



BLENDING COURSES GUIDELINES

START

Co-funded by the
Erasmus+ Programme
of the European Union



Introduction

Within the overall **Erasmus+ Strategic Partnership**, BUDS Intensive Training Programme (from now on, BUDS) is a blended “e-learning & face-to-face” course with very clear learning objectives: build up digital consulting skills among higher education students, putting together an in-depth self-paced e-learning and an in-presence experiential training with leading consulting companies.

BUDS has been designed together with a few **key stakeholders** in the domain: Assoconsult, the Italian Association of Management Consulting Companies (plus a few leading Consulting Companies and Software Vendors) and YERUN, the network of Young European Research Universities (mainly its group on Innovative Teaching & Learning). Moreover, leading consulting companies and software vendors play a key role in teaching and mentoring during the programme.

BUDS blended design was originally conceived as the merge of an initial part fully on the e-learning platform, with no interactions with the participants (and among the participants), and a second part fully face-to-face, with no use of any technological platform to support learning. The response to the Covid emergency forced the use of technology also in the second part, as also the synchronous part had to be run online. Such a change made evident that the original distinction between e-learning and face-to-face was too rigid. The face-to-face section has been enriched with distance interactions based on a collaborative platform, allowing the groups to carry out activities for a more extended period, with assignments more challenging and closer to real consulting jobs. The e-learning platform has been enriched with interactions, mainly thanks to forum features.

Introduction

These guidelines were created based on challenges and insights we encountered during the creation of the blended BUDS Intensive Training Programme. They provide ideas on how to **plan, design** and **manage** a blended course.

These guidelines include a final section highlighting how we deployed their key features in the BUDS project, how teachers can be empowered through digital competences for education and how contents can be reused taking into account IPR and Open Access.

Discover more about the project: <https://buds.uniroma2.it/>



Partners



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BUDS guidelines index

PLAN

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- 2 Deciding on educational tools to ensure the achievement of the learning objectives
- 3 Identifying the LMS/LCMS and its tools
- 4 Determining the elements of learning analytics to be collected
- 5 Ensuring the sustainability of the blended course

DESIGN

- 1 Creating the right balance between synchronous and asynchronous learning
- 2 Creating rubrics that can be used for evaluations
- 3 Providing a variety of teaching methods in the blended course
- 4 Using pull and push in the blended course
- 5 Providing the right amount of repetition to ensure the students' success

MANAGE

- 1 Creating a good learning experience
- 2 Teacher as coach & mentor (and other roles)
- 3 Creating social interaction among students
- 4 Supporting / Motivating students in their learning process
- 5 Students in charge of their own (blended) learning

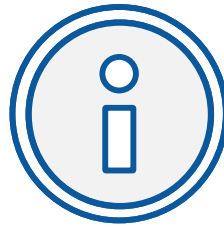


Identifying the learning objectives and the target group(s)

Blended design starts with the **analysis** phase. If you want to develop a qualitative and sustainable blended course, it pays off to take time for good preparation. In the analysis phase, you consider a number of aspects that are important for the conditions of your blended learning program. The first questions you should ask yourself are the following: 'Who is this blended course for? Who is the **target audience**?', and 'What does the target audience need and expect?'. Additionally, you should ask yourself 'What is the **prior knowledge** of the target group?'. Based on the answer to these questions, you can then determine what you want to achieve and what you want your students to know and be able to do after the blended course is completed.



DEFINITION



HOW TO & GOOD PRACTICES



REFERENCES





Identifying the learning objectives and the target group(s)



Before actually starting to design a blended course, it is important to consider the **target group**. It is important to clearly identify for whom your learning path will be created, as this will also determine the main **goals** and **learning objectives** of your blended course. It is important to match your design with the experiences and needs of your target group, as participants tend to drop out of online learning activities if they don't fulfill their **needs and expectations**. After all, it is easier to click away from a module than to walk out of a classroom.

This first step, in which the target group is determined, is often skipped, based on the idea that one knows the target group because one has been teaching a specific subject to a specific target group for a long time. However, it is really worth the effort to get under the skin of the target group and **identify specific characteristics** and write them down explicitly. In addition, it is also important to keep in mind that the **target group can differ per subject**, even within a training program. For example, the students' motivation or prior knowledge may be different for different subjects.



Identifying the learning objectives and the target group(s)



The first thing to do is to frame your target group in personas. You create a **general picture** of whom is taking your blended classes. Think about your students' age, nationality (or a mixed audience?), education level, prior knowledge, experiences, etc. The answers will determine, among other things, the main goals and learning objectives of your blended course, and the way you present the course.

It is also useful to look at the **group size** for your course, as this characteristic will also have an impact on the choice of learning activities and their practical organization.



Identifying the learning objectives and the target group(s)



In addition, it is also useful to consider some **practical questions** such as:

- Do all students have access to a laptop? Or a smartphone? Or both?
- What is my students' digital literacy level?
- What knowledge and experience do students already have of blended learning?
- What tools do my students know? Which tools are they familiar with?
- Are students comfortable with new tools or is this a barrier?
- Are students familiar with the content of the course?

These are all questions that are important to keep in mind when selecting learning activities and the associated tools.



Identifying the learning objectives and the target group(s)



It is also important to identify **psycho-emotional characteristics**. Ask yourself questions such as 'What motivates my target group?', 'How can I engage them in the learning material?', 'How can I keep their interest?', etc. Once you have mapped out the above characteristics, you can move on to the next step in your blended design. However, keep these characteristics in mind at every step in your design.

The better the blended course matches the needs and expectations of your target group, the higher the retention rate will be. Take the opportunity to gather **feedback** from your students during the blended course. This will allow you to make adjustments if necessary.

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Identifying the learning objectives and the target group(s)

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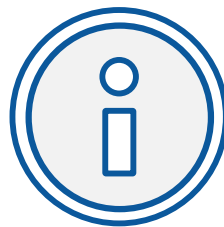
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Deciding on educational tools to ensure the achievement of the learning objectives

Good technology integration isn't a matter of choosing the fanciest tool, it's about being aware of the range of options and picking the best technological intervention. A powerful model to consider when integrating technology in education is **Puentedura's SAMR model**. It helps educators think about the role of technology in supporting learning. The final goal of ICT use is to help students achieve the learning objectives and enhance their learning experiences.



DEFINITION



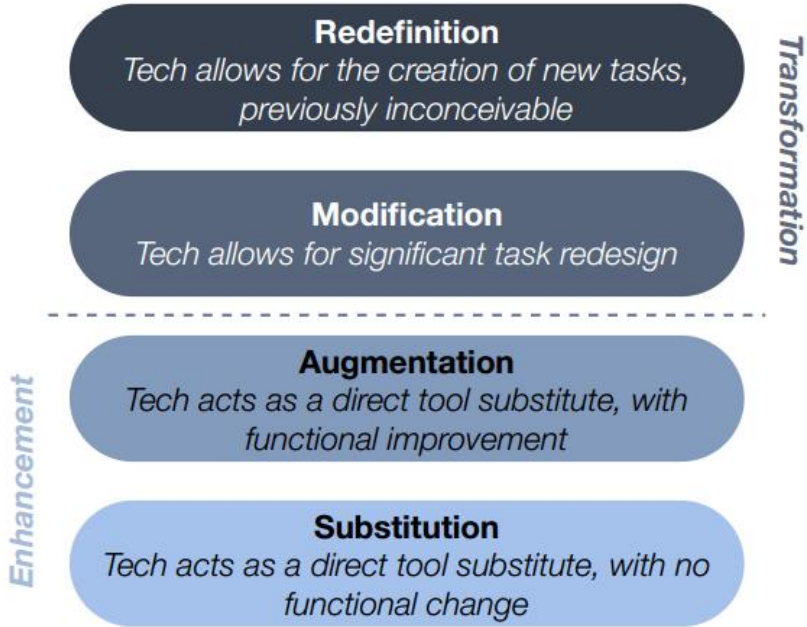
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Deciding on educational tools to ensure the achievement of the learning objectives

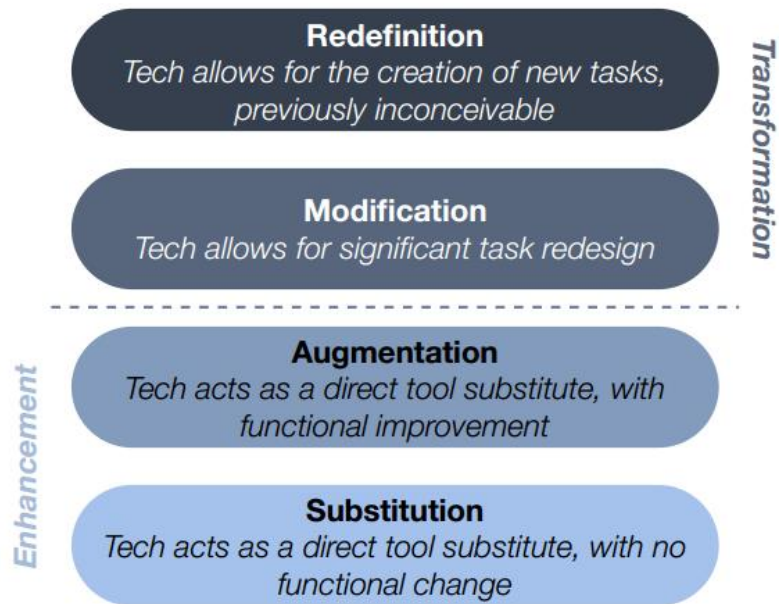


SAMR-model: Substitution, Augmentation, Modification, and Redefinition (Puentedura, 2018)

The SAMR model shows that the use of technology in education should open up new possibilities and make it possible to develop new tasks that were previously unimaginable. The SAMR model distinguishes **four types of technological interventions**.

SAMR model (Hamilton et al, 2016)

Deciding on educational tools to ensure the achievement of the learning objectives



SAMR model (Hamilton et al, 2016)

Below the line it shows what it means to use technology as a tool.

The “**substitution**” level indicates that the tool acts as a replacement, with at most a slight functional improvement, e.g. language students analyze a character from a literary text by means of the tool [Storyboardthat.com](https://www.storyboardthat.com) instead of using pen and paper.

The “**Augmentation**” level indicates that the technology brings about a slight improvement, without changing the activity. The technology replaces the textbook and/or paper and adds functionality. This may involve, for example, the use of an online dictionary or a spelling checker.

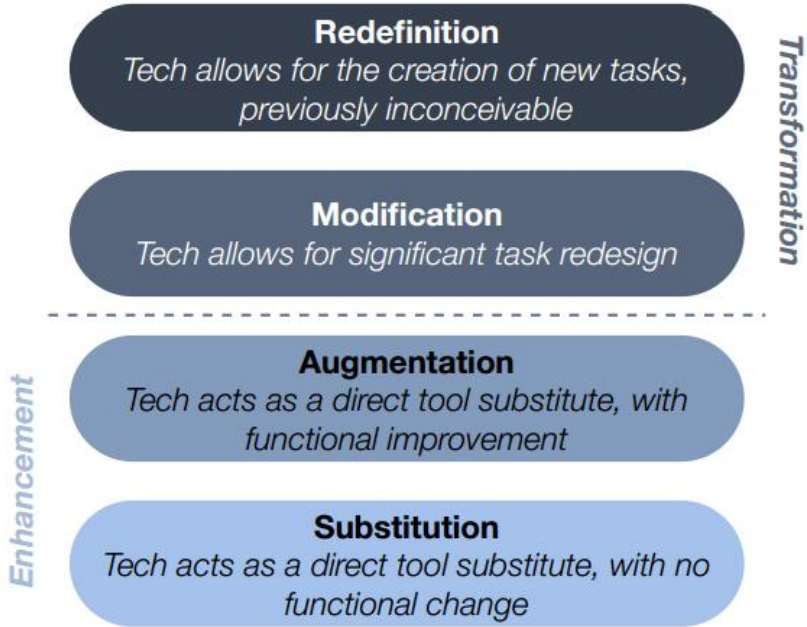
Deciding on educational tools to ensure the achievement of the learning objectives

TOOLS

Substitution: StoryboardThat (a tool for creating of storyboards), Word (a tool for word processing and document creation), Pages (a powerful word processor), ... instead of pen and paper-modality.

Augmentation: Skitch (a tool to capture and annotate, eg. taking pictures and adding notes to prepare for a task); Seesaw (a tool to draw, annotate and record to allow students to perform a task in multiple ways and to keep a portfolio), Kahoot! (a tool for quizzing and formative assessment which adds a fun factor and allows for whole-class engagement and individual practice alike).

Deciding on educational tools to ensure the achievement of the learning objectives



Above the line there is a **transformation**. You also see the word “task” popping up here instead of the word “tool”. The **“Modification”** level indicates that the use of technology transforms the assignment. For example: students can collaborate on a writing assignment via a Google Doc, a wiki or a blog. In this way, technology makes meaningful tasks possible.

The **“Redefinition”** level means that the use of technology leads to new possibilities; tasks which were previously unthinkable become possible, eg. students from all over the world collaborate on a project and towards a concrete end result.

SAMR model (Hamilton et al, 2016)

Deciding on educational tools to ensure the achievement of the learning objectives

TOOLS

Modification

[Google Drive](#), [Office 365](#),... make collaboration on multiple devices possible. [Bookcreator](#) (a tool to create content in the classroom), [Canva](#) (a design tool), ... allow students to demonstrate their understanding in a creative way.

