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# IMPROVING ONLINE TEACHING

## PRACTICAL GUIDE FOR QUALITY ONLINE EDUCATION

Foreword by

Teresa Guasch, Hilligje van't Land and Trine Jensen



Innovative Education  
for Unshaped Futures  
(IE4UF)



EDITORIAL UOC





# Improving online teaching

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## Practical guide for quality online education

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*For all those people who have suffered, in one way or another, the ravages of COVID-19; and, most especially, our recognition and gratitude to all health and education professionals, to whom we will always be indebted.*

*Nothing makes the Earth seem so vast as  
to have friends at a distance.*

Henry David Thoreau



## Contents

<b>Foreword IAU</b> .....	19
Hillegje van't Land and Trine Jensen	
<b>Foreword UOC</b> .....	23
Teresa Guasch	
<b>Introduction</b> .....	25
<b>Chapter I. Teaching and learning online: overcoming social distancing</b> .....	31
Albert Sangrà	
1. Introduction.....	31
2. Distance learning: a solution in critical times.....	32
3. COVID-19: our emergency situation.....	34
4. Overcoming social distance.....	36
4.1. The people: your students.....	36
4.2. Organization.....	37
4.3. Interaction.....	38
4.4. Resources.....	39
4.5. Support: accompaniment and follow-up.....	40
4.6. Assessment.....	41
4.7. The digital divide.....	42
4.8. How should we organize ourselves?.....	43
5. Synthesis.....	43
Learn more.....	44
References.....	45

<b>Chapter II. Designing online courses .....</b>	<b>47</b>
Lourdes Guàrdia	
1. The design of online courses: a technological and pedagogical challenge.....	47
2. Techno-pedagogical design in online education: a holistic and integrative vision.....	47
2.1. What does adopting a techno-pedagogical design methodology achieve?.....	49
2.2. Techno-pedagogical design models .....	50
3. Design phases: holistic process.....	52
3.1. Analysis.....	54
3.2. Planning.....	55
3.3. Design.....	56
3.4. Creation.....	57
3.5. Management .....	57
3.6. Teaching.....	58
3.7. Evaluation .....	59
4. Decision-making flow in the design process.....	59
5. Synthesis .....	61
Learn more .....	62
References.....	63
 <b>Chapter III. Keys to an online assessment .....</b>	 <b>65</b>
Nati Cabrera and Maite Fernández-Ferrer	
1. Introduction .....	65
2. The challenge: designing learning assessment .....	66
3. The object of evaluation: what should we assess? .....	67
4. Assessment criteria: the great unknown.....	69
5. The importance of planning in the online evaluation process .....	70
6. Strategies and tools for assessment: how to choose?.....	72

7. From evaluated to evaluator student: switching roles!...	74
8. Synthesis .....	75
Learn more .....	77
References .....	79
<b>Chapter IV. E-tivities for active learning .....</b>	<b>81</b>
Marcelo Maina	
1. E-tivities and active learning .....	83
2. E-tivities: active methodologies .....	85
3. E-tivities: the context and the environment .....	85
4. Components of an e-tivity .....	87
5. Types of e-tivities.....	89
6. E-tivities, blended and discontinuous learning.....	90
7. E-tivities: final recommendations.....	94
References.....	96
<b>Chapter V. Essential tools and resources for online teaching .....</b>	<b>99</b>
Marc Romero	
1. Some preliminary considerations.....	99
2. Tools for online teaching.....	100
2.1. Search engines and content curators.....	102
2.2. Personal/social communication tools .....	102
2.3. Content creation tools .....	103
2.4. Collaborative tools.....	105
2.5. Creating activities.....	106
2.6. Tips for using digital tools in online education .....	106
3. Resources for online teaching .....	107
3.1. Main educational resources on the web.....	109
4. Recommendations.....	112

Learn more .....	114
References.....	115
<b>Chapter VI. Five key strategies for online teaching.....</b>	<b>117</b>
Teresa Romeu	
1. Preliminary considerations.....	117
2. Communication and interaction strategy .....	121
3. Planning and management strategy.....	122
4. Revitalization strategy.....	123
5. Orientation and motivation strategy.....	124
6. Assessment strategy .....	125
7. Conclusion.....	126
Learn more .....	128
References.....	129
<b>Chapter VII. Pedagogical and technological mediation for competency development.....</b>	<b>131</b>
Antoni Badia	
1. The challenge of teaching competencies in online environments .....	131
2. Five principles for promoting skill development.....	132
2.1. Defining and characterizing a specific skill.....	132
2.2. Undertaking detailed analysis of a competency performance in real scenarios.....	134
2.3. Ensuring the educational institution is sufficiently prepared .....	136
2.4. Designing competency teaching.....	137
2.5. Having criteria to implement the training proposal...	139
3. Summary and recommendations .....	142
Learn more .....	143
References.....	144

<b>Chapter VIII. Less is more: fewer corrections and more feedback for learning</b> .....	147
Teresa Guasch and Anna Espasa	
1. What do we mean by feedback? .....	149
2. What characteristics should feedback have? .....	150
3. What information should feedback contain? .....	151
4. When to provide feedback?.....	152
5. How should feedback be given? Resources and strategies.....	154
6. How to engage students so that they make use of feedback?.....	157
7. Synthesis .....	160
Learn more .....	161
References.....	162
<b>Chapter IX. Generate critical digital attitudes in students</b> .....	163
Juliana E. Raffaghelli	
1. Inhabiting cyberspace today: a challenge .....	163
2. Critical approach in pedagogical and techno-pedagogical theory .....	165
3. Develop a critical digital attitude .....	167
3.1. Behavioural level.....	167
3.2. Emotional level.....	169
3.3. Cognitive level.....	170
3.4. Social level.....	172
4. Conclusions.....	173
Learn more .....	175
References.....	176

**Chapter X. Networked collaboration for teachers**

<b>and for students</b> .....	179
Montse Guitert	
1. Introduction .....	179
2. Networked collaboration in education .....	180
2.1. Levels of collaboration.....	182
2.2. Four key critical processes .....	182
2.3. Collaborative tools.....	184
3. Networked collaborative teaching .....	184
3.1. Phases of online teaching .....	185
3.2. Collaborative activities by phases.....	186
4. Networked student collaboration.....	187
4.1. Teaching role .....	187
4.2. Activities to promote critical processes .....	188
5. By way of conclusion and recommendations .....	191
Learn more .....	193
References.....	194

