendation for the coaching and tutoring process to be set up to help students succeed while decreasing the number of students dropping out of school.

Blended teaching/learning offers numerous benefits/advantages. Highlighting the most significant:

- **Personalisation:** by adding self-training and virtual classes to in-class teaching, blended learning can be delivered almost anywhere and at any time.
- It favours memory anchoring. By allowing shorter learning sessions distributed over time, blended learning is much more effective than concentrated sessions, it delivers pedagogical contents at right amount, at right moment;
- It promotes back-and-forth moves between knowledge acquisition and practical application during virtual class interclasses making it easier to evaluate not only the knowledge but also the skill improvement;
- It facilitates quality assessment: blended learning learners no longer simply acquire knowledge, but develops skills, making it easier to assess the rise in the skill level;
- It suits digital natives and is adapted to increasingly technology-oriented learning methods;
- Social learning is encouraged, and a micro-community can be created around the training, leading to peer-to-peer learning and assessment.

#### 3.2. SOLVING TEMPORARY AND STRUCTURAL PROBLEMS

The role of the teacher in a digital learning context differs marginally from his or her role in the regular classroom. The main role of the lecturer in online learning is facilitating discussion and technological support but also included roles like create interaction, communication, being able to cope and deal with difficult situations and being understandable in this case as sometimes for instance there is bad internet connection. In fact, in a remote context, he/she should rely on a reverse pedagogical approach and a flipped classroom, with a stronger role of federating and mobilising the participants.

At a higher level, distance learning displays nevertheless specificities worth to be fully exploited. The context has favoured the emergence of blended courses made of face-to-face teaching, live videoconferencing courses, online accessible recorded courses, micro-learning and online self-training. However, simply replacing face-to-face teaching with online courses would be far from sufficient.

As it was mentioned above, personalisation **by adding self-training and virtual classes to in-class teaching, blended learning can be delivered almost anywhere and at any time.** Training can now fit in a pocket and is becoming more and more convenient for us to travel. The training can therefore be consulted anywhere and at any time.

Positive aspects are flexibility, easiness and schedules. Having courses online allows students to for example work while studying and participate from long distance.

The matter of whether the learning event is live, streamed or recorded does not matter if the communication channels exist otherwise, and the online participation tools are considered easy enough to use. Positive aspects is also to have access to the teaching staff.

In general, benefits of online learning could be identified, as the internationality, break geographical barriers, convenience, flexibility, easiness of communication and even the climate protection was a topic. Overall, it could be seen also as a success in developing technologically and getting more familiar with the online and digital environment.

## 4. Challenges of blended learning

Considering the negative aspects, technical, methodological/pedagogical, social and environmental issues can be mentioned.

### 4.1. TECHNICAL CHALLENGES

In terms of technical challenges, globally, some universities were able to overcome the challenges of the Covid-19 epidemic through technology, not all universities were similarly ready. The first issue is the appropriate ICT infrastructure. If students have a good ICT background, then innovative learning and teaching methodologies can help. It is very important, that lecturers should not forget about the opportunities inherent in editing common documents, creating, visualizing 3D objects, and running simulations, as further opportunities for knowledge gain, which also help the cooperation, and the implementation of the common project. Students are eager to see the new technology because it is part of their digital life and their culture. From the educational perspective, an important benefit of such technologies is that they lead to a teaching environment that is learner-centred. There are many virtual and augmented events and educational software and some of them give the possibility of active user actions. Since the user is moving in space, talking to partners and the speaker, chatting, reading an article, studying a presentation during a presentation, etc.

Internet problems did not weigh heavily on students' sentiments toward remote learning. Students did see online learning as being less rigid than in-class learning. Many students think that teaching methods are positively influenced by online learning where recorded lectures, professor accessibility, and more interactivity were commonly cited. Technology was also seen as a positive benefit of online learning over traditional in-class learning. Technology should help and provide a purpose, so not using it only because it is "cool" or the trend, but because there is a pedagogical purpose and a learning goal.