Redefinition

[Articulate 360](#) (a tool to create e-learning), [iSpring Suite Max](#) (a tool to create e-learning), [BranchTrack](#) (a tool to create branching scenarios for e-learning), ... allow you to create responsive branching scenarios, role-plays and conversation simulations, which makes the learning personalized and real-life-like.

Educators should always aim at using technology to effectuate a transformation in learning.

Deciding on educational tools to ensure the achievement of the learning objectives

HOW TO DECIDE ON THE APPROPRIATE TOOLS IN EDUCATION

Most educational institutions have already made choices with regard to the platform and the tools. In this case, it is important to know what features these tools have so that they can be used to best effect. A tool can usually also be used in different ways, so try to experiment with it. Sometimes there is a need that is not yet filled by a tool. In this case, you can use the following **steps to make a good and sustainable choice**:

- **Step 1:** create a powerful learning environment
- **Step 2:** provide meaningful tasks and learning activities
- **Step 3:** consider the added value of ICT
- **Step 4:** choose an appropriate tool

Deciding on educational tools to ensure the achievement of the learning objectives

Step 1 is to create a **powerful learning environment** in which you put your students centre stage. This is a condition for both online and offline learning, and for learning with or without technology.

Step 2 is to provide **meaningful tasks and learning activities**, aligned with the learning objectives.

Step 3 is to consider the **added value of ICT** in designing or supporting those tasks/learning activities. Keeping the SAMR model in mind, examine whether ICT can add something to your lesson or task design, something which cannot be achieved in face-to-face teaching or without technology.



Deciding on educational tools to ensure the achievement of the learning objectives

Can technology help you to...

- activate learners' prior knowledge & promote interaction?
- design real-life tasks through authentic input?
- incorporate your students' living environment into the lessons?
- make information more accessible?
- make students interact with each other or with third parties?
- offer differentiation?
- provide tailor-made support to your students?
- provide tutor feedback or to allow for peer feedback?

Step 4 is to choose an **appropriate tool**. There is an increasing range of online education apps and tools which can help you realize your goals and open up new possibilities for transformation in education. Choose a suitable app or tool that matches your own competencies and those of your students, taking into account your institution's infrastructural considerations, and above all: choose a tool which guarantees a didactic added value.

Deciding on educational tools to ensure the achievement of the learning objectives

We provide some examples of the didactic added value of tools:

Activate learners' prior knowledge & promote interaction

[Flipgrid](#) (video discussion app), [Mentimeter](#) (interactive presentation software), [Tricider](#) (social voting tool), [Padlet](#) (digital wall with video, audio...), ... allow you to get input from all your students and to show results in real time. This is motivating and activating. The tools allow you to activate prior knowledge and to promote interaction among students, since they can vote or comment on their peers' contributions. You can organize brainstorm sessions, polls, or launch statements to which students need to respond.

Make students interact with each other or with third parties

[Facebook](#) (social media) or [Whatsapp](#) (social media) groups, blogs, wikis and other social media (eg. [LinkedIn](#)) can effectuate connections between students, but also between students and third parties (eg. via a blog). These communication networks can enhance learning and bring expert knowledge into the (virtual) classroom, realizing an important transformation in learning.

Deciding on educational tools to ensure the achievement of the learning objectives

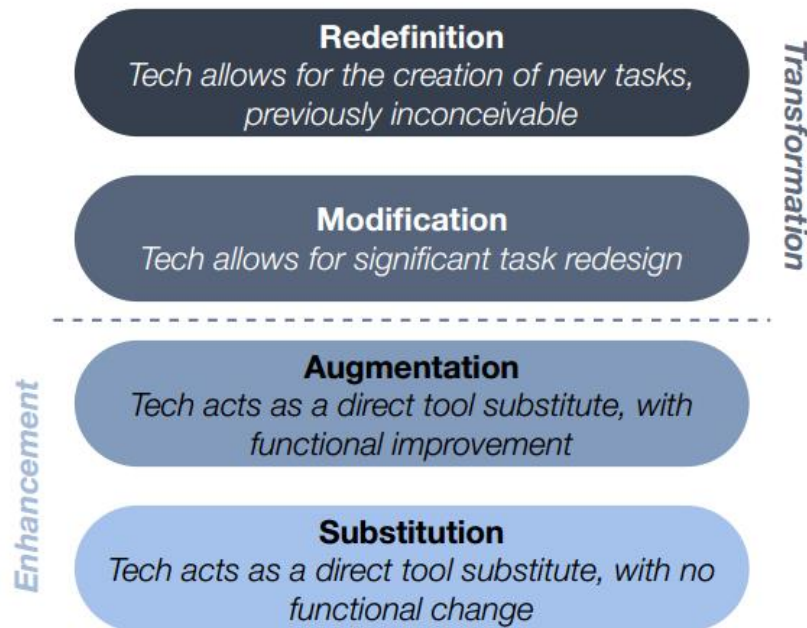
Make information more accessible

Moovly (video editor), Powtoon (video maker), Zeetings (presentation platform),... are tools which can make information more accessible or easier to understand. Visualizing the content helps students make sense of difficult information, which enhances retention.

Provide tailor-made support and feedback to your students

Camtasia and other screen recording tools allow you to record your screen when giving feedback on students' assignments. You can show the parts you are talking about, while providing the students with personal audio feedback. Classcick and Nearpod allow you to follow your students' progress on the spot during tasks and activities which they are doing by means of tablets. Educators can respond and adjust accordingly in real time. Tools such as Google Drive can do the same for writing activities.

Deciding on educational tools to ensure the achievement of the learning objectives



SAMR model (Hamilton et al, 2016)

CONCLUSION

The SAMR model can be adopted to integrate technology in blended learning in such a way that it not only enhances, but also transforms students' learning experiences.

Deciding on educational tools to ensure the achievement of the learning objectives

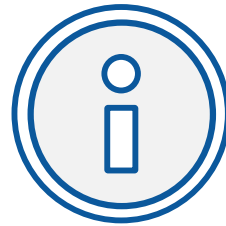
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Identifying the LMS/LCMS and its tools

'The LMS helps get you to the classroom door and the LCMS manages the experience inside the classroom' (Jones, 2001). Whereas the primary goal of an **LMS** is to make learning available and accessible and to manage its users, the main purpose of an **LCMS** is the creation and delivery of learning materials. Understanding the core functionalities and the differences can guide decision makers towards the best solution for their blended learning management system.



DEFINITION



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Identifying the LMS/LCMS and its tools

An **LMS** (Learning Management System) is defined as 'a virtual environment that aims to simulate face-to-face learning environments with the use of Information Technology. In an LMS, the **interaction** happens through devices that enable communication either synchronously or asynchronously, allowing the creation of different strategies to encourage a dialogue and active participation of students' (Araújo-Junior, C.F. & Marquesi, 2009; de Oliveira et al, 2016).

Additionally, 'an LMS is characterized by integrating **multiple media**, different **languages** and **resources**, enabling alternative **technologies**, and presenting information in an organized manner to fulfill its main purpose, which is the construction of learning through interaction' (de Oliveira et al, 2016).

An LMS has **different categories of tools**: interface, navigation, evaluation, didactic resources, communication/interaction, coordination and administrative support (Roque et al, 2004).

Identifying the LMS/LCMS and its tools

'Learning Content Management System (**LCMS**) represents a multi-user environment where learning developers can **create, store, reuse, manage and deliver digital learning content** from a central object repository' (Tachi Jurubesco, 2008).

Another definition of an LCMS describes the difference with an LMS: 'A software application that allows trainers and training directors to manage both the administrative and content related functions of training. An LCMS combines the **course management capabilities of an LMS** (learning management system) with the **content creation and storage capabilities of a CMS** (Content Management System)' (Leiserson, 2003).



Identifying the LMS/LCMS and its tools

Most educational institutions are working with an **LMS** by now. In this case, it is a matter of being aware of the developed features of the chosen platform and using them in the best possible way.

Other institutions and organizations do not yet have an **LMS or LCMS**. Now or in the future they will be looking for the ideal solution for the needs.

It's important here to clearly document which features are a '**need to have**' and a '**nice to have**' and to search for a suitable platform on this basis. It is important to keep in mind that the ideal solution does not (usually) exist, especially since needs often evolve.

How to identify the institutions' needs in terms of lms/lcms?

- **Step 1:** Evaluate the different categories of tools
- **Step 2:** Are you looking for an LMS or LCMS?

Identifying the LMS/LCMS and its tools

STEP 1: EVALUATE THE DIFFERENT CATEGORIES OF TOOLS

- The **interface** of an LMS should be clean, fast-loading, resizable, easily accessible and intuitive. For some target groups, it is also important that the language can be modified.
- **Navigation** should be intuitive, to allow students to move easily from one section/page/screen to another. Controls should be standardized.
- In terms of **evaluation**, the LMS should make it possible for educators to evaluate and track student activities and progress. This is necessary to be able to differentiate or motivate students or to check if additional explanation is needed.



Identifying the LMS/LCMS and its tools

- The **didactic resources** category comprises tools for the educator, which should be easy to use and allow for the creation/distribution of different types of learning activities. The tools should have didactic merits.
- **Communication/interaction** between students, educators, administrative staff and other stakeholders should be visible and easy, and the LMS should stimulate interaction among users. The LMS should not only be a tool to send and receive messages; it should embrace collaboration as well.
- The **coordination** category is all about the organization of (blended) courses in the LMS: it should help educators with planning, creating, distributing and controlling the blended learning courses. Tutors should be able to monitor students' performances and progress.



Identifying the LMS/LCMS and its tools

- The **administrative support tools** are being used for assigning tutors and students to specific courses, generating data, and processing applications.
- **Portability** is also a feature to consider. Is it the intention to export certain learning activities or online courses in the form of a SCORM or another format? Not every system allows this (easily).
- In addition, **(open) access** must also be considered. Do you want your students to have specific rights to see the course, or do you want to lower all technical barriers so that everyone can access your course? Or perhaps you want to collaborate with a foreign university. In this case, too, there are issues surrounding access.



Identifying the LMS/LCMS and its tools

STEP 2: ARE YOU LOOKING FOR AN LMS OR LCMS?

Higher education institutions might need an **LCMS**, especially when highly engaged in blended education. Educators can create, store, reuse, manage and deliver learning content, usually in the form of learning objects or e-learning. These can be stored in a central database called a repository. Content can be adapted in different courses or formats, or it can be shared or modified.

In fact, an **LCMS is an LMS to which an authoring tool has been added**. It has the same categories of tools as an LMS, to which the extra authoring tool has been added. This additional tool is an eLearning development tool, which is used for creating the learning content in the form of learning objects. It contains interactivity, different forms of media and other elements to promote deep learning.

Identifying the LMS/LCMS and its tools

If your institution only buys “off the shelf” learning materials, then an LMS will do. In case your organization opts for creation and re-use of content, then an LCMS would be the best choice.

- Examples of LMS: [Edmodo](#), [Docebo](#), [Cornerstone](#), [Canvas](#), ...
- Examples of LCMS: [Moodle](#), [ATutor](#), [Sakai](#), [Elucidat](#), [Edvance360](#), [Tovuti](#), ...



Identifying the LMS/LCMS and its tools

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Determining the elements of learning analytics to be collected

Blended learning environments appear in many forms and blends and make use of different tools and learning management systems. Blended courses also attract diverse student populations. Therefore, implementing and describing formats for learning analytics in blended learning is challenging. Nevertheless, it is important to make use of learning analytics since it serves to optimize learning, teaching and management practices in education.



DEFINITION



HOW TO & GOOD PRACTICES



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Determining the elements of learning analytics to be collected

Learning analytics is the measurement, collection, analysis and reporting of data about learners and their contexts, for purposes of understanding and optimizing learning and the environments in which it occurs.

(<https://www.solaresearch.org/about/what-is-learning-analytics/>)

Learning analytics provide insights in learning processes, students' progress, program metrics, and therefore benefit students, educators, instructional designers and management.

(Picciano, A. G., 2014; Pardo et al., 2019; <https://www.solaresearch.org/about/what-is-learning-analytics/>)



Determining the elements of learning analytics to be collected

Merits and pitfalls of learning analytics

A deeper understanding of your data (about students, employees, the blended program/course, technical elements) will empower you to make data-driven decisions.

Learning analytics entails many **merits**. By means of learning analytics, we can...

- predict student academic success
- monitor student persistence on a regular basis
- identify at-risk students in a timely manner
- identify learning difficulties and opportunities for learner support
- provide personalized and more timely feedback
- identify opportunities for curriculum/blended learning program improvements
- stimulate lifelong learning skills and strategies
- stimulate key skills such as collaboration, critical thinking, communication and creativity
- support self-reflection and raise student awareness about their learning process
- support quality learning and teaching by providing empirical evidence on the merits of didactic innovations
- improve teaching efficiency and efficacy
- inform organizational decisions to guarantee the best quality learning environment

Determining the elements of learning analytics to be collected

Pitfalls of learning analytics

Apart from the supporting role of learning analytics for a blended learning environment, it entails some concerns and pitfalls we need to be aware of as well. Ethics of data and learning analytics include: “privacy, the problem of opaque ‘black box’ algorithms, the risk of training machine learning classifiers on biased datasets, and the dangers of incorrectly predicting someone’s behaviour”. (<https://www.solaresearch.org/about/what-is-learning-analytics/>)



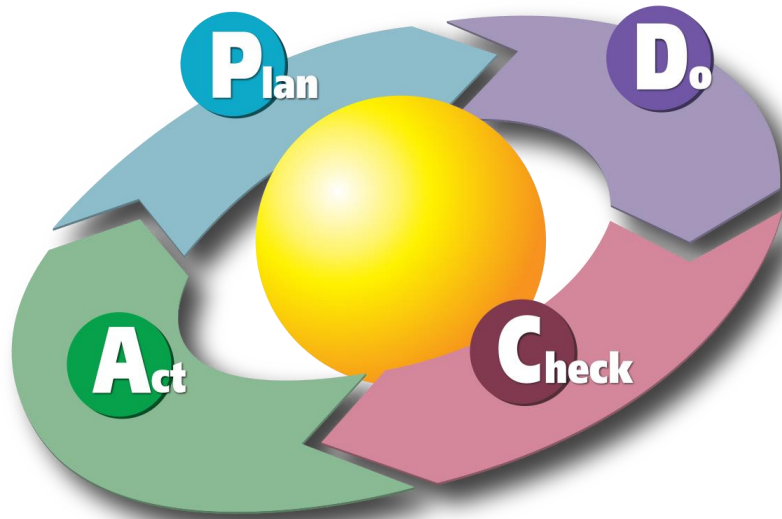
Determining the elements of learning analytics to be collected

What do you want to achieve with learning analytics for blended learning?