**Epilogue I. Learning from experience during the pandemic to build innovative education for unshaped futures (IE4UF)**

.....	197
Trine Jensen	
Responding to the different needs of different learners ...	199
The mainstreaming effect of the pandemic – a new starting point.....	201
An open door for more inclusive collaboration.....	202
The ethical dimension of data .....	203
Building bridges in a world of inequalities .....	204
Conclusion.....	205
References.....	206

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<b>Epilogue II. Towards hybrid or blended models</b>	
<b>more adaptable to our uncertain times</b> .....	207
Albert Sangrà	
Towards discontinuous or intermittent in-presence models.....	209
Designing face-to-face and online times to generate a fluid transition .....	210
Managing time differently: a reasonable and sustainable distribution of synchrony and asynchrony .....	211
Redefine the organization .....	212
References.....	215



## Foreword IAU

In January 2020, the International Association of Universities (IAU) released its first Global Report on the *State of Digital Transformation in Higher Education*. This was just months before the beginning of the COVID-19 pandemic, and before university campuses started closing down and pivoting towards remote teaching and learning, relying mainly on digital technologies to continue operations. Over the past year, we have observed the endless efforts of the academic community to develop solutions in a world where physical distancing was essential to fighting the spread of the virus. This global laboratory of exploring new modes of teaching and learning has accelerated the digital transformation of higher education, yet it was an unforeseen, unplanned, and forced transition. Many teachers (and students) lacked experience in online teaching and learning, nor did they have the necessary time to plan for such a shift. Nevertheless, many universities around the world demonstrated their capacity to adapt rapidly to a changing situation and showed their devotion to fighting disruption, developing solutions to ensure that students could continue their path of learning during the pandemic. While we look forward to having vibrant campuses open again for students to meet, exchange and grow within these important social communities, we also believe that this experience offers a unique opportunity to build on the lessons learned in our common pursuit of providing *quality* higher education.

For UOC (Universitat Oberta de Catalunya) based in Spain, distance learning was nothing new; it had been in place for 25 years, facilitating learning via online education. During the crisis, UOC saw it as their duty to support institutions that suddenly had to move to online education almost overnight. To this end, UOC set up a webinar series providing practical guidance and tips on shifting to online learning – a series that led to the first edition of this publication in Spanish.

One year into the pandemic, IAU and UOC agreed to partner to continue the conversation between online and campus-based universities, to stimulate exchange on various issues and the changes that the education sector has been experiencing, particularly those that we believe will be important beyond the pandemic. This has resulted in the launch of the online IAU-UOC series of six chapters discussing: *Innovative Education for Unshaped Futures (IE4UF)*.

As part of this series, we found it useful to translate this publication into English and to share it globally, as it is an accessible series of articles and recommendations for the design and implementation of *quality* online teaching and learning, particularly focusing on how online education is different from face-to-face education. It was developed as an immediate response to the pandemic within its first six months, yet it remains highly relevant as we prepare for more blended modes of teaching and learning and attempt to avoid the most common pitfalls of trying to imitate face-to-face learning in the online space.

We extend our thanks to UOC for their collaboration and their commitment to sharing their experiences throughout the pandemic, which has brought campus-based and online universities closer together in their common quest for providing quality

higher education. Together, we can debate issues at stake to continue to prepare students for an increasingly digital world.

**Hillegje van't Land**

Secretary General of the International Association of Universities (IAU) -  
global NGO with UNESCO Associate Status

**Trine Jensen**

Manager, Higher Education and Digital Transformation,  
International Association of Universities (IAU)

March 2022



## Foreword UOC

For many teachers, 2020 will remain etched in their memories as a year of rethinking what we were doing and, especially, how we were doing it. The onset of the COVID-19 pandemic accelerated changes in the way we organize, relate, train, work and, unquestionably, teach and learn in dynamic educational contexts, which entail the implementation of hybrid teaching practices (face-to-face and virtual) or distance, remote, technology-supported or fully online teaching. These are changes that would reach the entire education system, from early years education to university.

In mid-March 2020, in the midst of COVID-19, the Faculty of Psychology and Educational Sciences at the Universitat Oberta de Catalunya (Open University of Catalonia, UOC) realized that we had to put our knowledge and experience at the service of the educational community. Our mission to provide lifelong learning, with an innovative teaching methodology based on the intensive use of information and communication technologies and networking, could make it easier for many teachers to adapt to the changing context. This led to the proposal to design a webinar series that would contribute to the transition from face-to-face teaching to remote education. We immediately had the support of the Vice-rectorate for Globalisation and Cooperation, which contributed to the transformation of the series of open and free webinars into the *Emergency Distance Teaching* support programme, accessible from the UOC portal.

We would like to thank all the people who contributed and participated from different parts of the world, in the cycle of webinars “Docencia no presencial de emergencia” organized in Spanish by the Universitat Oberta de Catalunya during the pandemic. The webinars are still accessible, with thousands of followers from various Spanish-speaking countries.

This series has led to this practical, well-founded book, based on research and the combined experience of a group of twelve professors from UOC’s Faculty of Psychology and Educational Sciences, committed to teaching, benchmarks in online teaching and quality education that promotes a critical and responsible position in a society undergoing constant transformation.

I would like to thank Professor Albert Sangrà for his impetus and commitment to transforming this teaching experience into a book, which will allow us to adopt more informed changes and go deeper into some of the aspects that were presented in the webinars.

We have readapted the book from an emergency context to help you to reflect, debate together among teachers, act critically, and above all, provide you with strategies to rethink teaching from the design, resources, methodology and even assessment, in a digital context from which there is no going back.

**Teresa Guasch**

Universitat Oberta de Catalunya

Dean, Psychology and Educational Sciences Department

March 2022

## Introduction

When a new year begins, it is customary to make resolutions: things we have wanted to do for a long time but never found the necessary time; things we should do but that we may be reluctant to; the trip you wanted to take; that language you wanted to learn; those extra kilos or cigarettes to lose... Whether we achieve these resolutions or put them off for next year depends largely on ourselves and our personal willpower.