Important topic is the university infrastructure, also. Pedagogical assistance and more discussions and exchange possibilities should be provided. Lecturers believe that professionals with pedagogical profiles do not coincide with the reality of the classroom, although they reinforce knowledge. Particularly administrative staff could contribute to these topics because when it comes to the acquisition of tools, these are the people who know the processes behind it. Data policy and comfort, as well as usability are critical aspects in this context. User-friendly tools and more licenses, trainings and workshops are wished for. With the acquisition come also costs which have to be taken into consideration. Therefore, the budgets of the universities are playing a role here as well. There must be a balance between allowing academic freedom and limiting divergences and losing control of these tools. A standard approach with a pool of tools is required.

### 4.2. METHODOLOGICAL/PEDAGOGICAL CHALLENGES

From methodological/pedagogical perspective, low level or lack of motivation, lack of discipline and low accountability can be challenging.

The issue of motivation to participate as one of the biggest problems in online versions of the courses normally arranged as at-campus course modules. It can be difficult and discouraging for students to use online materials. Students must be engaged in the material and eager to study it to be motivated. There are methods inspire students. One strategy is to try to gather students in groups even throughout the week. In other words, assigning them projects that they will subsequently work on in small groups, provide them with social contact opportunity. The second is to attempt to provide structure by not just showing the videos and saying that you may email me your questions, but also by holding weekly meetings with specified assignments for follow-up work so that there are always short-term goals. Motivating students to learn need contacts. Once motivation is shared, they start learning without any problems. To improve student engagement during online lectures, professors might hold interactive sessions in which students are encouraged to actively participate. Communication in only one direction will not succeed. However, asking students to work in groups in breakout rooms to prepare something after a few minutes is a better method to truly engage them. Teachers cannot otherwise ensure that

students focus on other tasks while teaching. Exercises and quizzes can also help to increase interaction during lectures.

Open schedules may lead to lack of discipline. Avoiding the disadvantage that the system is too permissive, solution to engage students is deciding to do some ground rules, in order to strengthen discipline. For instance, they need to turn on their camera during group works in breakout rooms to make sure they actively participate. Another guideline that helped organize and engage students during online learning was that if they missed a deadline, they would not be able to retrieve the link to the assignment or task afterward, which aided in more disciplined and organized teaching.

The ability to decide on the own working schedules with the online courses are considered on several student feedbacks as the most important factor that online education enables. However, raises a concern over procrastination with the students being late, or sometimes simply failing to arrange their own work to get a passing grade. Therefore, structured and scheduled courses with some ability to select studying hours are inevitable.

Accountability is inevitable in online learning if the learners are not engaged during the lecture. It can be managed by imposing strict weekly/biweekly deadlines and exercises and by requiring learners to engage with course content in small chunks all the time.

Throughout online, precise information on how to perform tasks such as projects, internships, and thesis, can be lost. Precise instructions are needed on how to perform tasks. That is one of the reasons why students value face-to-face learning.

Lecturers get frustrated sometimes due to the lack of feedback and interaction, however, those are responsible for the motivation themselves, as the teacher transfers motivation to the students. Important to find out is, where resistance comes from. Additionally, for resistant lecturers, internal transfer is more effective, and it is crucial to offer personal solutions. In general, it is crucial to embrace the online environment and see it as part of the new work. Regarding the creation of student engagement, there are several ideas. The most common point is the group work, it is an effective solution to bring students together in groups and let them work together. Icebreakers in the beginning, cameras on, breaks, varying activities every 25 minutes, VR/AR, quizzes, mentimeter were some more ideas.

### 4.3. SOCIAL CHALLENGES

Considering the social challenges, the most critical aspect of online learning is the low interaction: lack of contact and communication. Learning community is one of the major challenges. How can students interact and learn from each other. It would be difficult for students when there is not any socialization. Interactions between lecturers and students has to be improved which is difficult to achieve during online learning. Students need to be motivated to take part in online forums and conversations. There has to be some interactive components in which students collaborate, meet the course personnel, and engage in more social activities. During online learning, communication and socializing suffer. Interaction with students throughout the course is critical to improving the quality; in online courses, feedback is often received at the end of the course; to have more efficient interaction, more collaboration and online community are required.