We can distinguish four types of learning analytics, each with its own function:

- **Descriptive analytics** provide insight into the past. The data help you to understand trends and show an evolution over time, eg. surveys about student satisfaction in blended programs, data on dropout or graduation rates, ...
- **Diagnostic analytics** help to explain why certain things happen. They help determine the causes of trends and give you insight in the relationship between related factors, eg. to run tests to identify why technological problems arise in your blended program, to understand student behavior, ...
- **Predictive analytics** help us understand the future. Data is used in order to predict trends, eg. to predict student numbers or needs for new blended courses.
- **Prescriptive analytics** advise us on next steps; it provides insight in possible outcomes and recommends one or more choices. This type of analysis yields recommendations for what to do next and is used in decision-making, eg. investments in blended programs, or e-mail automation to allow for personalized messaging.

Determining the elements of learning analytics to be collected



USE THE PDCA-CYCLE FOR LEARNING ANALYTICS PRACTICES

- Step 1: Collect the data (PLAN)
- Steps 2 & 3: Prepare & analyze the data (DO & CHECK)
- Step 4: Convert data into actions (ACT/ADJUST).

https://nl.wikipedia.org/wiki/Kwaliteitscirkel_van_Deming

Determining the elements of learning analytics to be collected

STEP 1: COLLECT THE DATA (PLAN)

The data you collect can be **quantitative and/or qualitative**. It is important to start from a specific question/problem, eg. 'When are students ready to move on to the next step in the blended course?'

What types of data can be used? Different types of data about learners and their contexts can be measured, collected and analyzed. Here are some **examples of learning analytics data**:

- **data generated by the LMS/log data**: general (eg. generated time on task, participation...), content (deals with content of a learning path) and background (eg. information about students' previous education)
- **data from surveys**, eg on student satisfaction, student needs ...
- **data from the institution's information system**, eg. student data on educational background, student characteristics and academic performance; course and faculty data
- **data from focus group discussions or interviews**: eg. on student needs and satisfaction
- **data generated during class**, eg. attendances, attributions during class, ...
- **data from social media**
- ...

The challenge lies not only in collecting data, but also in combining and analyzing the various data.

Determining the elements of learning analytics to be collected

STEPS 2 & 3: PREPARE & ANALYZE THE DATA (DO & CHECK)

Different tools can help you prepare, analyze and visualize the data you have collected. For **qualitative data analysis**, tools can assist you on transcription analysis, coding, annotating, mapping, text interpretation, content analysis etc. For **quantitative (statistical) data analysis**, tools can help you generate tabulated reports, charts, plots of distributions and trends, as well as descriptive statistics such as means, medians, or modes. More complex statistical analyses like regression models are also possible.

Once you have analyzed the data, you need to **interpret the data**. This means that you use the analysis to arrive at relevant conclusions and you answer the critical questions from step 1).

Tools:

- Qualitative data analysis: [MAXQDA](#), [Nvivo](#), [ATLAS.ti](#), ...
- Quantitative data analysis: [Excel](#), [SPSS](#), [Qualtrics](#),...

Determining the elements of learning analytics to be collected

STEP 4: CONVERT DATA INTO ACTIONS (ACT/ADJUST)

Once you have found the answer to your research questions by means of analyzing and interpreting the data, you can start working on **improvement plans** for your blended programs/courses. You know what works for whom and what doesn't. The next step is to **formulate specific actions** in order to optimize learning, teaching and management practices in blended learning contexts. It is important to keep in mind that data-driven decision making requires **different cycles of improvements**, so the process doesn't end after step 4.

Tools for task management software:

[Excel](#), [Monday](#), [Wrike](#), [MeisterTask](#), [Process Street](#), [Todoist](#), [Trello](#), ...

Determining the elements of learning analytics to be collected

ETHICAL AND PRIVACY ISSUES

- It is crucial to **communicate** to students **in a transparent way** about how and why you will collect/choose specific types of data and how or for which purposes the data will be used.
- It is also important to **only use learning analytics data** on students' performances **in a formative manner**.
- **Don't gather learning analytics data on student level**, but only on a group level (e.g. a group of students who follow the same face-to-face part).



Determining the elements of learning analytics to be collected

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<https://www.solaresearch.org/>

Ensuring the sustainability of the blended course

Integrating technology into teaching and learning in academic programs often requires considerable investment in technological resources, professional development and curriculum change. Sustainability in blended learning therefore becomes increasingly important. Lecturers in higher education need to avoid demotivation and drop-out of students. Therefore, **educational environments and tools** require careful consideration; enhancing **technological and pedagogical skills** are vital to ensure sustainable teaching practices; building a **community of practice** is important and all levels of the organization should work together to achieve common goals.



DEFINITION



HOW TO & GOOD PRACTICES



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Ensuring the sustainability of the blended course

Sustainability in blended learning refers to the proper management of blended learning practices that both meet the needs of present users and also profile those of future users, while examining the means through which blended learning initiatives/projects can be continued and sustained across time, yet ensuring long-term educational impact.

<https://www.igi-global.com/dictionary/transcending-barriers-towards-effective-blended-learning-horizons/80024>



Ensuring the sustainability of the blended course

HOW TO ENSURE SUSTAINABILITY OF THE BLENDED COURSE?

Integrating technology into teaching and learning in academic programs often requires **considerable investment** in technological resources, professional development and curriculum change. Sustainability of these substantial efforts has gained increased importance, focus, and urgency (Palikat & Gruba, 2022).

A **framework for sustainable blended learning** entails a system of interrelated components with **four sustainability pillars**: 1) educational environments and tools for learning; 2) professional development; 3) community and knowledge building; 4) organizational structure (Blin, Jalkanen, and Taalas, 2016).

This framework for sustainable blended learning was used in a **case study** in the English for Academic Purposes department at the Royal College in Australia. Findings include important **do's and don'ts for promoting sustainable blended learning** (Palikat, 2019).

Ensuring the sustainability of the blended course

PILLAR 1: EDUCATIONAL ENVIRONMENT AND TOOLS FOR LEARNING

Sustainable educational environments and tools share these **characteristics** (Blin et al, 2016):

- they are **goal-oriented**,
- they are **tailored to the needs** of learners and teachers,
- they are **aligned with the learning objectives**,
- they **foster engagement** in classroom tasks and activities.

Flipping the classroom requires an **informed lesson design** (as opposed to mere materials development). In the case study, it led to a non-communicative, passive classroom and a lack of task diversity. The classroom interaction decreased and students became too focused on their tablet devices during face-to-face class sessions. The cause was a poor lesson design. (Palikat, 2019)

A good lesson design ensures **interrelated learning components** and **variety in tasks**. Face-to-face sessions should include **communicative activities** (such as oral discussions) and **active learning tasks**, involving minimal or no use of technology.

Ensuring the sustainability of the blended course

PILLAR 2: PEDAGOGICAL AND PROFESSIONAL DEVELOPMENT

Sustainable pedagogical and professional development is key in enhancing teachers' competences to promote sustainable teaching practice (Blin et al, 2016). Being agile in dealing with changing classroom environments is essential. Kennedy and Levy (2009) stress that professional development should not only aim at enhancing **technological competencies**, but more importantly, it should enhance the **pedagogical skills** in order to use tools in a valuable way, so as to enhance learning experiences.

Elements to be incorporated in training in order to ensure informed decisions regarding lesson design include (Palikat, 2019):

- **designing and uploading materials**,
- theoretical underpinnings of **digital didactics**,
- **fundamentals of blended learning** to allow teaching staff to make informed decisions.

Ensuring the sustainability of the blended course

Reality shows that the teaching profession is facing rapidly changing demands, such as digital literacy, instructional design, etc. that require a new, broader and more sophisticated set of competences. The [European Framework for the Digital Competence of Educators \(DigCompEdu\)](#) is an evidence-based framework that helps to identify these requirements and supports the development of skills to meet them.



PILLAR 3: COMMUNITY AND KNOWLEDGE BUILDING

Sustainable community and knowledge building within an academic program requires building a community of practice among teachers, in which they **collaborate** and **pool their resources** (Blin et al, 2016).

Some good practices include (Palikat, 2019):

- make use of a **user-friendly shared drive** rather than a non-flexible LMS.
- provide **sufficient time** for collegiality and collaboration (avoid involvement in various curriculum development projects).

Designing learning materials in a team requires a **collaboration tool**. There are many tools for shared drives and file storage systems: [Google Drive](#), [Teams](#), ...

PILLAR 4: ORGANIZATIONAL STRUCTURES

Sustainable organizational structures consist of different **levels (macro, meso, micro)** which work together to achieve common goals. This system (and its different components) must be able to adapt to unexpected changes. (Blin et al, 2016). Important factors include (Palikat, 2019):

- **ownership** among teaching staff regarding lesson designs: prescribed lessons, created by an authority figure with stronger technological skills, makes teachers lose confidence.
- **time investment**: combining different blended learning projects requires too much time for the development of the learning materials and affects the day-to-day teaching responsibilities.
- **clear organizational structures**:
 - MACRO: Promoting teacher involvement requires a clear structure on task distribution and committee roles.
 - MESO: An overall LMS project leader is needed. Formal appointments are key.
 - MICRO: Members' roles and responsibilities must be clear, as well as the rules for giving feedback.
- **finances**: The creation of a blended course does not happen overnight. It is important that financial resources are considered before the start so that the blended course can be developed qualitatively and sustainably. Think of company sponsors, project calls, enrolment fees for students, etc.

Ensuring the sustainability of the blended course

These different **organizational structures** are also reflected in the **European Maturity Model (EMM)**, a model for the sustainable implementation of blended education. EMM categorizes maturity at three levels: 1) the course and program level (micro); the institution level (meso); the government level (macro). The following table provides an overview of the 21 (sub)dimensions of the EMM.

COURSE LEVEL	PROGRAMME LEVEL	INSTITUTION LEVEL
Course design process <ul style="list-style-type: none"> ○ Selection of blended learning activities and their sequence ○ Selection of blended learning tools Course flexibility Course interaction Course experience <ul style="list-style-type: none"> ○ Student learning ○ Study load ○ Inclusiveness 	Programme design process <ul style="list-style-type: none"> ○ Programme coherence ○ Alignment and coherence of blended learning tools Programme flexibility Programme experience <ul style="list-style-type: none"> ○ Student learning ○ Study load ○ Inclusiveness 	Institutional support Institutional strategy Sharing and openness Professional development Quality assurance Governance Finances Facilities

Source: Dijkstra, W. P. & Goeman, K. (2021). European Maturity Model for Blended Education. Implementation Guidelines, p7.

Ensuring the sustainability of the blended course

Designing learning materials in a team not only requires a **collaboration tool** (eg. [Teams](#), [Google Drive](#), ...), but also **rules for giving feedback**.

A **structure of the course** needs to be made and **documents** must be able to be **shared** with a team in such a way that everyone can work in the most recent version and no different versions exist side by side. Writing a lesson plan collaboratively is made easy and adjustments are saved automatically. However, making direct changes in colleagues' documents without their consent, leads to friction among the team. Use comments or use track changes instead.



Ensuring the sustainability of the blended course

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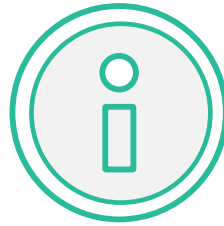
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Creating the right balance between synchronous and asynchronous learning

Blended learning and flipped model e-learning is a **combination of synchronous** (or same time) **and asynchronous learning** (at different times). If well implemented by means of a seamless design, it can **combine the best of both worlds**. In groups of students with different backgrounds, the asynchronous part can create a common basis, which can be elaborated on during the synchronous summer schools.



DEFINITION



HOW TO & GOOD PRACTICES



REFERENCES



1

Creating the right balance between synchronous and asynchronous learning

“**Synchronous learning** is a general term used to describe forms of education, instruction, and learning that occur at the same time, but not in the same place.”

“The term is most commonly applied to various forms of televisual, digital, and online learning in which students learn from instructors, colleagues, or peers **in real time, but not in person**. For example, educational video conferences, interactive webinars, chat-based online discussions, and lectures that are broadcast at the same time they are delivered would all be considered forms of synchronous learning.”


(<https://www.edglossary.org/synchronous-learning/>)





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Creating the right balance between synchronous and asynchronous learning



“**Asynchronous learning** is a general term used to describe forms of education, instruction, and learning that do not occur in the same place or at the same time.”