That 2020 would be a year in which we would be challenged by something absolutely external to us, and with an intensity far greater than any of the challenges we have ever faced, was probably something no one expected.

The emergency situation has led to not just a historic health crisis, but also an education crisis. For the first time, all educational institutions, regardless of their level, closed their doors for a sustained period of time, interrupting their usual activity. Moreover, unexpectedly and immediately, literally from one day to the next, students and teachers had to stay at home because of the impossibility of returning to the classroom for an initially short and later undetermined period of time. It was unforeseen. No one could ever have imagined a situation of such magnitude. And yet, health reasons and common sense recommended that we start to think about how to continue educational activity away from physical classrooms.

The confinement forced us to look in the mirror: problems that had existed for a long time were reflected more intensely

and crudely, and aspects that were difficult to manage emerged. As has always been the case throughout the history of education, there is a modality that, although often scorned by the majority, has always performed its function as a compensatory educational mechanism, an equitable balance for those people who could not usually access education offered in a traditional way by educational institutions. Distance education has always been the answer for those situations in which the impossibility of bringing together teachers and students in space or time, or in both, prevented individuals and groups from accessing education.

Certainly, nowadays, distance education, which has always relied on the technologies available to the majority of the population, is characterized by a strong digital component. While in the past it was traditional mail, telephone, fax, radio or television, in the era of the internet and computers, information and communication technologies (ICT) and network connectivity determine the new forms of education. This fact also highlights the existence of what we call the *digital divide*. This divide also existed when distance education used other technologies: when not everyone had a telephone, radio or television. This divide, which has other characteristics that go beyond the digital one, is a very clear reality that we have to take into account whenever we apply distance education solutions: the availability of access to the mechanisms that will allow us to establish contact between those who offer teaching and those who receive it. However, it is also true that we cannot stop there. We must demand that this gap be covered, eliminated, in order to be able to provide the full potential of distance education, especially in situations of educational emergency, such as the current one.

It is clear at this point that the kind of distance education which can currently provide this ability to overcome the social

distance caused by the pandemic is online education. This is not because it is better than face-to-face education or any hybrid model. It is, quite simply, because, at certain times – such as the one we have just experienced – we have no other viable alternative.

Those of us who started the Universitat Oberta de Catalunya project in the now-distant year of 1995 did not imagine that our initiative, focused on taking advantage of the Internet to modernize the concept of *distance education* and bring it to the present and the future in an effective and efficient way, would at some point in history become the only mechanism on which all levels of our educational system could be based.

It was in the face of this historical situation of emergency that the authors of this publication decided to offer and share their knowledge, the fruit of research and the practical experience of 25 years of teaching and research work in an institution that is a paradigm of the situation thrust upon us.

As a result of this decision, members of the Edul@b research group, joined by researchers from other groups such as Feed2Learn, SINTE and Learning Media & Social Interactions – all of them lecturers in the Faculty of Psychology and Educational Sciences at the Universitat Oberta de Catalunya – designed and set up, with the support of the UOC's Vice President's Office for Globalisation and Cooperation, a series of ten webinars. These covered the topics considered crucial to responding to an unexpected online teaching situation and which mostly lacked sufficient specific preparation to enable them to effectively face the major challenge ahead of them.

The webinars were aimed at teachers who needed to implement online teaching solutions with their students due to the COVID-19 lockdown. These solutions have always been said

not to be online education *per se*, because there was no time to plan and design them, but they allowed for an approach to this emergency of distance learning as a powerful transition process from face-to-face education to practical, grounded and effective online education models, that were consistent from the point of view of the online learning situation.

This publication, which we owe to the trust and support of the Director of the Faculty of Psychology and Educational Sciences, Dr. Teresa Guasch, contains forewords from her and from IAU, an introduction, ten chapters in the order in which the series of webinars was presented and, finally, two postfaces that project a vision of the immediate future. The chapters cover topics ranging from the organization of online education models to their assessment, including the design of courses, activities and teaching strategies, collaboration between teachers and students, mediation and interaction, feedback, digital tools, and the generation of critical attitudes of the students themselves towards technology. We cannot definitively claim that this is exhaustive, but it does represent a compilation of the proposals and practical recommendations that we hope will be most useful to you.

Coincidentally, this happened in the year in which the UOC is celebrating its 25th anniversary. You can be sure that we would all have liked to celebrate it in a different way, but we are satisfied if, with our humble contribution today, we can help to solve some of the problems of the education community. This is our true mission: to make it possible for people to learn while helping our university to fulfil one of its three functions: transferring the knowledge generated by the results of its research to society.

The Uruguayan poet Mario Benedetti has a beautiful poem, among others, including the line: “Just when we thought we had all the answers, all of a sudden, all the questions changed”.

This is probably the feeling that many of us share. Our world as we knew it has been turned upside down. It's time for us to start looking for new answers to these new questions. Let's get started.



## Chapter I

# Teaching and learning online: overcoming social distancing

Albert Sangrà

## 1. Introduction

The emergency situation that many educational institutions have experienced has led them to consider moving to online education for their students while schools and universities continue to close. But what should we bear in mind when making this transition? How do the aspects that we consider in a face-to-face education situation change substantially in an online education situation? In this chapter, we will look at some approaches for responding to such an emergency educational situation, applying the principles of the best online education models in a practical and well-founded approach.

No one should expect easy formulae. In a crisis, where everyone experiences the emergency in a different way depending on their social and economic context, age, and national regulations, it is extremely difficult to give specific advice. Everything can be done in different ways, and what we are offering is a general framework of reference using which everyone can make the necessary decisions, adapted to their specific needs.

## 2. Distance learning: a solution in critical times

Throughout history, distance learning has often been used to resolve critical situations. Historically, the development of distance learning has always aimed to expand educational provision to allow more equity in education systems, facilitating access to education for people who could not access it under the same conditions as others for geographical, employment, economic or cultural reasons (Moore, 2013). Experts in the field have recommended the development of online education models based on social, individual, and learning benefits to prepare for a digitalized society. However, the major decisions that have led to its implementation have always been outside the education debate itself, originating from crises. It is a last resort.