Active participation and new technology can help to solve the lack of socialization problem. Group work can also help to improve the social presence of students. Common social network groups dedicated to a subject or project can also help cooperation and their social presence. To solve low motivation and the poor social feeling caused by digital learning, organizing group works as much as possible helps to motivate and engage students in the online space. With small groups, everything is easier! In some cases, dividing classes into three or four groups and asking for shorter presentations, and more conversations makes students happy and comfortable with online learning. Less personal contact leads to an impersonal education. Sometimes students must meet each other and their teachers.

For enough socialization, one solution is to invite students to organize some type of happy hour online or online lunches, where students may have lunch together in a relaxed setting, so they can communicate.

The ability and access **to communicate with the teaching staff** is another important aspect required for successful course modules. One universal observation was that the demand for qualified academic personnel has grown because of the challenges provided by a fast-paced, highly dynamic, and more global economy. If the access to teaching staff is arranged otherwise, the lectures being live events (at campus or streamed) were no longer a concern.

Related to the procrastination has been said that it is connected to the social component and the motivation and there are some advices how to overcome this issue. These are homework, time schedules, more consistency, weekly assignments, quizzes, giving structure, making rules, being friendly and motivated and happy to share experience and knowledge, making good study materials and provide it beforehand.

#### 4.4. ENVIRONMENTAL CHALLENGES

Home environments of the students played a critical role in shaping online learning perceptions..

Many students positively mentioned the comforts of their home environment when learning online and the ability to eat and drink during their online classes. The students liked learning in the comforts of their home environments and the time, convenience, and cost benefits associated with online learning and having more free time. The home environment goes way beyond an adequate Internet connection or personal computer.

Bad home environment can include elements like distracting noises, poor heating and/o cooling, too many people living in one space, bad furniture, inadequate lighting, thin walls, and many other factors. Students who experienced more problems with their home environments were more likely to have a more negative online learning sentiment.

Students struggled to set their daily schedules, create effective routines, and organize their own studies. Many students were missing the organization and structure provided by traditional teaching and found the task of organizing the pace of their learning to be difficult. We could observed how easily students become distracted at home when compared to the classroom. We could observed also negative effect on their ability to focus and organize their studies and a dampening effect on their motivation to study. The negative impact of the COVID 19 pandemic, particularly for the most vulnerable student groups, has revealed. The major depressive and anxiety disorders and the psychosocial strain increased significantly during periods of home confinement. Online learning had a detrimental effect on their social and personal lives. A significant number of students mentioned that online learning negatively influenced group projects and activities; and they missed friends, teachers, and participating in sports. The loss of contact with the school creates many responsibilities that students are not used to undertaking.

Having a good home environment, however, is not enough to ensure that a student will learn effectively from home.

## 5. Recommendations for blended learning

### 5.1. INDIVIDUAL LEVEL

The COVID-19 situation has greatly affected the teaching and learning methods forcing the educational institutions at all level to turn to the digitalization. There is also a great demand for flexibility and autonomy for students as well as educators.

Important to say is that lecturers should find their own way, which suits them and their students and learning goals most. We recommend not to use an approach only because it is a trend, it has to suit you. However, also it is crucial to step out of the comfort zone sometimes and to try out new things and create the best experience. There are different approaches in blended learning and it is possible to adapt the methods into the different environments. Find out what is fitting to you and your class.

### 5.2. INSTITUTIONAL LEVEL

Hybrid Learning can be seen as Great Compromise. While COVID-19 has forced most university students to learn online, the range of remote learning sentiments varies significantly. Some students learn better in-class and some students prefer to learn online. Hybrid or blended learning is being increasingly seen by higher education as a compromise that satisfies the needs of the greatest number of students.

Many students support the hybrid learning as a good compromise between in-class and online learning. Properly designed hybrid learning programs have the potential to achieve at least equal outcomes as traditional learning. The students like the teaching methods that are a part of online learning such as recorded videos, interactivity, and use of technology.