“The term is most commonly applied to various forms of digital and online learning in which students learn from instruction - such as prerecorded video lessons or game-based learning tasks that students complete on their own - that are **not being delivered in person or in real time**. Yet asynchronous learning may also encompass a wide variety of instructional interactions, including email exchanges between teachers, online discussion boards, and course-management systems that organize instructional materials and correspondence, among many other possible variations.”

(<https://www.edglossary.org/asynchronous-learning/>)

**1**

Creating the right balance between synchronous and asynchronous learning




HOW TO TO PREPARE FOR PROGRAMS ADDRESSING DIFFERENT TARGET GROUPS BY MEANS OF ASYNCHRONOUS LEARNING?

E-learning as a preparation for programs addressing different target groups as interactive practice

Blended learning and especially flipping the classroom is an ideal strategy that can be used with students from different backgrounds or with different prior knowledge, by asking the students to go through an online asynchronous section at their own pace in advance (before class, before the start of a summer school, etc.). This way, the students can concentrate on the parts that are new or important to them. The ultimate goal is that all students, regardless of their background, arrive at the (synchronous) part (of the course, the summer course, ...) well prepared.

**1**

Creating the right balance between synchronous and asynchronous learning




It is important to make sure students are not mere passive receivers of the asynchronous part of the course; they need to be activated and engaged and take part in interactions too. Moore (1989) provided a framework of **three types of interaction: learner-content, learner-instructor, and learner-learner interaction** (based on earlier work of Anderson). Mere teaching of bigger parts of the content (one-way traffic from teacher/theory to student; push learning) can be organized asynchronously and can be used to build the mental model/theoretical understanding of the content, eg. by means of engaging and interactive videos or texts (interaction with the course content can be added by means of quizzes with automated feedback). However, adding student-student and student-teacher interaction is also strongly recommended in the asynchronous part (eg. interaction with peers by means of discussion boards...).



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Creating the right balance between synchronous and asynchronous learning



In the asynchronous part of blended learning, students will experience meaningful learning when they are in **participatory learning environments** (Pratt & Palloff, 2011). This is called 'asynchronous online participatory learning' (Yamagata-Lynch, L. C.).

Merits of asynchronous learning include learning anytime and anywhere; self-paced learning, having the opportunity to review the materials etc.

Possibilities for **online asynchronous learning** include online courses, video discussion platforms (eg. [Flip](#) or [Voicethread](#)), podcast, social media, chat, forum, ...

**1**

Creating the right balance between synchronous and asynchronous learning



synchronous part as interactive practice


The goal of flipping the classroom is for students to apply in the synchronous part what they studied/prepared in the asynchronous part. Acknowledge students' knowledge or skills during the synchronous learning by referring back to the asynchronous learning - make sure there is a connection between the synchronous and the asynchronous part and also organize the blend in such a way that students will need the information from the asynchronous part in the face-to-face part.

Thanks to the asynchronous preparation, you can, among other things, during the synchronous part:

- provide more **practice time**
- **work more in-depth with the content**
- **personally support students** during processing assignments.

**1**

Creating the right balance between synchronous and asynchronous learning



Confront your students with **cases and real-life problems** that need to be solved. Problem-based learning requires interaction between students, and between students and teachers. Interaction in the synchronous part is mainly situated on the student-student and student-teacher level.

In some contexts, education organizations offer not only the asynchronous part, but also the synchronous part online (or hybrid). Do not lose sight of the **social component** when choosing for online or hybrid synchronous learning.

Possibilities for **online or hybrid synchronous learning**: virtual classrooms/web conferences (eg. [Skype](#), [Teams](#), [Zoom](#), [Google Hangout](#), ...), instant messaging, ...



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Creating the right balance between synchronous and asynchronous learning



Tools which can be used synchronously and asynchronously

Examine which features tools offer. Usually there are several ways in which the tool can be used. Tools can often be used both synchronously and asynchronously.

A **webinar**, for example, can be attended in real-time, providing students the opportunity of asking questions. The webinar can also be (re)viewed asynchronously, providing more flexibility in students' time schedules.

The same goes for **online document editors** like Google Documents. Students can collaborate simultaneously in a document, or at different times. Also tools that stimulate social interaction such as [Flip](#) (video discussion app) or [Padlet](#) (digital wall) can be used both synchronously and asynchronously (before or after the lesson). And there are many more examples.

1

Creating the right balance between synchronous and asynchronous learning

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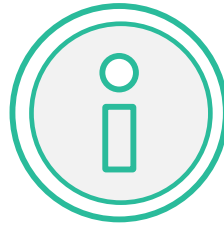


Creating rubrics that can be used for evaluations

Are you looking for ways to **assess** your students' performances in blended learning programs in an accurate and fair way? Do you want to **foster understanding** among your students, and **enhance their learning process**? Rubrics will help you achieve this goal! Rubrics can be used for individual work or project assessment, for one or multiple assessors, and for formative and summative assessment. Virtual learning environments allow to publish rubrics according to the assessment tools and therefore make the process more transparent. When delivered to the students beforehand, they help them focus on what they are expected to accomplish and make their learning more autonomous. **Rubrics make performance quality clear and assessment fair and efficient.**



DEFINITION



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Creating rubrics that can be used for evaluations

“A rubric **articulates expectations for student work** by listing criteria for the work and performance level descriptions across a continuum of quality (Andrade, 2000; Arter and Chappuis, 2006).

Thus, a rubric has **two parts**: criteria that express what to look for in the work and performance level descriptions that describe what instantiations of those criteria look like in work at varying quality levels, from low to high.” (Brookhart, 2018).



Creating rubrics that can be used for evaluations

Earlier definitions of rubrics contain the same elements: A rubric is “a scoring guide used to evaluate the quality of students' constructed responses” (Popham, 1997). It “sets out criteria and standards for different levels of performance and describes what performance would look like at each level”.

(<https://www.betterevaluation.org/en/evaluation-options/rubrics>).

Rubrics usually take the form of a **table**, and can be used by students and teachers, because they make explicit what the expectations of quality are for particular tasks.

Scoring rubrics have these **features** in common (Rubrics for Web Lessons, 2007):

- They focus on **assessing a certain objective** (performance, behavior, or quality).
- They **use a range** to assess performance.
- They contain specific **performance components arranged in levels**

Creating rubrics that can be used for evaluations

HOW TO CREATE A GRADING RUBRIC?

Step 1: Define the purpose of the assessment

Consider what the goal(s) of the task is/are, what kind of answer you expect from students, and which aspects of their performance you will grade (make this clear in the instructions as well). The number of criteria used in a rubric should be linked to the intended learning outcome(s) that you want to assess.

Bear always in mind which tool is to be used in the virtual learning environment. This way the rubric will match perfectly with what the student will find.



Creating rubrics that can be used for evaluations

Step 2: Choose between a holistic or an analytic rubric

A **holistic rubric** looks like a list and uses rating scales (eg. weak - average - excellent) that include the criteria (eg. grammar, arguments, coherence). This type of rubric is not time consuming, but it is not very informative to students either.

An **analytic rubric** looks like a grid and places rating scales (eg. weak - average - excellent) in the top and the separate criteria to be assessed (eg. grammar, arguments, coherence) in rows in the left column. This type of rubric is more time-consuming to create, but provides more insight to the students, as each criterion is weighted separately. This provides more opportunities for feedback and progress.



Creating rubrics that can be used for evaluations

Step 3: Define the criteria

The two most important characteristics of a well-designed assessment procedure are validity and reliability.

Validity means that your test should measure what it is supposed to measure. List and define the necessary skills that students need to master for this particular assessment. Which learning objective do you want to assess? Task-based and performance-based assessments are usually more valid assessments than traditional exams because they focus more directly on the tasks or skills which students are expected to master.

Reliability refers to the extent to which an assessment measures the performance of the student consistently. Are students always assessed in the same way? Is there a guarantee that test results don't depend on coincidences? Would a different rater grant the same score?

The **number of criteria used in a rubric** should be **linked to the intended learning outcome(s)** that you want to assess.

Creating rubrics that can be used for evaluations

Step 4: Design the rating scale

Most rating scales include **3-5 levels**. Choose between numbers or descriptive labels for these levels and the order in which they will appear. Check the intended learning outcomes again: are they all included? Did you make sure you didn't add any other criteria?

Step 5: Write descriptions for each level of the rating scale

Add clear descriptions to each level of the rating scale. These **descriptions** are very helpful: they increase reliability among multiple raters, but they also entail great added value for raters who need to assess the work of different students. Make sure you describe observable and measurable performance. Indicate the extent to which students master the assessed learning outcomes.

Creating rubrics that can be used for evaluations

Step 6: Create your rubric

Merge the criteria, rating scale and descriptions for each level into a rubric. On top of the page, write the title of the assessment and provide space for the name of the student. Try to limit the rubric to one page. Revise if your rubric will lead to a valid and reliable assessment. Check if every predefined learning outcome is included in the rubric. Check if there are no learning outcomes in the rubrics which weren't supposed to be assessed.



Creating rubrics that can be used for evaluations

HOW TO USE A GRADING RUBRIC?

Two important things to know:

- In order to make assessment and evaluation transparent to your students, always **circulate the rubric together with the assignment**.
- **Ask your students explicitly to use the rubric to evaluate/check their own work** and to make adjustments where necessary.



Creating rubrics that can be used for evaluations

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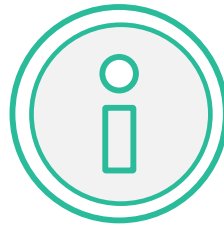


Providing a variety of teaching methods in the blended course

A blended learning approach allows you to use **multiple media resources** in your blended course, such as audio, video, online modules, podcasts, MOOCs, face-to face training... These can improve individual student learning and make it more enjoyable and efficient. Another merit of blended learning is that it has the potential to foster collaborative learning among peers, not only in the classroom or online sessions, but also through online discussion platforms. There are countless ways to bring variety to your blended course. Choosing the most suitable **teaching methods** will increase student learning, engagement and retention.



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Providing a variety of teaching methods in the blended course

Aligning teaching methods with learning outcomes

Just like a face-to-face setting or a fully online setting, blended learning can draw from a wide range of learning and teaching methods, eg. flipped classroom, teacher centered instruction, group work, project-based learning, self-paced learning, inquiry-based learning, collaborative learning, personalized learning, class discussion, game-based learning, etcetera.

Choosing the appropriate method depends on the learning objective you want your students to meet. Depending on the student and teacher target group, both high-tech and low-tech choices can be made.



Providing a variety of teaching methods in the blended course

DECIDE ON SYNCHRONOUS OR ASYNCHRONOUS INSTRUCTIONAL ACTIVITIES & TOOLS

Once it has been decided which teaching methods will be used for the different learning objectives, and what level of technicality will be aimed at, the next consideration to make will be which parts of the course will be addressed synchronously and which asynchronously. Only when these choices are made, the time is right to choose the tools, since different tool types support different instructional activities.



Providing a variety of teaching methods in the blended course

Asynchronous learning & teaching

For asynchronous learning and teaching, one can make use of self-paced courses, quizzes, polls, digital documents, discussion boards, audio, video, recorded slides with narration, podcasts, MOOCs etcetera. In the range of learning materials via video, highly focused “knowledge clips” deserve attention. There are two popular forms: videos in which the teacher is in the picture and explains something, and screencasts: a recording of the screen in which something is shown and verbally explained. This is also called an explainer video. These types of videos usually last between three and five minutes. (Grammens et al., 2019).



Providing a variety of teaching methods in the blended course

Asynchronous: tools

- self-paced courses: [Articulate Rise & Storyline](#), [Adobe Captivate](#), [Lectora](#), ...
- quizzes: [H5P](#), [Kahoot](#), [Quizlet](#), ...
- polls: [Mentimeter](#), [Poll Everywhere](#), ...
- digital documents: [Google Drive](#), [Teams](#), ...
- discussion boards: [Padlet](#), [Flip](#), [Socrative](#), [NowComment](#), ...
- audio: [Audacity](#), [Audiate](#), ...
- video: [Kaltura](#), [Capture \(Techsmith\)](#), ...
- recorded slides with narration: [Camtasia](#), [Powerpoint](#), ...



Providing a variety of teaching methods in the blended course

Synchronous learning & teaching

For asynchronous learning and teaching, options include virtual classrooms, live quizzes, live polling, live presentations, lessons on campus, live webinars...Different tool types support different instructional activities.

Tools:

- virtual classrooms: [Google Meet](#), [Teams](#), [Zoom](#), ...
- live quizzes: [Mentimeter](#), [Poll Everywhere](#), [Socrative](#), [Wooclap](#), [Nearpod](#), ...
- live polling: [Mentimeter](#), [Poll Everywhere](#), [DirectPoll](#), ...
- live presentations: [Genially](#), [Powerpoint](#), [Prezi](#), [Google Slides](#), ...
- live webinars: [SpotMe](#), [ClickMeeting](#), [Zoom](#), ...

Providing a variety of teaching methods in the blended course

Instructors' educational experiences in synchronous and asynchronous online teaching

Online instructors who mainly teach synchronously online have a significantly higher **teaching self-efficacy** than instructors who teach mainly asynchronously online. They are also significantly more willing to teach online in the future compared to their asynchronous counterparts.

The online instructors need **support and training** on how: (a) to adapt their instructional strategies to the online learning environment, (b) to stimulate social interaction, and (c) to deal with the technology in online learning environments and select the appropriate digital tools.