This was the case, for example, when steno-typing was invented in 1840 in response to the need to train stenographers via correspondence training. Given the cost of sending trainers to every corner of the United Kingdom, Sir Isaac Pitman developed a correspondence course that all those interested received through the post office of each town: the only body common to all British municipalities. The aim was to ensure access to such training for everyone, regardless of their place of residence, and the most accessible technology for the average population of the time was used.

The first and best multimedia training materials were developed at John Hopkins University in Baltimore for education in forensic science. This university in Maryland, United States, suffered from a significant shortage of cadavers for practice at its School of Medicine. A large financial investment was made to develop a multimedia application that would allow students in their final years of medical school to perform simulated autop-

sies. Not only was it a success, but subsequent improvements made it one of the best learning materials in digital environments, and it generated a deep conviction about what multimedia simulations could contribute to the acquisition of knowledge that traditionally could only be gained face-to-face.

In the city of Vancouver, Canada, traffic jams are a constant. The University of British Columbia (UBC) is located on an isthmus. The scenery is idyllic, but the fact that the entrance to the university is on a single street leading to the isthmus generated a terrible domino effect for the city. Early in the morning, when all the students were heading to the university by different means of transport, the whole city was blocked. At that time, in the late 1990s, the Distance Education and Technology centre in the Continuing Studies division of Vancouver's premier university was headed by Dr. Tony Bates (2019). The solution was to stagger the entry of students into the university, and the way to do this was to transform first hour courses into online courses. This drastically reduced the bottleneck that the university created in the mornings. UBC has been one of the pioneering and renowned universities in offering hybrid and online education for many years.

Driven or not by these critical moments that different societies have lived through, online education has continued to grow throughout the world at a steady pace. In the United States, 31.6% of higher education students are enrolled in at least one online course, and nearly 15% are enrolled in a full online degree (Seaman; Allen; Seaman, 2018). In Canada, Donovan *et al.* (2018) state that 17% of the student body is pursuing full online programmes, and higher education institutions have also increased their online provision by 17%. In Australia, according to a study by Norton, Cherastidtham and Mackey (2019), 20% of students are pursuing their studies entirely online, while another 45% have

enrolled in some subjects online. Europe is also moving in this direction. For example, the increase of students in distance universities in Italy; the use of flexible online learning in the Nordic countries; or the 15% of students who obtain their degrees and postgraduate degrees completely online in Spain (Hernández-Armenteros; Pérez-García, 2018).

In addition, there are studies that indicate that learning outcomes through online programmes are the same or even higher than those obtained through traditional classroom methods (Means, Toyama, Murphy *et al.*, 2009; Seaman *et al.*, 2018). However, while it is true that good results are on the rise, the quality of online education has always been, and continues to be, questioned, hence the importance of getting it right and showing evidence of the real achievements of well-designed and well-executed online education.

### 3. COVID-19: our emergency situation

In emergency situations, we apply shock solutions in an attempt to apply what we have learned to an undesired but demanding situation. What is the risk of shock solutions? To think that the solution that has helped us to emerge from the emergency situation is a definitive solution and that we should perpetuate it. That would be a mistake.

At the onset of the pandemic, some American universities in China – the first to be affected – decided to migrate, in haste, to an *online solution*. They did so without any practical knowledge of what online education was, but they certainly did so with the necessary technology and with a great deal of willingness on

the part of all those affected. It was reported in the news that teaching staff felt comfortable, despite 88% of them having no prior experience in online teaching. In the future, we are likely to hear that the results obtained were not quite as expected, or that they were not at the same level as face-to-face classes. It is also very likely that no one will remember that 88% of teachers had no experience or training in online teaching methodology. They will blame these hypothetical not-so-good results on the method used, as if this were responsible for the fact that no one had bothered to put it into practice under adequate conditions.

What we have done during lockdown is not online education (at least, not all of it is) (Hodges *et al.*, 2020). It is important to keep this in mind, so that our expectations of online education are not frustrated. We are attempting to use certain technologies to overcome the current situation of social distancing produced by the pandemic. Therefore, we can discuss whether the best model for a higher education institution is a hybrid or blended model, but it may be the case that we cannot choose which to use, as is the case now. This situation has pushed us to decide that the only viable model at this time is a 100% remote, online model, and this must be accepted in order to obtain the best results in this situation.

Of course, any education model faces a series of associated challenges and difficulties that hinder its development. The so-called *digital divide* may be one of these difficulties. However, it is not acceptable to question the potential of remote online education because it does not solve all our problems. Does face-to-face education solve all our problems? Is there not a social divide that makes it difficult for many people to achieve their learning objectives? We know that many families have neither the educational level to support their members, nor a socio-economic level that affords them other solutions. So, is this the fault of

face-to-face education? On the contrary, we defend it tooth and nail, because it is ours, and there is none like ours. Well, now the tables have turned. What do we do? Is it perhaps time to adopt a new model?

## 4. Overcoming social distance

There is an aphorism that states that “there is no distance greater than a lack of interest”, which, we can deduce, should allow us to accept that, with interest, any distance can be overcome. Online education can help us to overcome social distancing, or at least some of its limitations, if we take into account some substantial elements and how to deal with them.

### 4.1. The people: your students

Get to know them. You know them well when you are in class. Do you know them well when via networks? Is the student who does not hesitate to contribute in class the same when interacting at a distance? Do students who are always quiet in class express themselves more easily in a virtual environment? Why? What motivates them in class? Does it also motivate them online?

Consider their age, abilities and degree of self-organization and autonomy. Do your students know how to use digital devices to study or learn? We already know that they know how to upload photos to Instagram and how to be funny on TikTok, but using these apps to communicate with peers is not the same as using them to learn. If you think that it can be a good oppor-

tunity for them to grow in this sense, activities that reinforce this will not be in vain. For example, some schools ask their students to solve a challenge as the first activity of every day, which can consist of something as simple as posting a photo of themselves when they were little into a shared folder and trying to guess who each person is. Gradually developing their digital skills will help them feel more confident in this learning environment, which is also new to them but which they should eventually make their own.