The COVID-19 pandemic has permanently changed education at all levels, and it is time for educational institutions to transition to the “new normal.” Online education is no longer a consideration, but rather an imperative. While many are quick to point out, however, all the benefits of online learning, such as convenience and cost, it also has some serious side effects that must be addressed. Holistic online learning is a way to view students as more than icons on a dashboard and to understand that the loss or reduction of a school environment has consequences.

Universities must decide whether to revert to a pre-pandemic state or to transition to a high-end online learning platform. Successful educational institutions, like businesses, will find ways to collect and analyse data frequently to better understanding the needs of students and of the marketplace.

Our recommendations for HE and VET organisations:

1. Like businesses trying to gauge consumer sentiment, higher education must collect more data, more often to understand how to adapt to our rapidly changing world.
2. Recognize that technology will play an increasingly larger role in higher education.
3. Use frequently collected data and secondary data to define what hybrid learning is for your institution (i.e. 20% online, 80% in-class, 80% in-class, 20% online).
4. Identify academic disciplines that require different levels of hybrid learning.
5. In a world threatened by inflation, hybrid learning has the ability to reduce costs.

### 5.3. GOVERNMENTAL LEVEL

The COVID-19 pandemic has permanently changed education at all levels, and it is time for decision makers to transition to the “new normal” that is characterized by a significant increase in uncertainty for higher education institutions. Online education is no longer a consideration, but rather an imperative. While many are quick to point out, however, all the benefits of online learning, such as convenience and cost, it also has some serious side effects that must be addressed. Holistic online learning is a way to view students as more than icons on a dashboard and to understand that the loss or reduction of a school environment has consequences.

Our conclusion is (in line with former U.S. Education Secretary, Margaret Spellings thoughts): Higher education has become what, in the business world, would be called a mature enterprise: increasingly risk-averse, at times self-satisfied, and unduly expensive. It is an enterprise that has yet to address the fundamental issues of how academic programs and institutions must be transformed to serve the changing educational needs of a knowledge economy. It has yet to successfully confront the impact of globalization, rapidly evolving technologies, an increasingly diverse and aging population, and an evolving marketplace characterized by new needs and paradigms. Serious self-examination and reform is needed to improve their market share and services.

To avoid disruption in the future, higher education must become better at adopting technology, better listeners to their customers (the students), more frequent collectors and analysers of data, and more aware of the competition that can come from anywhere on the planet.



## 6. Digital future

Any of the practices, including blended/hybrid learning, online learning, flipped, distance learning can be considered as digital in its nature applying world wide web technology and contents for learning. Even, the Virtual Reality (VR), Augmented Reality (AR) and Mixed Reality (MR) can be seen as learning strategy of the future. Today, we can see many positive experiences in the field of VR, AR and MR education. The difference between them is as follows: VR immerses users in a fully artificial digital environment (User needs to wear a special VR headset to experience virtual reality). AR overlays virtual objects on the real-world environment (In augmented reality, users see and interact with the real world while digital content is added to it). MR not just overlays but anchors virtual objects to the real world (It has two types: MR that starts with the real world vs. MR that starts with the virtual world).

Teaching in universities needed to be quickly transitioned from regular on-campus classes into technology-enhanced teaching formats. The crisis caused by the pandemic shows the need and urgency of the digitalization in the education generally and in the tertiary education specially.