Providing a variety of teaching methods in the blended course

Bite-sized learning

One of the main concerns of educators in blended learning programs, is that **students' attention span** declines quickly. A good solution to solve or even prevent this problem, is to switch to **bite-sized learning or microlearning**. This means you break up the course content in small, light-to-digest chunks. Microlearning does not only refer to short activities (up till 15 minutes), but also to the condensed nature of it. Chunks have a simple structure with a strong focus.



Providing a variety of teaching methods in the blended course

“Imagine a course where the traditional ‘lectures’ have been digitized using an event capture system, edited into chunks or bite sized learning units and provided to students online with some introductory materials, instructions and opportunities for online interaction and discussion between learners. The original lecture time is replaced with tutorial or seminar style sessions where students undertake problem solving, discussion, Q&A or other collaborative activities using mobile devices, to reinforce understanding, challenge misconceptions and deepen knowledge; a very active learning approach” (Morris, 2014, p402).

These bite-sized chunks will keep your students more **focused and engaged**. If microlearning is well designed, it is accessible from any type of device, which fits the diverse student populations and their different lifestyles.

Providing a variety of teaching methods in the blended course

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Using pull and push in the blended course

Are you experiencing a **lack of student motivation** in blended learning programs, or are you new to blended learning and want to avoid this at all cost? Then **spice up the push-pull relationship** between your students and the course content! In a push strategy, you provide learning content to your students, and they are the receivers. Pull learning, on the other hand, will challenge your students to actively solve problems and look for appropriate resources themselves. A smart combination of both will definitely increase your students' engagement!



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Using pull and push in the blended course

“**Push learning** is a traditional learning technique where learners are informed of what to learn, usually in a given timeframe. Conventional classroom styled learning is probably the most recognised example of push learning. But it also includes scheduled sessions of online learning or training that are pushed to learners on an LMS.”

“**Pull learning** puts the learner in control of what they learn and when they learn it. Pull learning is a type of on-demand learning whereby the experience is tailored to the learner’s needs. The focus is on autonomy and learners taking ownership of their training.”(<https://www.growthengineering.co.uk/how-to-balance-push-and-pull-learning-with-mobile/>)

A **combination of push and pull learning** increases student learning satisfaction and are both essential for successful learning experiences. The key is to evolve from teacher-centered to student-centered learning.

Using pull and push in the blended course

HOW TO PUSH LEARNING?

- **Strategy 1:** Push content on the learning platform via learner dashboard
- **Strategy 2:** Push messages and notifications
- **Strategy 3:** Push tests/assessments



Using pull and push in the blended course

Strategy 1: Push CONTENT on the learning platform via learner dashboard

In online learning, anything that can be 'delivered' to students in a standardized format can be considered **push content**. The focus is on provision, even if students are not experiencing a demand/need. Push content can include online modules, reading materials, video lectures, podcasts etc.

To make the push content **appealing and motivating** to students, you could consider using animation, describing recognizable cases, or making the course material visually attractive. What will work best, is to add interaction and interesting feedback. Try to make the push content as interactive, relevant and engaging as possible.

For **example**: make use of polling and voting mechanisms, provide opportunities to discuss, debate and share feedback, provide platforms to collaborate. In flipping the classroom practices, push content is mostly used in the online part, so as to reserve the contact time in class almost exclusively for exercises, discussions and practical applications.

Using pull and push in the blended course

Good practices

- polling and voting mechanisms: [Mentimeter](#), [Poll Everywhere](#), ...
- annotation and discussion tools: [Hypothes.is](#), ...
- video discussion platforms: [Voicethread](#), [Flip](#), ...
- collaboration tools: [Miro](#), [Google Drive](#), ...



Using pull and push in the blended course

Strategy 2: Push MESSAGES and NOTIFICATIONS

Push **messages** can be beneficial because they can inform students about upcoming lessons and/or important input, or they can remind students of upcoming deadlines.

Push **notifications** can direct students to the next online module or give advice on study methods, new materials etc.



Using pull and push in the blended course

Strategy 3: Push TESTS/ASSESSMENTS

You can push tests by adding quizzes during or at the end of lessons. Push assessments measure the students' learning progress and provide teachers insights in actions to take.

Learning analytics can help the tutor discover learning gaps so they can provide additional exercises or learning materials.



Using pull and push in the blended course

HOW TO PULL LEARNING?

- **Strategy 1:** Pull by means of input from outside the course (online resources, workplace learning etc)
- **Strategy 2:** Pull by means of gamification
- **Strategy 3:** Pull by means of storytelling/narrative



Using pull and push in the blended course

Strategy 1: Pull by means of input from **outside the course (online resources, workplace learning etc)**

Pull Learning strategies focus on **students' demands and needs**. This makes the course more student-centered and personalized.

You can **implement** a pull learning approach in various ways. By offering the students the **learning objectives in a challenging way**, for example, they could use online resources to solve a real-life problem. Another example is **workplace learning**, where students learn by doing and aim at achieving the learning objectives in the workplace. In any case, students need **just-in-time learning** in addition to your blended program.

Using pull and push in the blended course

Technology is an enabler for situational learning, as students have many resources at hand just by using their smartphones. This experience-based learning will enhance what students learn in the course. An instructor can validate and stimulate these additional learning opportunities by inviting students to bring their out-of-class learning experiences into your classes. An extra bonus is that students can share these experiences with their peers and receive peer feedback.

Good practices:

- Sharing ideas: [Miro](#), [Padlet](#), [Wordpress](#), ...
- Keeping record of just-in-time learning: online portfolio in LMS, [Google Drive](#), [OneNote](#), ...

Using pull and push in the blended course

Strategy 2: Pull by means of gamification

Keep students coming back to the blended course by means of gamification. **Virtual badges** or other **reward** systems, **competitive** elements and **game-like interactions and challenges** can strongly engage students.

Most authoring tools also allow you to **branch** the content, starting from a scenario. This makes the content very engaging and students can receive 'natural' feedback from characters guiding them through the course.

Good practices:

- Authoring tools like [Articulate Storyline](#) (scenario-based learning, branching)
- Gamification: [Quizlet live](#), [Articulate Storyline](#), [Kahoot!](#), ...

Using pull and push in the blended course

Strategy 3: Pull by means of storytelling/narrative

By adding real-life stories and narratives in your course content, students will relate to the content more easily, which will keep them coming back to your blended course.

Good practices:

- Storytelling: [Zooburst](#), [Slidestory](#), [Puppet Pals](#), ...
- Animated videos, eg. [Vyond](#), [Powtoon](#), ...



Using pull and push in the blended course

NEW COMPETENCIES FOR INSTRUCTORS

Pull Learning strategies and student-centered learning require instructors to develop a new set of competencies.

[The UNESCO and DigCompEdu \(European Union\) framework](#) attempts to describe the ICT competencies needed by educators in their new roles. Building teachers' capacities is essential for higher education institutions, as well as for the role of Teaching and learning Centers.

Using pull and push in the blended course

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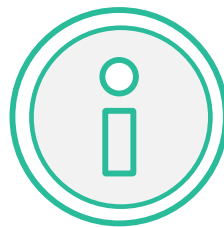


Providing the right amount of repetition to ensure the students' success

Ebbinghaus's forgetting curve has been widely explored by scientists from different disciplines, with the goal of finding strategies to counter the forgetting. Preventing memory collapse and ensuring long-term retention can be realized in blended learning. Flipping the classroom can be used as a starting point to present students with learning materials beforehand, but neurological pathways can only be strengthened by repeated use. A blended learning approach has a lot in store for spaced repetition!



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Providing the right amount of repetition to ensure the students' success

Definition of 'spaced repetition'

"Spaced repetition (also known as spaced rehearsal, graduated intervals, repetition spacing, repetition scheduling, spaced/expanded retrieval) is a learning method by which you review learned information at gradually increasing intervals. This method uses the spacing effect (sometimes called distributed practice) which increases the recall of learned information when the learning is spaced out over time as opposed to being crammed into one learning session.



Providing the right amount of repetition to ensure the students' success

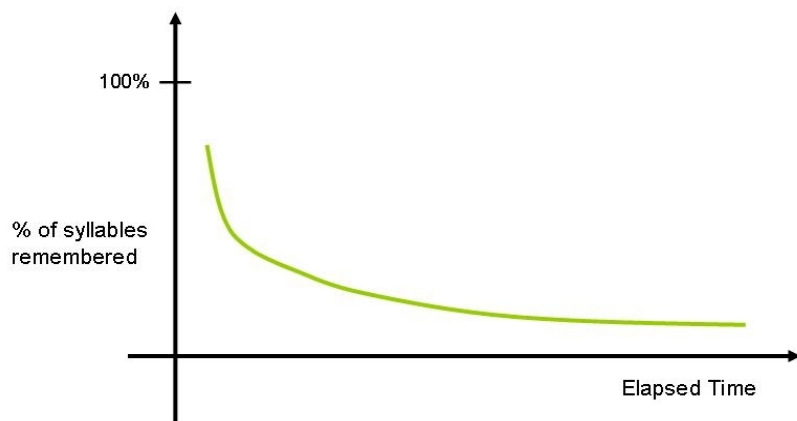
For example, you will remember more information if you study for an exam for an hour every day for a week leading up to the exam than if you "crammed" and studied 7 hours the night before an exam. Spaced repetition is when the intervals in between studying would be gradually increased. This type of learning and studying has been shown to be very effective when you need to learn mass amounts of information that you must be able to recall. For example, math formulas or vocabulary for a new language."

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Providing the right amount of repetition to ensure the students' success

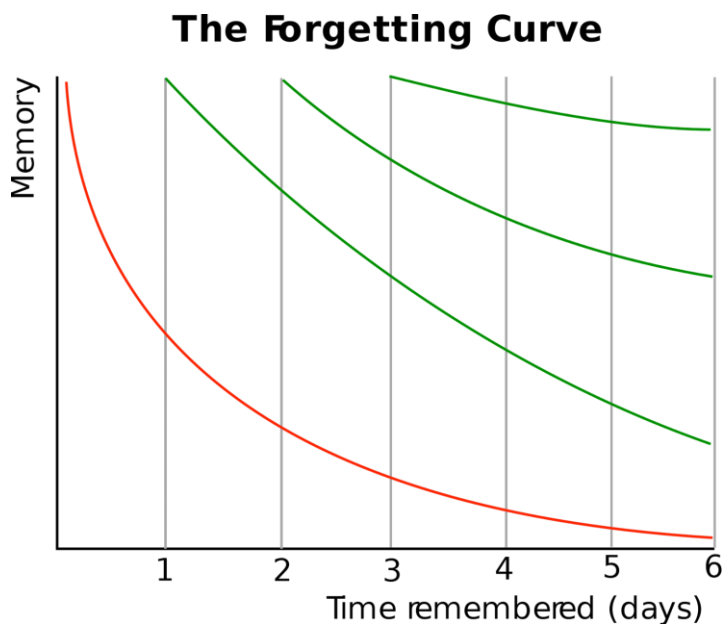


https://en.wikipedia.org/wiki/Forgetting_curve

The Ebbinghaus forgetting curve and spaced repetition

“Do repeat, don’t forget.” The Ebbinghaus forgetting curve **visualizes the way we forget** information over time when there is no attempt to retain the information. It shows near-perfect recollection in the beginning, but in a matter of days or weeks, the curve flattens until the bottom line where the person can’t remember anything at all about what was studied.

Providing the right amount of repetition to ensure the students' success



https://en.wikipedia.org/wiki/Forgetting_curve

Spaced repetition uses the Ebbinghaus forgetting curve to its advantage: it is a method of **reviewing material at systematic intervals** to prevent the curve from reaching the bottom and more so: to keep the curve as high as possible.

The method forces you to revise the information before your brain has a chance to forget what was learned. Several rounds of repetition will lead to better recall in terms of speed and accuracy. Neurological pathways associated with the memory are strengthened by repetition of information.

Providing the right amount of repetition to ensure the students' success

HOW TO APPLY SPACED REPETITION IN BLENDED LEARNING?

Learning from pre-study

Ebbinghaus found that information is easier to remember when it's built upon things you already know. The importance of **prior knowledge** for memory has been ascertained for more than 100 years (eg. early works of Piaget, 1929 and Bartlett, 1932). Prior knowledge facilitates converting new incoming information, no matter if the new information is in line with existing knowledge or not. However, having prior knowledge available is not enough, it needs to be accessed and used to benefit encoding (Bransford and Johnson, 1972; Alba and Hasher, 1983; Garvin et al, 2013).

By means of **flipping the classroom**, students can be engaged in a pre-course before the actual online training program, which reinforces the training and helps to reduce the speed of forgetting. In the pre-course part, you can activate students' prior knowledge, promote interaction or ask students to collect useful resources, in order to engage them with the topic.

Providing the right amount of repetition to ensure the students' success

Learning from pre-study : interesting tools

- [Mentimeter](#): a tool to make lessons more interactive. It gives you real time input from students (on or off campus) with live polls, quizzes, word clouds, ...
- [Padlet](#): an open source online tool to create digital notice boards. Students can post texts, pictures, videos and files to this digital wall to activate prior knowledge and to collect useful resources for the topic you want to discuss.
- [Flip](#): the video discussion tool from Microsoft. You can confront students with a challenging question or case. Students reply with short videos and engage with each other.
- [Tricider](#): a free and easy-to-use tool for easy brainstorming and voting.