Identify students with problems. Separate those problems by their nature, elevate those for which you do not have much room for action and focus on those that you can solve with your means and capabilities.

## 4.2. Organization

Measure your workloads well. Some colleagues have made the following comment to me: “Now they are working more than when they attended in person”. Funny, isn’t it? Without a doubt, that’s good, but be careful not to burn them out early on. It is clear that studying at home requires autonomy, discipline and responsibility, but not all students have these to the same extent. Therefore, we need to evaluate how to reinforce these qualities in those who have them and how to incorporate them in those who don’t yet. Letting them breathe so that they have space to reflect and adapt to the new circumstances is fundamental. After all, this is the same thing that we teachers ask for, right?

Use extended deadlines (for example, one hour of classroom work can be equivalent to three days online, although the commitment will continue to be one hour). Keep in mind that face-

to-face time does not pass in the same way as virtual time. A day has twenty-four hours, yes, but asynchrony allows us to expand the time dimension if we manage it well, since it does not force us to do things all at the same time. Allow degrees of flexibility: make them feel more comfortable.

Do not replicate face-to-face classes: the context is no longer the same. The digital context is different from the face-to-face one, and teachers know the importance of context. Creating a routine does not mean doing the same thing you did in the classroom.

Coordinate yourselves among faculty and teaching staff, because it will not be acceptable for students to spend four hours in front of a screen watching only videos. It is exhausting. Remember that online education includes the work they do off-screen, and you need to keep that in mind.

### **4.3. Interaction**

Sometimes, you won't be able to make eye contact, even using video conferencing tools. Look for indicators: traffic lights that let you know if they have understood a concept or a procedure, or what their mood is.

The online education models that work really well are based on a clear commitment to interaction. It is a mistake to think that any type of distance teaching is based solely on providing access to content (materials, resources, lessons in any format and support). the degree of interaction that is established is what distinguishes good online education models.

Do not confuse interaction with synchronous communication. Interaction can be carried out in different formats and supports, but it cannot be done in the same way as face-to-face. The

conditions are not the same, so the results will not be either, even if the objectives remain the same. It is not wrong to use synchronous communication with the group at specific times and for specific purposes. For example, and depending on the education levels, it may be a good idea to start the day with a synchronous meeting with all group members. This makes it possible to send the message “the day has begun, let’s get to work”, facilitating the start of a daily discipline for students who may not be used to working from home, thus avoiding excessive laxity. However, it is not good to abuse this resource. Being in a videoconferencing group for a long time is not only tiring, it is also boring and it undermines the students’ motivation.

#### **4.4. Resources**

We prefer to talk about resources rather than material or content. A resource is more than just content. Don’t worry, we are not going to abandon content, but we are in an emergency situation and we need to act as efficiently as possible. Use relevant and meaningful resources. Often, in this emergency context, as my colleagues Guasch and Espasa in Chapter VIII and Raffaghelli in Chapter IX will state later, less is more. It is better that they understand a concept well using clear material and increase their confidence than to saturate them with many resources, which can often be contradictory.

Don’t use too many different tools, either. Allow students to consolidate their understanding of some of them. Make it easy – do not add to their existing difficulties. In Chapter V, Romero describes a good range of tools from which you can select the best ones.

Some people call videoconferences *blended* sessions, revealing a tremendous conceptual error: they believe that they replicate face-to-face classes, with everyone working at a distance.

This is not the case! Everyone is working remotely all the time! This must be understood in order to be done well. Use videoconferences only to initiate topics, to clarify doubts and specific aspects, and never make more than thirty minutes long. In the “Learn more” section of this chapter, you can find some tips on how to use videoconferencing.

## 4.5. Support: accompaniment and follow-up

Studying online is more difficult if you feel alone. Be positive. Your students are just as worried as you are, if not more so, and they may also be afraid. Remember what Victor Borge, the Danish musician and comedian, said: “Laughter is the closest distance between two people”.

Help them to organize themselves. It is better to spend a couple of days giving recommendations and establishing a good structure of the spaces and future work (that they understand it, that they are well placed, that they have no doubts) than to think that the main thing is to advance in the content and that there are only a few days available for this. Time spent helping students to organize themselves will be time well spent and will give them confidence and security, which will result in better performance.

Provide them with guides on how to study when they are alone at home. Better yet, extract elements from the existing guides that you think are most relevant in each case. Throughout the chapters of this book, you will have the opportunity to get to

know some of these resources in a more specific way, especially in Chapter VI, by Romeu, and Chapter X, by Guitert, as well as those that you can find at the end of this chapter.

## 4.6. Assessment

In Chapter III, Cabrera and Fernández-Ferrer offer a very interesting journey through the territory of assessment in online education. Here, we simply want to emphasize that it is essential to consider diversified assessment, with different sources that provide information regarding students' progress in order to help them to continue to progress even more.

Think of this as formative and continuous assessment. It is not so much a question of changing the content as it is of changing the way of assessing: asking for justifications, why a problem is solved in a certain way, and so on. Focus more on the process than on of the resulting data. This will guarantee that you are better informed on what your students have actually learned.

An overload of assessment activities for your students will not ensure better learning, but rather a subsequent overload for the teacher, who then risks not being able to maintain the same level of quality teaching.

Do not rule out activities involving peer assessment at the appropriate level. This type of activity forces students to understand what is going to be assessed and justify it, and reinforces their learning process as well as their autonomy. Don't forget to make good use of feedback, which also offers an excellent opportunity for interaction. Guasch and Espasa will explain this further in Chapter VIII.

Although it is very important, do not overestimate assessment. It is essential that the assessment respond to the way we have designed the course and the learning activities to be carried out. Our mission is for students to learn, not simply to provide them with qualifications. Guàrdia in Chapter II and Maina in Chapter IV make very interesting proposals in this respect.

## 4.7. The digital divide

Nowadays, with so much information available on the net, it is unacceptable that there are still people who cannot access it (see Badia, Chapter VII). Access to the Internet should be considered a universal right for the entire population, in the same way that years ago there was a struggle for books to reach everyone and so popular libraries were created. Complaining that some people have no connectivity is of little use. Demanding connectivity from the authorities as an inalienable right is a first step that can take us much further. True literacy also means understanding and being able to use digital resources and devices. Educational institutions can also help families to become digitally literate, helping to bridge the digital divide.