## SWOT analysis of blended learning

<p><b>STRENGTHS</b></p> <ul style="list-style-type: none"> <li>- Digital transformation and customization for face-to-face or hybrid students</li> <li>- Trained teachers-researchers in online teaching</li> <li>- A public of foreign students or students living outside the campus area who wish to be trained can be involved</li> <li>- A significant activity towards partner countries for which online teaching is a real option</li> <li>- Learning process compatible with other duties: work, family, disease (convenience)</li> <li>- Higher space and time flexibility, both for teachers and students</li> <li>- Quick content update, since they are delivered digitally, and no third-party help is needed</li> <li>- Combines flexibility with a close relationship with peers and teachers</li> <li>- Self-learning with face-to-face solving doubts</li> </ul>	<p><b>WEKNESSSES</b></p> <ul style="list-style-type: none"> <li>- Need to outsource content production (videos) in the absence of in-house skills</li> <li>- Need to train a specific team for sales and admissions</li> <li>- Need to understand the technical and legal specifications for the validity of the programmes (organisation of exams, attendance monitoring, authentication procedure...)</li> <li>- Need for a high level of responsibility and commitment to the course</li> <li>- Low digitally skilled students and teachers have difficulties getting involved in this kind of course</li> <li>- Procrastination and motivation problems</li> <li>- Absence of social interaction in online component</li> <li>- Technical issues</li> </ul>
<p><b>OPPORTUNITIES</b></p> <ul style="list-style-type: none"> <li>- A fast growing online market (+150% during the COVID crisis)</li> <li>- Government aid for students on work placements and apprenticeship courses</li> <li>- Competing traditional schools with little or no 100% online offer</li> <li>- Self-depended learning</li> <li>- Students can deepen in content more related to personal interests</li> <li>- Flexible plans, with different percentages of face-to-face or online sessions, to adapt to different student profiles</li> <li>- Improvement of both digital and interaction skills (Digital development)</li> </ul>	<p><b>THREATS</b></p> <ul style="list-style-type: none"> <li>- A new type of audience that we need to get to know</li> <li>- Very aggressive competitors outside traditional schools</li> <li>- New standards and labels to respect</li> <li>- resistance</li> <li>- In contrast to traditional teaching more time consuming and costly</li> <li>-No student engagement</li> <li>- Barrier to miss a class is low</li> <li>- Avoiding attending to the not preferred format (avoiding face-to face or online sessions).</li> </ul>

## Glossary

**Distance learning** originally means the education of students who may not be physically present at a school. In the modern sense, a distance learning can be completely distance learning, or a combination of distance learning and traditional classroom instruction. At a higher level, distance learning displays some specificities. Distance learning combines interacting synchronous and asynchronous activities

**Digital learning** is a learning method based on the use of new digital tools to enable learners to learn in a different way, whether it be face-to-face, distance learning (asynchronous or synchronous) or blended learning. Any of the practices, including blended/hybrid learning, online learning, flipped, distance learning can be considered as digital in its nature applying world wide web technology and contents for learning. It is therefore not simply a question of digitising educational content but of a set of educational methods. In other words, digital learning is the digitalisation of the entire learning experience: social learning, virtual meetings with professionals, online exams, networking with alumni, professionalization workshops, etc.

**Online/E-learning** is only one important pedagogical modality of digital learning, which in turn encompasses all online learning methods and techniques.

*Online/E-learning and Digital Learning: what differences?* Digital/online/e-learning/education is not the same as distance learning, as many interpret it, namely online/internet-based learning and teaching materials are also used for attendance education.

**Blended/hybrid/mixed learning**, in general terms, is a combination of online delivery of educational content with classroom interaction and live instruction or a combination of face-to-face instruction and computer-mediated instruction. Blended learning/hybrid learning and teaching combines in-person/face-to-face training with online learning, including distance learning, e-learning and micro-learning to benefit from the advantages of each of these methods. In this case, both the teacher and students are in the same time in the same place. The aim of this mixed method is to make the education personalized and flexible. A blended learning provides a more effective learning experience for the students, because of the rich online available contents. In this case, both the teacher and students are in the same time in the same place.

According to some authors, *blended learning and hybrid learning* are similar but not same methods. The difference came from the fact that blended learning is a mix of distance and traditional learning methods, however hybrid learning combines any of online or offline methods. Hybrid learning is a hybrid approach that builds on the successes of flipped, blended, distance and online learning to intentionally create learner-centred experiences that are profoundly personalized, relevant and engaging.

**Flipped learning** is considered by scholars as a form of blended learning. It is said that flipped classroom is a type of blended learning, an instructional strategy aiming to increase student engagement, when students work a lot in their home, for preparing the lessons and in the classroom for discussing the different problem solving or way of thinking in the classroom.

*Blended learning vs Flipped learning – What's the difference?* In the blended learning case, both the teacher and students are in the same time in the same place. Unlike in a flipped classroom, when the content is viewed online at home by the students, preparing them for lessons.

**Formal/traditional education** means face-to-face/attendance education in classrooms.