Providing the right amount of repetition to ensure the students' success

Spaced repetition in the blend

Blended learning provides **different modes for learning** and offers a continual supply of learning materials to students. This makes learning less monotonous and more engaging and it enables students to learn in spaced intervals. Spaced repetition increases retention of the course content.

The best effect occurs when the same information is presented to students in **spaced out reviewing opportunities**; this produces better learning than massing learning opportunities together. However, current research shows debate as to whether the various reviews should be equally spaced apart or whether they should occur in an expanding schedule, i.e. the time between the reviews increases. (Kang, 2016).

Providing the right amount of repetition to ensure the students' success

Within a lesson, **repeat the key elements of information at least three times**: in the introduction, the body and the summary of the lesson. Avoid passive reviewing of the content. Engage and activate your students instead!

A first way to do this is by **asking students to search for information**. When the course content is presented in a challenging way, students will need to find answers to parts of the challenges or cases themselves. This will promote engagement with the content and will have a positive effect on retention.

A second way to engage students is by **promoting interaction and collaboration**. This will reinforce their understanding and retention of the content.

A third way is by **using attractive and accessible learning materials**, eg. animated videos, online quizzes, well-designed online lesson with built-in interactivity.

Providing the right amount of repetition to ensure the students' success

Good practices:

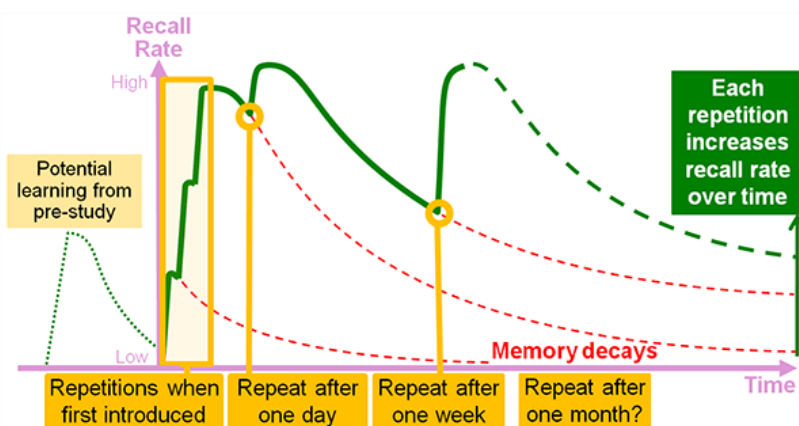
Interaction & collaboration: e.g. [Microsoft 365](#), [Google Workspace](#) (formerly G Suite), ...

- [Classkick](#): students can use different devices to collaborate on an assignment, peer and tutor feedback can be provided in real time

Attractive & accessible learning materials:

- [Moovly](#) (video editor), [Powtoon](#) (video maker), ...: to create animated video presentations to showcase students' understanding of a specific topic
- [Articulate Rise and Storyline](#) (tools to create e-learning), [H5P](#) (tool to create interactive exercises), ...: tools to create engaging online lessons: eg.

Providing the right amount of repetition to ensure the students' success



<https://learn.canvas.net/courses/2210/pages/repetition>

Within a blended course/program

At the start of a next session, **draw students' attention to the key elements** of a previous topic again. Ask questions about it, start with a quiz, or set a task that depends on that information.

A short time (a few days to a week) later, **recall and strengthen students' learned knowledge and skills** again. Present them with a task, a quiz or a formative test.

Over the next several weeks, perhaps three-weekly or monthly, aim at **referring to the information repeatedly** and making students actively use the information.

Providing the right amount of repetition to ensure the students' success

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Creating a good learning experience

The extent to which students are satisfied with their blended learning experiences, is strongly connected to the program's retention and dropout rates. Different studies have shown a wide range of different students' appreciations of blended learning. How can we ensure a good learning experience for the students of blended learning courses? How can we motivate students in blended learning more, and make learning more attractive and personalized? Key enabling factors include a **sound pedagogical design** of the course/program, **social experiences** and **support**.



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Creating a good learning experience

Good learning experiences result from:

- a sound pedagogical design
- social experiences
- the provision of support to the learners.



Creating a good learning experience

Distance education turns out to have some **downsides**: the 'distance education deficit', or the structural problem of high drop-out rates, low student retention and, as a result, low graduation rates (Simpson, 2013). A range of causes has been identified to explain these problems. Causes were divided into three main categories: internal or student factors, environmental or external factors and course/program or contextual factors (Lee and Choi, 2011; Croxton, 2014). The latter causes can be addressed by deploying the right methodologies to create good learning experiences for the students of blended courses.

There are several **preconditions to allow for successful blended learning**. Blended learning should be inclusive, which means all students should have access to the learning and receive equal learning opportunities. Students need to have a high level of digital literacy to find and use relevant information and communicate with others through technological devices (Barbour & Reeves, 2009). Students lacking this ability could experience difficulties in online learning. Preventing heavy workload and fatigue is also very important (Niemi et al, 2020) .

Creating a good learning experience

University students' perceptions of enablers and barriers to learning via blended learning are clustered into three groups: learning experiences, social experiences and support provision (Armellini, Teixeira & Howe, 2021).

These three groups will be described in what follows:

- **Enabler 1:** Learning experiences
- **Enabler 2:** Social experiences
- **Enabler 3:** Learning support

Creating a good learning experience

ENABLER 1: LEARNING EXPERIENCES

A sound pedagogic design of the blended learning course is crucial (Armellini, Teixeira & Howe, 2021). The design includes:

- **employability-focused activities** that explicitly link theory and practice: these are regarded as an essential ingredient in learning and assessment;
- **usefulness of and engagement with pre-session activities;**
- **planned and effectively aligned learning activities:** students benefit from the flipped classroom experience when learning designs are planned and effectively aligned (Awidi & Paynter, 2019);
- **the appropriate deployment of digital technologies:** the main factors affecting satisfaction negatively are technical problems (Ilgaz & Gülbahar, 2015);
- **the potential for revision and self-assessment:** delivering content in a variety of ways helps people remember what they've learned;
- **personalized learning experiences,** tailored to the learners' needs;
- **a task-based or even scenario-based approach;**
- **activating learning activities:** creating opportunities for students to improve their understanding through their own exploration and research of certain issues and topics.

Creating a good learning experience

Good practices: Initiating a task

- provide different resources (texts, videos...) which students can choose from
- ask students to bring own resources (texts, videos...) which they can use during the task

Good practices: Performing a task

- encourage students to apply learning strategies to achieve the goals
- encourage students to experiment
- provide personalized feedback and tell students explicitly what they can do to overcome any problems and proceed to the next step in the task
- remind students of their own prior knowledge and motivate them to use that knowledge

Good practices: Providing feedback on a task

- discuss the final product as well as the process. This will allow students to perform more efficiently on a following task
- link what students have learnt to situations in which students can still use what they have learned

Creating a good learning experience

ENABLER 2: SOCIAL EXPERIENCES

Social experiences form a second group of enablers and barriers to learning via blended learning (Armellini, Teixeira & Howe, 2021). Tutors play a key role in quality learning experiences and in a quality overall student experience.

Social experiences in blended learning include:

- **tutors' attempts to engage students in class discussions:** students highly appreciate tutors' attempts to engage them if they clearly value and respect students' perspectives.
- **strong, positive relationships between students and tutors:** these relationships impact on students' willingness to engage with tasks. They are also essential to promote a sense of belonging.
- **synchronous and asynchronous interactions with peers, tutors and content**

Creating a good learning experience

- Anderson (2003) also stated that the extent of **interaction** and **collaborative learning opportunities** available in online learning could influence students' experience. Integration of social interaction into pedagogy for online learning is essential to prevent students from feeling isolated. Three typical forms of interactions are: (i) **student-content**, (ii) **student-student**, and (iii) **student-teacher interactions**.

Student-content interactions, for example in discussion boards, lead to a better assimilation of the content. Findings on student-student interactions can range from negative (eg. group work can have a negative impact on student satisfaction, to positive (eg. they can improve assimilation of the content) (Croxton, 2014). Qualitative student-teacher interactions (eg. one-to-one interactions, knowing the tutor, receiving timely feedback) are the key elements in student satisfaction (Croxton, 2014; De Paepe, 2018).

- opportunities to shape and contribute thoughtful responses**: this is a main advantage for introverted students, who feel inhibited to speak in face-to-face contexts.



Creating a good learning experience



Good practices: engaging students in class discussions:
discussion boards, wheeldecide, breakout rooms, ...

Good practices: synchronous and asynchronous interactions:
chat, videoconferencing, video discussion platforms, digital wall, ...

Creating a good learning experience

ENABLER 3: LEARNING SUPPORT

The third group of enablers and barriers to learning via blended learning are labeled “learning support” (Armellini, Teixeira & Howe, 2021). Learning support in blended learning includes:

- **academic and personal support:** students view support as a holistic term that integrates support in and beyond the classroom.
- **openness:** tutors need to be open to questioning and student feedback

Digital feedback and student support can be **written or spoken**. Audio-feedback is often perceived as less threatening and more friendly. Personalized feedback (audio or video) via a screencast is easy to do, it narrows down the distance between educator and students, it allows tutors to provide more (personal) feedback than in a written modality and has the advantage that it can be re-accessed by the student (Klasse).

Creating a good learning experience

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Teacher as coach and mentor (and other roles)

Blended learning not only changes students' educational experiences, but also teacher practice. Teachers still retain a central role in the learning process, but a blended approach shifts the **role of the teacher** from knowledge provider to **mentor and coach**, both **on-and offline**. However, this does not mean that teachers have a less important or passive role. On the contrary, through blended learning, teachers can have a **more lasting and profound role** in the learning process of their students. In a non-blended context, the teacher is mainly the active provider of knowledge, but in a blended context, the students take more control of their own learning process. They spend more time on individual digital learning, while they still need **active guidance**. Thus, the blended teacher has many responsibilities.



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Teacher as coach and mentor (and other roles)

When designing a blended course, it is important to consider the role of the teacher, both **online and offline**. In a blended learning environment, students not only need engaging online content and interactive learning activities, but they also need their teacher to coach and guide them through the course.

Swan (2003) stated that “In a blended learning classroom, the technology is part and parcel of teaching students the facts and concepts, but the deep learning—the true understanding of the concepts—comes from teachers.”



Teacher as coach and mentor (and other roles)

Thus, there are a lot of teacher attributes that support blended learning success:

- Stimulate active learning;
- Promote deep learning;
- Check for understanding via formative evaluation;
- Offer qualitative feedback on evaluations and/or assignments;
- Encourage on- and offline participation, interaction & collaboration;
- Make expectations & learning goals explicit;
- Maintain availability both online and offline for questions, clarifications, feedback, etc.;
- Use technology that effectively supports communication & student learning;
- Utilize differentiation to meet the different needs of your students;
- Provide learning activities for different learning styles;
- Foresee help for students with special needs;
- Supplement online information with additional examples or explanations during face-two-face sessions
- Gain insights into learning processes by using learning analytics (data);
- Care about your student' work;
- Ensure your students' success by reflecting & evaluating your blended course
- ...

Teacher as coach and mentor (and other roles)

It is clear, although the role of the teacher in a blended course has changed and students must take a more active role in their own learning, the **teacher is still central** to the educational experience. In addition, the **creation of asynchronous learning materials** requires new skills, such as instructional design, video editing, graphic design, etc.

Many educational organisations prefer to have a **multidisciplinary team** to create a blended course, so that the work and necessary skills can be shared. However, for smaller-scale (one-man) projects, it is important that the necessary skills are mastered or choices are made (eg. no use of video).



Teacher as coach and mentor (and other roles)

A **synchronous online teacher** needs to combine **five roles: instructional, technical, social, managerial and communicational roles** (Grammens et al, 2022).

The teacher needs to make sure the students are involved, by presenting interesting content and awakening the students' interest. The teacher also needs to foster a good relationship with each student and promote student-student relationships at the same time. Because spontaneous, informal talks disappear in blended learning, the teacher needs to actively create time for formal and informal conversations. The teacher also fulfills a technical role and selects the most appropriate tools for each learning objective. The online teacher also needs to be a good manager to monitor the content, the technology and students' responses and questions at the same time during the synchronous online classes.



Teacher as coach and mentor (and other roles)

Reality shows that the teaching profession is facing **rapidly changing demands**, such as

- digital literacy,
- instructional design,
- ...

The demands require a new, broader and more sophisticated set of competences. The European Framework for the Digital Competence of Educators (DigCompEdu) is an evidence-based framework that helps to identify these requirements and supports the development of skills to meet them.



Teacher as coach and mentor (and other roles)

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Teacher as coach and mentor (and other roles)

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Creating social interaction among students

Humans are social beings. In learning, social activities are also important for students to grasp and retain knowledge and attain competences. For a teacher it is important to facilitate social interactions among students. Teachers need to have the skills and know the tools that are available for achieving this through active learning.



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Creating social interaction among students

“In the age of social media, communication is a two-way, three-way, and hundred-way tool that is interactive, immersive, and omnipresent” (Deaton, 2015).

There are many ways to achieve **social interaction**. It can be **in or out of class**. It can be **synchronous or asynchronous**. It can be **intentional or unintended** or happen **with or without the use of tools**.

In education, we need to grasp the opportunities of **digital communication channels** to promote social interaction and social learning among peers.

Creating social interaction among students

How to promote social interaction?