Although digital inequalities in households have become evident, we have also seen that it would not be very difficult to solve this need. However, there are inequalities of a social nature, such as the inability of families to provide support, which generate a social divide that is even more worrying than the digital divide. We must remember that there are a series of problems that face-to-face education, so far, has not solved either.

## 4.8. How should we organize ourselves?

As a team. Let's work increasingly as a network. Let's support each other, taking advantage of the fact that technology makes it easier to work together, even if we are not in the same classes. Let's embrace the emerging concept of *co-teaching*. Our problems are similar. Our responses can be coordinated. It is important to create synergies that allow the result of our collaboration to be more than the sum of individual actions. See Guitert in Chapter X.

## 5. Synthesis

It is true that the face-to-face environment in educational institutions should not be underestimated. If we can discover how to enhance and enrich students' learning with online activities and resources, we can leverage them and link them to our face-to-face reality, generating a multitude of new learning opportunities for our students and for ourselves: this will allow us to enrich our own learning ecologies (Romeu, Guitert, Raffaghelli *et al.*, 2020; González-Sanmamed, Sangrà, Álvarez *et al.*, 2018).

Therefore, attitude is very important. I would perhaps not call this an opportunity because of its dramatic nature, but it is a different learning space for everyone. It will also be necessary for administrations to understand the message and to provide us with confidence, support and tools: things that often cannot be achieved by decree alone.

We know that online education has enormous potential to transform people's lives, and that high quality is possible if it is

linked to educational rigour, interaction with teachers and the uniqueness of the online model itself.

But, undoubtedly, the waters will return to their course. In the words of Neruda: “And then one day everything begins again... and the smile returns to be the owner of your life”.

## Learn more

*Planning the study online:* <[http://materials.cv.uoc.edu/cdocent/PID\\_00267086/index.html](http://materials.cv.uoc.edu/cdocent/PID_00267086/index.html)>

*Guidelines to optimize the organization of digital information:* <<http://informacio-digital.recursos.uoc.edu/en/>>

*Search and location of information on the Internet:* <<http://cerca-informacio.recursos.uoc.edu/en/>>

*Managing Technology in Higher Education: Strategies for Transforming Teaching and Learning:* <<https://www.batesandsangra.ca>>

“Techno-pedagogical considerations to integrate videoconferencing into educational activities (I)”<<http://edulab.uoc.edu/en/2020/04/21/techno-pedagogical-considerations-to-integrate-videoconferencing-into-educational-activities/>>

“Techno-pedagogical considerations to integrate videoconferencing into educational activities (II)”<<http://edulab.uoc.edu/en/2020/04/23/techno-pedagogical-considerations-to-integrate-videoconferencing-into-educational-activities-ii/>>

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## Chapter II

# Designing online courses

Lourdes Guàrdia

## 1. The design of online courses: a technological and pedagogical challenge

The design of any educational activity requires well-planned, organized and coherent training aligned with expected learning objectives and development of skills, regardless of the level of education or the intensity of the technology used. However, in an online education model, it is essential to design the training project using a methodology that guides decision-making for each of the elements that make up the course.

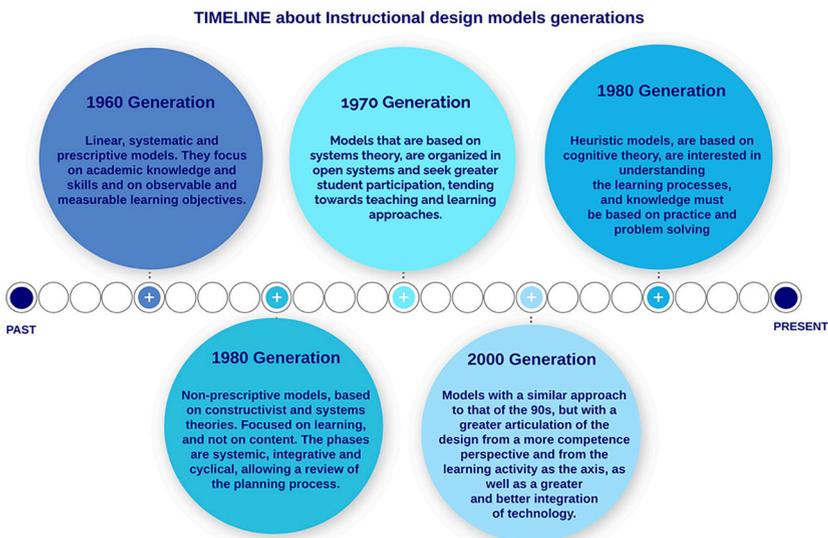
Everything must be ready in the virtual environment when beginning the teaching and learning process: planning, activities, resources, tools, modelling and evaluation criteria and instruments. *Planning* means foresight, anticipating needs and preparing to address them, thus having more time to attend to them in a more personalized way and being able to provide feedback that ensures the continuous *accompaniment* and *monitoring* of students.

## 2. Techno-pedagogical design in online education: a holistic and integrative vision

Before addressing the evolved vision of *techno-pedagogical design* (TED), it is worth reviewing its precedents in order to approach

the concept from a more integrative perspective, both technologically and pedagogically. As a result of the debate by many researchers on the relationships between learning theories and instructional theories, we could classify *instructional design* (ID) modes into five generations, guided by three epistemological approaches – positivist, interpretative and critical – based respectively on behaviourist, cognitivist and constructivist theories (Figure 1).

**Figure 1.** Adapting and updating Tennyson’s (2005) generation classification of DI models



Source: prepared by the authors

Over the last two decades, there has been extensive debate about which model and which theories should be supported. Rapid prototyping models – iterative design and development – and models that often incorporate pilot testing, involving student participation in a learning-centred design and development approach, have been favoured.

There is clearly a natural evolution of models conditioned by many variables, from epistemological positions evolved from psychological and pedagogical theories to the debate on the quality of education, the institutional and personal strategies of those who apply them, and the evolution of educational technology.