Some examples of ways to promote social interaction among students are:

- **Strategy 1:** Introductory face-to-face meetings
- **Strategy 2:** Collaborative learning
- **Strategy 3:** Peer assessment
- **Strategy 4:** Peer teaching
- **Strategy 5:** Learning network & community



Creating social interaction among students

STRATEGY 1: INTRODUCTORY FACE-TO-FACE MEETINGS

Higher education institutions often organize introductory face-to-face meetings “in order to meet the other learners and the instructor(s), and to create a sense of community. Afterwards, the online environment was often used to foster additional social interaction, through both synchronous and asynchronous communication.” (Boelens et al, 2017).



Creating social interaction among students

STRATEGY 2: COLLABORATIVE LEARNING

“**Social interaction** appears to be the key to collaboration. If there is collaboration then social interaction can be found in it, and vice versa, if there is no social interaction then there is also no real collaboration.” (Kreijns et al 2003, p338).

Collaborative learning has a range of **merits**: it promotes deeper level learning, shared understanding, critical thinking, and long term retention of the learned material (e.g. Garrison et al., 2001). Moreover, it provides opportunities for developing social and communication skills and positive attitudes towards peers and learning material, and for building social bonds and group cohesion (Johnson& Johnson, 1999).

Creating social interaction among students

Collaborative learning can take **many forms**: group work, simulations, eg. role plays and case studies, through discussion boards/platforms & notice boards, in virtual classes with breakout group discussions etcetera. Important to realize is that interaction can be stimulated inside as well as outside of the classroom.

Social media should not be overlooked either: "Since the act of utilizing social media requires a level of focused attention, students who post a comment, read an article, like a post, or retweet a message are doing so actively. The very nature of online social interaction requires that attention be maintained in order to engage with the content. (...) This constant call to attention improves learning processes and aids the student in maintaining focus throughout the duration of the learning activity" (Deaton, 2015, p2).

Creating social interaction among students

Tools for collaborative learning:

- **Collaborative writing:** [Google Drive](#), [Office 365](#)... make collaboration on multiple devices possible.
- **Video discussion platforms**, eg. [Flip](#) (video discussion app), allow you to get spoken input from all your students and promote asynchronous spoken interactions: students comment on peers' videos.
- [Mentimeter](#) (interactive presentation software), [Tricider](#) (social voting app), [Padlet](#) (digital wall), ... allow you to get written or spoken input from all your students and to show results in real time. This is motivating and activating. Students interact with each other by voting or commenting on their peers' contributions. You can organize brainstorm sessions, polls, or launch statements to which students need to respond.
- **Social media**, eg. [Twitter](#) allows students to interact with each other and share information in a social context.



Creating social interaction among students

STRATEGY 3: PEER ASSESSMENT

Peer assessment has been popularized by MOOCs, because that teacher could not grade the huge number of students registering. Apart from this, peer assessment has also a pedagogical value. When students have to grade other students' input and provide feedback, they are seeing answers and other points of view and making them reflect on the topic (Sadler & Good 2006). Regular use of peer assessment helps normalize a student-centered learning process and shows that making mistakes is an integral part of learning. Teachers play an important facilitating role in making students "feedback literate".



Creating social interaction among students

Tools for peer assessment:

- [ComPAIR](#): opensource online peer review tool that allows students to formulate answers to questions and then compare and assess pairs of their peers' answers based on criteria provided by the instructor.
- [Peerceptiv](#): tool that allows students to demonstrate knowledge of a subject through peer assessment, while building desirable soft skills such as critical thinking and teamwork.
- Collaborative tools such as [Google Drive](#), [Office 365](#), ...



Creating social interaction among students

STRATEGY 4: PEER TEACHING

Teaching is a powerful way to learn. Having students act as teachers helps them to focus and understand better. Students can be empowered to identify learning objectives, to create teaching materials for their fellows and develop assessment activities to check the learning process. This is key to enhancing critical thinking, as students need to build arguments consistently. Lectures are then transformed into seminars, where students can focus their attention on understanding concepts rather than on memorizing them. Therefore, deep learning is achieved (Mazur 2022).



Creating social interaction among students

STRATEGY 5: LEARNING NETWORK & COMMUNITY

Wenger popularized the term “Communities of Practice” (Wenger 1998) to refer to “share a concern or a passion for something they do and learn how to do it better as they interact regularly”. Bootcamps or approaches like École42 are also related to this idea. (see blue box). These communities of practice are also a way to approach students to their future role as workers. Some companies are building teams to focus on problem solving, so that work can be carried out more effectively (Wenger & Snyder 2000). In the long term new informal relationships are created.



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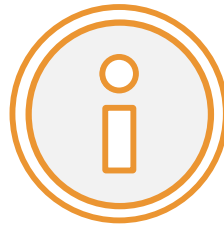


Supporting/Motivating students in their learning process

“It is impossible to control another person’s motivation. But much of the instructor’s job involves stimulating learner motivation and learning environments should ideally be designed toward this goal.” (Keller, 2009). To prevent dropout, to engage the students and to create an eagerness to learn, blended learning programs should focus on different ways to motivate students. Motivation and positive learning outcomes depend on different factors. How can you systematically stimulate and sustain your students’ motivation and tease them to learn? The five key words are attention, relevance, confidence, satisfaction and volition.



DEFINITION



HOW TO & GOOD PRACTICES



REFERENCES



Supporting/Motivating students in their learning process

Definition of motivation in the learning process

“That which explains the direction and magnitude of behavior, or in other words, it explains what goals people choose to pursue and how actively or intensely they pursue them.” (Keller, J. M. Motivational Design for Learning and Performance: The ARCS model approach. Springer, New York, 2010.)

In 2019, Keller adds: “Enigmas result because people can have multiple goals and they are not always logically consistent.” (Be Motivated and Motivate: An Interview with John M. Keller).

[Keller’s ARCS-V model of Motivational Design](#) (2016) is a model to determine the motivation for learning, also in a blended learning environment. ARCS-V stands for Attention, Relevance, Confidence, Satisfaction and Volition. It mainly highlights how you can stimulate the motivation of the learner. It provides a foundation for a motivational design process.

ATTENTION

Attention is a condition for learning. Therefore, you need to attract your students' attention and keep their attention. You need to "sell" your course content and convince the students that the blended course is worth their time and attention.

Strategies for promoting attention:

- **Perceptual arousal:** amaze, surprise or make the students doubt. Confront students with challenging propositions or dilemmas.
- **Inquiry arousal:** Give the learner the role of researcher. Let him try things and solve problems. Introduce problem-based learning instead of topics. Confront the learner with real-world challenges that need to be solved. Build the course with a challenging level aligned to students' skills (Flow).
- **Variability:** Make sure the learning is fun. Alternate different teaching and learning formats.

RELEVANCE

The relevance of the course should be obvious. If a student wonders what the point of the lesson is or why it is relevant, then you've already lost this student to a certain extent. Learning materials are relevant if they match the students' expectations, interests, goals, needs, (future) activities, knowledge and experience.

Strategies for promoting relevance:

- **Goal orientation:** Describe how the subject matter will benefit the students, immediately and also in the future.
- **Motive matching:** Point out the usefulness of the course by linking it to the motives of the students. Give students the opportunity to choose the way in which they prefer to learn. Make sure the subjective values students attribute to a task are high (Vanslambrouck et al, 2018).
- **Familiarity:** Use role models who have benefited from the course, start from real people and stories, and build on students' prior knowledge. Present real-world examples and challenge students with practical exercises. Personalize the learning to ensure that everyone is motivated (Alamri et al., 2020).

CONFIDENCE

The student must be confident that the learning will be successful. That is why it is important to give students a means to make their successes visible. They need to be able to properly estimate their chance of success.

Strategies for promoting confidence:

- **Learning and performance requirements:** Be clear about what you expect from the learner, what your requirements are. Don't exaggerate. Provide bit-size content chunks as well. Use transparent concepts/formats of Blended Learning so students can visualize what the whole learning process will be like. This prevents them from feeling insecure about what is expected from them.

Supporting/Motivating students in their learning process

- **Opportunities for success:** Give the learner plenty of opportunities for success by creating diverse and challenging tasks. Align the course to students' competencies. If the learning materials are far too easy or difficult, students will lose their motivation. Help students with less experience, challenge students with more experience. Give positive feedback on their learning activities. Give students a safe space to write down their reflections on what they learn - without evaluations (a personal (digital) notebook).
- **Personal Control:** Students' confidence grows when their personal effort leads to success. Encourage the learner to take small steps so that their progress is clearly visible. A student dashboard can help visualize the progress. Provide intermediate evaluations.



SATISFACTION

Learning should lead to satisfaction or a reward. Successfully completing a part can be enough for some students, but a compliment, a badge or a certificate can do wonders as well.

Strategies for promoting satisfaction:

- **Intrinsic Reinforcement:** Encourage the fun part of learning. You can add elements of gamified learning, eg. students can earn points, coins or badges; they can try to beat their own score or the score of peers.
- **Extrinsic Rewards:** Provide constructive and motivating (online or offline) feedback. A certificate of attendance or participation is also a motivating factor for many students.
- **Equity:** Be consistent in what you demand from the students and also in the consequences you have attached to successfully completing a learning process. Make sure the assessment is in line with what students have done during the course and therefore predictable in format.

VOLITION

Students should show a good degree of **commitment toward achieving the learning requirements and persistence**. If volition or self-regulation is weak, students will be easily distracted and are likely to drop out. If volition is too high, students will study too much and inefficiently, which will prevent learning and retention.

Strategies for promoting volition:

- **Motivational messages:** Send out messages to your students which are targeted to their needs and send them when they need them the most. You can create lively motivational messages, eg. with animation, video clips, or audio.
- **Prompting:** Present students with pop-up windows in the blended environment. The pop-up message can include scaffolding tactics to assist learning, or motivational messages (eg. "Don't worry, you can have another try!").

Supporting/Motivating students in their learning process

JOB AID FOR TUTORS

Keller developed a job aid, which can be used during the lesson planning phase (to make notes about motivational attitudes and ideas) and during the process of teaching the course (when motivational problems arise).

Categories	Instructor's Self-Analysis	Instructor's Analysis of Learners
Attention	Am I excited about this learning experience and how I can make it interesting?	Are the learners going to be interested? What tactics will stimulate their curiosity and interest?
Relevance	Do I believe that this learning experience will be valuable for my learners?	Will learners believe it is valuable? What can I do to help them believe it is important?
Confidence	Am I confident in my ability to lead this learning experience effectively and interestingly?	Will the learners feel confident about their ability to learn this? What do I need to do to help them be confident?
Satisfaction	Do I expect to have positive feelings about this learning experience?	What can I do to help the learners feel good about their experience and desire to continue learning?
Volition	Will I provide effective supervision and support to the learners throughout this learning event?	What can I do to help the learners maintain their goal orientation and task-focus throughout this learning event?

Job aid for motivational strategy design (Keller, 2016, p9).

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Students in charge of their own (blended) learning

Many students experience difficulties transitioning to higher education. Secondary school graduates starting higher education appear to be insufficiently equipped to plan, monitor and evaluate their learning processes independently. However, these so-called 'self-regulation skills' are inherent to higher education. Given that teachers in secondary education stimulate self-regulation in pupils in a wide variety of ways, lecturers in higher education cannot simply assume that all students will manage on their own.



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Students in charge of their own (blended) learning

Definition of self-regulation

Before we look at the specific actions you can take as a lecturer, let's first define the concept of 'self-regulation' or 'self-management'. There is no universally accepted definition to be found in the literature. Zimmerman (2002), one of the leading authors on self-regulation, describes it as 'the degree to which students are metacognitively, motivationally and behaviourally active participants in their own learning processes'.



Students in charge of their own (blended) learning

There is consensus, however, on the **components of self-regulation**: these are **cognitive, metacognitive and motivational** in nature. Cognition is all about learning, knowing and understanding, whereas metacognition refers to 'thinking about thinking'. An example of a metacognitive strategy is self-evaluation. Motivation refers to students' interest and willingness to learn (Boekaerts et al., 2000). In order to become self-regulated, it is important to focus on all three components.

In addition to the consensus on these three components, most models of self-regulation are also based on **three successive phases: preparation, implementation and reflection**. These three phases must be completed in order to enhance self-regulation (Panadero, 2017).



Students in charge of their own (blended) learning

How to stimulate students' self-regulation?

- **Strategy 1:** Strengthen students' learning strategies
- **Strategy 2:** Encourage self-evaluation and self-reflection
- **Strategy 3:** Send reminders
- **Strategy 4:** Scaffold
- **Strategy 5:** Be a role model for your students

Tools and techniques to stimulate students' self-regulation will be explained in the next pages.

Students in charge of their own (blended) learning

STRATEGY 1: STRENGTHEN STUDENTS' LEARNING STRATEGIES

In order to teach students to study more effectively and efficiently, you can teach them learning strategies. Be sure to provide clear **structure in the content** of your lectures. After all, this facilitates student learning and sets an important example.

Spacing studying sessions over time is another effective learning strategy. This learning strategy is closely linked to **good planning**. It is better for students to revise the subject matter in several shorter lessons than to try and memorize everything at once.

Students in charge of their own (blended) learning

Techniques students can use to **add more structure to the subject matter** are mindmaps, concept maps, summaries, etc. It is best to give students free rein to experiment with these methods. As their lecturer, you can point out various possibilities, but it is ultimately up to the students to find out what works best for them.

There are several tools for **structuring learning content**, both for lecturers and students, such as [Coggle](#) (mind maps), [Xmind](#) (mind mapping and brainstorming app), [Lucid](#) (intelligent diagramming).



Students in charge of their own (blended) learning

STRATEGY 2: ENCOURAGE SELF-EVALUATION AND SELF-REFLECTION

In order to make students aware of their learning processes and to ensure that they adjust their learning strategies if necessary, self-evaluation and self-reflection need to be encouraged. Self evaluation and self-reflection skills are **especially important in online learning environments**.

You could encourage students for example to hone these skills by having them **keep track of the progress they are making** in a learner journal. By asking students this type of short question, you encourage them to think about their own learning.

If you want to check whether students are keeping up with the content of your course, you can test this throughout the year. Digital tools for such formative testing include interactive presentation software ([Mentimeter](#), [Pear Deck](#), [Nearpod](#), ...) or online content creation tools ([BookWidgets](#), [AssessmentQ](#), ...).

Students in charge of their own (blended) learning

STRATEGY 3: SEND REMINDERS

All students, and especially those in need of more support, benefit from regular reminders when certain **deadlines** are approaching.

You can also encourage students by sending an occasional **motivational** reminder.



Students in charge of their own (blended) learning

STRATEGY 4: SCAFFOLD

This educational concept hinges on the importance of **challenging individual students at their own levels**, offering enough support to enable them to achieve a specific goal. For example, you could consider using a discussion forum. This can be an interesting tool to stimulate self-management in students, allowing them to ask (you or one another) questions as they process the subject matter. You can focus on '**peer-to-peer assistance**', with students answering one another's questions.

[Flip](#) is an easy-to-use video discussion platform. You can create a “grid” for each group. Students can share cases/difficulties/questions with each other. Peers can react in short videos. A convenient alternative is [Padlet](#). This tool is a digital pinboard on which you can share not only videos, but also audio, photos, links, etc. with each other. Peers can also interact with each other in this tool.

Students in charge of their own (blended) learning

STRATEGY 5: BE A ROLE MODEL FOR YOUR STUDENTS

To show students that certain skills are indispensable in higher education, it is essential to be a role model for them, for example by **setting clear goals** that you communicate clearly. Another possible way to be a role model for students is by explicitly stating when you are **scheduling** something, and why.

The ultimate goal is to move from "external guidance" (guidance by the teacher) to "internal guidance" (guidance by the student).

Students in charge of their own (blended) learning

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Students in charge of their own (blended) learning

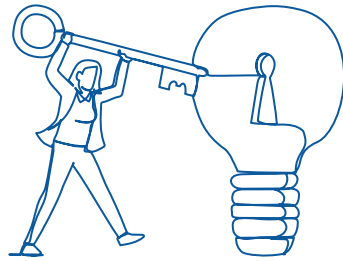
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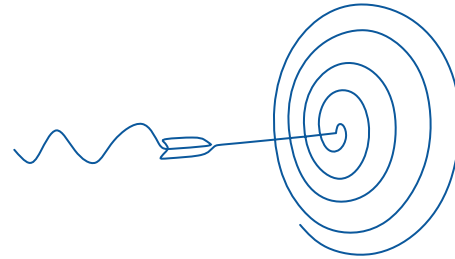
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Highlights from BUDS blended learning experience



**Key features of BUDS
Intensive Training
Programme**



**Empowering Instructors
through Digital
Competences for Education**



**IPR and Open Access:
Reusing Content**

Key guidelines features deployed in BUDS project

- **Identify the target groups (Plan)**

In BUDS, the precise identification of the target groups has been matched with the blended approach to deliver an effective programme on digital management consulting. There are two different target audiences: management students who need to strengthen their IT/data science skills and IT/data science students who need to strengthen their management skills. The initial part on the e-learning platform allows these two different students' groups to select what they want to study, revise, or skip. The subsequent face-to-face part benefits from the common background established in the initial e-learning activities.

- **Create the right balance between asynchronous and synchronous learning (Design)**

In BUDS, the balance between asynchronous and synchronous learning is embedded in the programme design. The asynchronous part focuses on codified knowledge (namely the general concepts, methodologies and tools in digital transformation) and participants can choose how long they want to study or revise the different sections. The synchronous part focuses on specific approaches and soft skills consulting companies use in their digital transformation projects and the participants can decide how much they want to engage in the groupwork and in the interactions with the consultants/mentors.

Key guidelines features deployed in BUDS project

- **Provide variety of teaching methods in the blended course (Design)**

In BUDS project, the variety of teaching methods is provided across and within each part. In the e-learning part, for each topic, participants have videos, readings and activities (multiple choice, drag and drop, etc). In the face-to-face part, participants attend lectures and are actively engaged in a groupwork. Moreover, after the “regular” programme, participants can extend their knowledge on digital transformation tools by following an off-the-shelf e-learning courses provided by the software providers (with a short training session on how to navigate these new platforms).

- **Determine the elements of learning analytics to be collected (Design)**

In BUDS projects, the learning analytics for the e-learning part relates to the time spent on the platform is tracked, but there is no indicator to check or assess the quality of such a time. The overall participants’ learning is mainly assessed at the end in terms of the quality of the final assignments. The indicators take into account the soundness of the groupwork proposal (innovativeness, transformational impact and mid-term sustainability) and the quality of the groupwork presentation (concept and attitude). The evaluations are jointly carried out by the academic supervisors and by the practitioners/mentors.

Key guidelines features deployed in BUDS project

- **Create Social Interaction among Students (Design/Manage)**

In BUDS, social interactions between the participants (and with the mentors) are mainly centered on the face-to-face groupwork interactions where participants are asked to complete a group assignment mimicking a digital consulting assignment. However, the social interactions start, before meeting in presence, as the groups already meet online and they continue after the face-to-face part, as the groups finish and present their assignment from remote. During the Covid lockdown groups managed to interact effectively also in a synchronous mode from remote, using a virtual collaboration environment.

- **Create a good learning experience (Manage)**

In BUDS, a good learning experience is fostered by an effective e-learning space and by a charming physical location. The e-learning platform is based on Open-edX to build learning sequences including sections for texts, videos and activities. Using LTI (Learning Tools Interoperability), Open edX seamlessly integrates Blackboard Collaborate as a synchronous environment for lectures and interactions. The physical location is a Renaissance Villa on the hills of Rome that can convey a sense of “executive education”, in line with the engagement of consulting companies as lecturers and mentors, and a sense of concentration, thanks to the ample spaces provided by Villa, its portico and its gardens.

Empowering Instructors through Digital Competences for Education

Being an instructor requires permanent training and therefore capacity building is crucial in any education institution. Training programs in Higher Education institutions in Europe are provided with a comprehensive framework based on digital competences, the **Digital Competence Framework for Educators (DigCompEdu)** developed by the Joint Research Centre. As the European Commission highlights, the focus of the **22 competencies** organized in **six areas** “is not on technical skills. Rather, the framework aims to detail how digital technologies can be used to enhance and innovate”.

COMPETENCES FOR EDUCATORS

As Delgado Kloos et al. (2021) point out, there are two frameworks that describe “adequately” the ICT (Information and Communication Technologies) competencies of teachers, the one developed by UNESCO and the one developed by the European Commission through the Joint Research Centre, known as the **Digital Competence Framework for Educators (DigCompEdu)**. While the **UNESCO model** relies on 18 competences in six areas, the one proposed by the European Union outlines 22 competences, also grouped in six areas, aimed to instructors as well as to learners; moreover, each competence has six levels of achievement (A1 to C2), similarly to language competence in the Common European Framework of Reference for Languages.

Empowering Instructors through Digital Competences for Education

The European Commission, when defining the DigCompEdu framework, state that “the teaching professions face **rapidly changing demands**, which require a **new, broader and more sophisticated set of competences** than before.

The ubiquity of digital devices and applications, in particular, requires educators to develop their digital competence.” Thus, **empowering instructors’ competences is a must** for any institution developing online or blended learning.

Empowering Instructors through Digital Competences for Education

DIGCOMPEDU COMPETENCES

Professional Engagement

This set of competences involve organizational communication, professional collaboration, reflective practice and digital continuous professional development. The ability to innovate permanently is key, both at an individual and an organizational level (Punie and Redecker, 2017: 19).

Digital Resources

Competences in this area include selecting digital resources, creating and modifying digital resources as well as managing, protecting and sharing digital resources. Thus, competences are not restricted to just searching, finding and using contents, but also to responsibility in reusing them according to an appropriate knowledge of intellectual property rights and licenses.

Teaching and Learning

Teaching, guidance, collaborative learning and self-regulated learning are central to this area of competences. A teacher-centered process is overcome by a learner-centered process where instructors need to shift the focus in order to make learners more autonomous.

Empowering Instructors through Digital Competences for Education

Assessment

These competencies involve assessment strategies, analyzing evidence and feedback and planning. Following Punie and Redecker (2017), “assessment can be a facilitator or bottleneck to innovation in education”, so learning can be enhanced through formative and summative evaluation. Being able to analyze the learning data as well as to provide timely feedback to the learners is key to instructors.

Empowering Learners

In a learner-centered educational model, it is crucial to take into account accessibility and inclusion, differentiation and personalization and actively engagement of learners. When learning is adapted to learners’ needs, skills and interests, inequalities and lack of opportunities can be overcome.

Facilitating Learner’s Digital Competence

The creators of the DigCompEdu framework (Punie and Redecker, 2017) believe that “the ability to facilitate learners’ digital competence is an integral part of educators’ digital competence”. This involves information and media literacy, digital communication and collaboration, digital content creation and responsible use. This way the learning process in students mirrors the teaching process of instructors.



IPR and Open Access: Reusing Content

Intellectual Property Rights have changed dramatically in the digital era and face new challenges and opportunities in Open Science and Open Education. In research, open access to publications and data is now mandatory within the Horizon Europe 2021-2027 funding framework; in education, Open Educational Resources (OER) are increasingly important and demonstrate the power of sharing contents that can be reused. In online and blended education the teaching time is learner-centered and therefore the instructor's work must be deeply focused in the learning process, rather than on producing content that may be available elsewhere with open licenses. Open licenses, such as the Creative Commons licenses, are central to this model.

IPR and Open Access: Reusing content

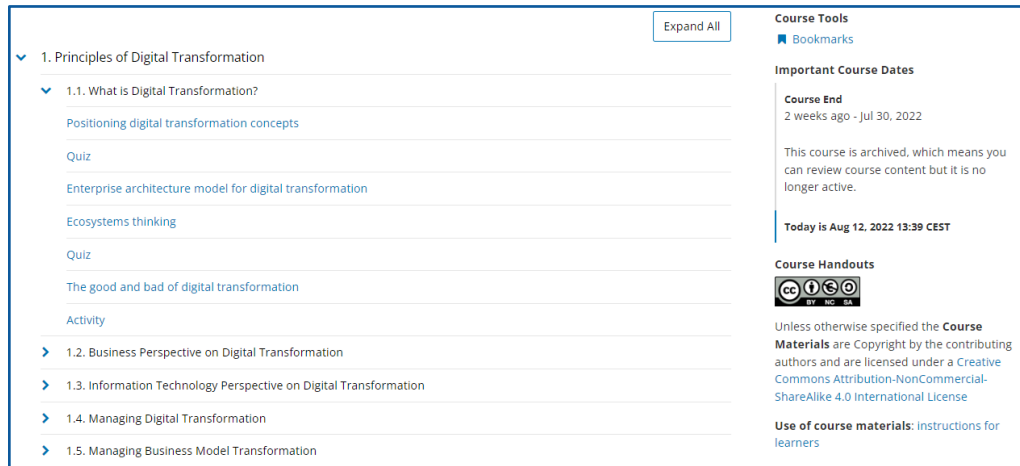
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IPR and Open Access: Reusing content




The screenshot shows a course page with a table of contents on the left and course information on the right. The table of contents is expanded to show the first section, '1. Principles of Digital Transformation', which includes sub-sections like '1.1. What is Digital Transformation?' and '1.2. Business Perspective on Digital Transformation'. The right sidebar contains 'Course Tools' (Bookmarks), 'Important Course Dates' (Course End: 2 weeks ago - Jul 30, 2022), and 'Course Handouts' (Creative Commons Attribution-NonCommercial-ShareAlike 4.0 International License).

Section	Content
1. Principles of Digital Transformation	Expand All
1.1. What is Digital Transformation?	Positioning digital transformation concepts Quiz Enterprise architecture model for digital transformation Ecosystems thinking Quiz The good and bad of digital transformation Activity
1.2. Business Perspective on Digital Transformation	
1.3. Information Technology Perspective on Digital Transformation	
1.4. Managing Digital Transformation	
1.5. Managing Business Model Transformation	

Course Tools
Bookmarks

Important Course Dates
Course End
2 weeks ago - Jul 30, 2022
This course is archived, which means you can review course content but it is no longer active.
Today is Aug 12, 2022 13:39 CEST

Course Handouts

Unless otherwise specified the **Course Materials** are Copyright by the contributing authors and are licensed under a [Creative Commons Attribution-NonCommercial-ShareAlike 4.0 International License](#)
Use of course materials: instructions for learners

Information on license in the course contents

- The course

The course as a whole is released under a CC BY-NC-SA license, as displayed on the home page, at the bottom right corner shown in this screenshot.

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IPR and Open Access: Reusing content



- Videos

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IPR and Open Access: Reusing content

- **Activities and texts**

The activities and texts created by the instructors are subject to the license of the whole course.

- **Other contents**

Readings that are linked in the course, as well as videos either linked or embedded, and that are not original from the instructors' team, may have been released under terms different than the ones of the course. Therefore, it is necessary to check the source if anybody wants to reuse them as well.



IPR and Open Access: Reusing content

Invitation to reusers

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