This said, all agree on the need for a better pedagogical use of technology, so the concept of *instructional design* is recovered and integrated into a more current expression: that of *techno-pedagogical design*. Its objective is not merely to provide an integral dimension to the process, but also a more integrative dimension in relation to the use of technology for pedagogical and didactic purposes.

This approach helps teachers to design from a more holistic and integral point of view, within the framework of a programme or a specific educational stage. It also underlines that the design of the content is not more important than the methodological design or the technology to be used, but rather the ability to integrate everything to contribute to the needs of the learner. Thus, dedicating time to design is an investment in quality and in a better adaptation of the training activity.

## **2.1. What does adopting a techno-pedagogical design methodology achieve?**

It is important to adopt a design methodology that guides the whole process of preparing a project or training activity, so:

- It guides the planning, design, elaboration, implementation, management and evaluation of the educational project.

- It gives a holistic view of the educational activity, guaranteeing its suitability and quality as a whole, from beginning to end, taking into account all the relevant aspects involved in the training.
- It harmonizes by organizing the phases of the educational project and facilitates the integration of all the necessary resources, offering a working methodology. Although there are as many models as there are designers, each professional has their own way of articulating the design process.
- It provides pedagogical and technological criteria that support decision-making, helping to justify it.
- It facilitates the selection of the most appropriate technology according to the educational objective. Thus, ICT will be used if it provides added value or to respond to a given scenario, but always taking into account the benefits, whether for improvement or educational change.
- It is orientated towards continuous improvement, collecting information on the design process and its impact on teachers and students. It documents the decisions, the products generated, the resources developed, the results and the analyses generated from the applications and environments used. Continuous improvement has to be a permanent objective in any educational activity.

## 2.2. Techno-pedagogical design models

This section presents examples of some of the best-known models used in educational scenarios with intensive use of ICT, although they are not necessarily the same as those used in other educational scenarios.

As mentioned before, there are as many models as there are designers (Gustafson; Branch, 1997), since everyone has their own way of designing. They may do this by taking guidelines from various models, thus establishing their own design methodology until, with practice, this work becomes more automatic.

Let's look at some examples of these models:

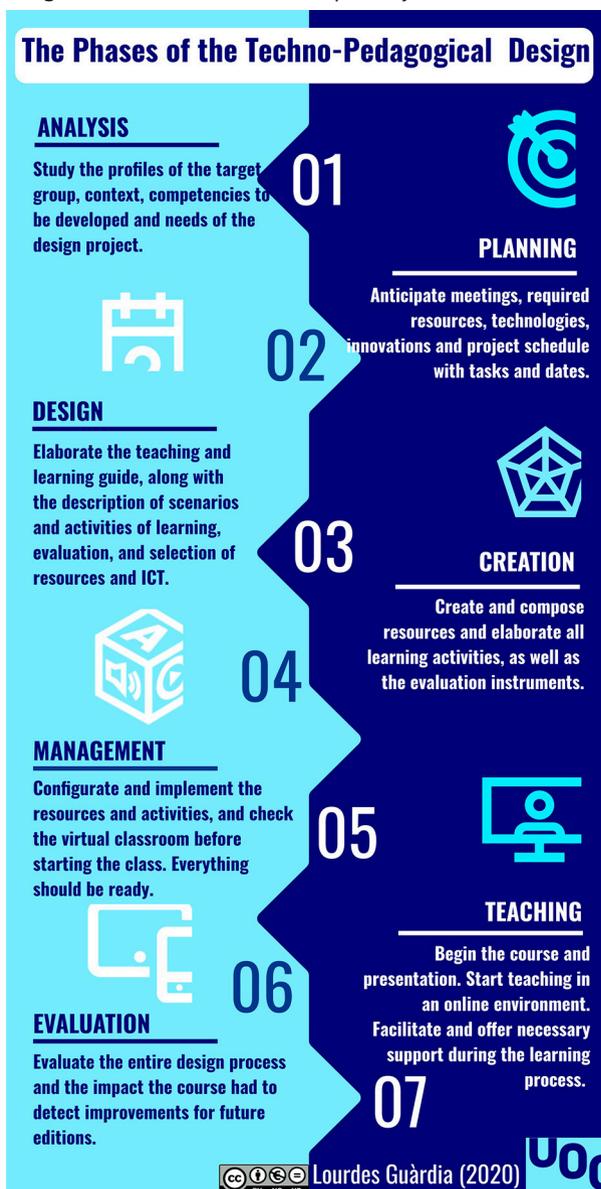
- ADDIE is one of the most widely used models because it is systemic, well understood and easy to apply in any context. It is organized into five phases: analysis, design, development, implementation and evaluation. However, it should be noted that Molenda (2003, pp. 35-36), who studied the ADDIE model in depth, concludes that it is not so much a model of instructional design or instructional technology design, as it is an “umbrella”, “label” or “colloquial term” for instructional system design. Thus, ADDIE becomes a way to illustrate the interconnection between the development of educational interventions and the improvement of these interventions when they are implemented, but above all a conceptual and generic framework that includes the whole process.
- TPACK (Mishra; Koehler, 2006) is a framework for the integration of technologies for learning that is perhaps more popular with school-based teachers, but which takes a very suitable approach to scenarios in which ICT plays a significant role. It proposes starting from a model that contemplates, in a balanced way, three axes of knowledge: pedagogical, disciplinary and technological, offering a holistic and deep understanding of how digital technologies can favour and offer added value to the teaching-learning processes, both in the design of educational experiences and in teaching practice.

- 7Cs of Learning Design (Conole, 2015) is a model based on learning design components. This methodology emerged to support the design of digital activities and focuses on activities as the axis that articulates the entire design process, as well as their representation and interaction.
- 4C/ID (Merriënboer, 2019) is mainly based on practical and applied learning tasks. The aim of the model is to develop reflective expert knowledge, which involves the ability to apply automated processes to solve recurring tasks quickly and efficiently, and also to apply them in new and unfamiliar situations and anticipate needs. For this model the most relevant aspect is how to support practical activity, so it is divided into two main stages – analysis and design – and these are further divided into four components:
  - Breakdown of skills into principles.
  - Analysis of constitutive skills and related knowledge.
  - Selection of didactic resources.
  - Developing the training strategy.

### **3. Design phases: holistic process**

The following is an outline of a model inspired by the ADDIE model, but with adaptations to the online context and also learning activities as an articulating axis of the design. It consists of seven phases (Figure 2).

Figure 2. Outline of a model inspired by the ADDIE model



Source: webinar Diseño de cursos en línea (Guàrdia, 2020).

Infographic available at: <<https://view.genial.ly/6238bce60f21790011e4488c/interactive-content-untitled-genially>>

Each of these phases is described below. Firstly, however, it is advisable to refer to other chapters in the book that deal with the different topics mentioned in each of the phases, in order to specify and make decisions based on each of them. In this way, a well-articulated product can be obtained that is coherent with the objectives and the educational context with which we are dealing in each situation.

### **3.1. Analysis**

The aim of this first phase is to study the context and the profile of the students according to the educational objective. Thus, we will ask questions such as:

- For whom? Analyze the target group (student profile or professional profile we are addressing) and conditions for the study.
- What for? Contextualize and identify competencies and objectives in relation to the course and learning activities.
- What do they have to learn? Identify the development criteria for each competency that will help to specify the objectives and expected learning outcomes.
- What do we need for the design? Identify everything we might need to carry out the design project, just to have a first approximation or outline and be able to plan the actions.
- Do we already have resources designed? Analyze what can be reused, adapted or selected from material developed for another course.

## 3.2. Planning

In this second phase, we will forecast actions and establish a timetable:

- Scheduling. Draw up a *timetable* with all the actions to carry out in order to plan the whole project from start to finish: from meetings to the design and creation of activities, the selection and creation of resources, the selection of the most appropriate technologies and the edition of the teaching or learning guide. Finally, it is also the time to set up the classroom with all the necessary resources and tools to start the training.
- Plan meetings with other teachers/collaborators. Hold meetings and create networking spaces to ensure their participation in the design. Co-design, seeking coordination with other subjects or courses.
- Plan the selection and creation of resources. Based on what was identified in the analysis phase, make an initial forecast of the resources you may need to carry out the design: authoring, production and editing. This may affect the budget allocated to the programme and the project timetable.
- Anticipate whether there will be innovation. It is important to consider whether any innovation will be incorporated, because this may also affect planning, available resources and in some cases even the budget, for example, if the creation involves commissioning content authoring, paying royalties or multimedia editing, whether for professional videos or other resources such as simulations, virtual reality, and so on.

### 3.3. Design

This third phase and the next are creative phases in which we must think of activities and resources that help learning and are motivating.

- Present competencies and objectives. In relation to the educational curriculum and the identified skills, a detailed description of the learning objectives should be presented.
- Imagining real social or professional scenarios. Describe learning situations to contextualize learning and make it more meaningful, authentic and motivating for students to understand its applicability.
- Identify possible learning activities that could form part of the scenarios described and decide on strategies for making teaching more dynamic.
- Select the resources associated with the activities, whether these are content, technological, tools or resources of different types.
- Decide in which formats and with which technologies the learning activities and resources will be presented, because this will condition their creation, development and implementation in the classroom. For example, video, instructive module on paper, interactive case, simulation, and so on.
- Decide on the evaluation model for the course or activity. From there, select the strategies and tools and decide what, how and when.

### 3.4. Creation

In this fourth phase, we will have to create, produce or select what has been decided in the design phase so that it is ready to be implemented later in the classroom.

- Describe the activities in detail. Based on the identified contextualized learning situation, write down what the activity will consist of, with all the associated tasks, and relate them to the resources needed to achieve them.
- Authorship and production of resources. Authorship is a key element, whether by teachers or experts. The resources will then have to be edited and produced, whatever their format and final display.
- Detail the continuous or final assessment tests or activities. Describe on the output that the students or groups of students will have to deliver. Give guidelines, provide templates and specify the necessary requirements. Also, detail the assessment criteria and what instruments will be used, whether for self-assessment, peer assessment, group assessment or teacher assessment.

### 3.5. Management

In this fifth phase, the classroom is set up and reviewed before teaching begins:

- Edit the teaching/learning guide in the classroom and the calendar. Post the guide in the classroom or edit it with the tool provided by the learning environment. Edit the calendar with all the dates and activities.

- Adding and configuring tools. Format all the classroom tools needed to carry out the entire learning process, whether blogs, wikis, boards, forums, debates, virtual laboratories, e-portfolios, group workspaces or assessment tools, among others.
- Check that all resources are present and accessible. Check that the resources that have been designed and selected are available, and that all links, videos, library access and tools are working.
- Coordinate teaching if there is more than one classroom. A course may have different classrooms with different teachers, so it is necessary to coordinate the start of the teaching and give key instructions and support throughout the teaching process.

### 3.6. Teaching

The sixth phase is where the teaching and learning takes place:

- Beginning of the course and presentation. The stakeholders (teachers and students) who will participate in the process are presented in the classroom, as established in the calendar.
- The teaching begins in the virtual classroom. The course is presented to the students, making available to them the teaching or learning guide that will lead them during the course.
- Facilitation, accompaniment and evaluation. The teaching action is a facilitation process, the activities are presented following the calendar, answering doubts, helping students, giving them feedback, suggesting what needs to be improved, what resources they can consult, evaluating their process and performance, their learning results, motivating them and attending to them whenever necessary.

### 3.7. Evaluation

In this last phase, the entire design process and its impact on the teaching staff and students, and in relation to the established objectives, is evaluated.

- Evaluate the development of the course design/redesign project. Document the process followed and evaluate the strategy, strengths and weaknesses, and areas for improvement.
- Evaluate the results from the perspective of the teaching action. How the teaching has been, difficulties, resources and activities that have worked better or worse, adjust the calendar for the next semester, needs detected and proposals for improvement.
- Evaluate the results obtained from a learning perspective. Analyze the results of the learning process, the final academic results (performance) and the satisfaction of the group of students, considering their comments, feedback or surveys administered at the end of the course or training activity.
- Propose improvements for the next iteration. Incorporate improvements in the course for the following semester. We should view this process as a way to keep the course or coursework updated and as adjusted as possible to students' needs, guaranteeing quality and the process of continuous improvement.

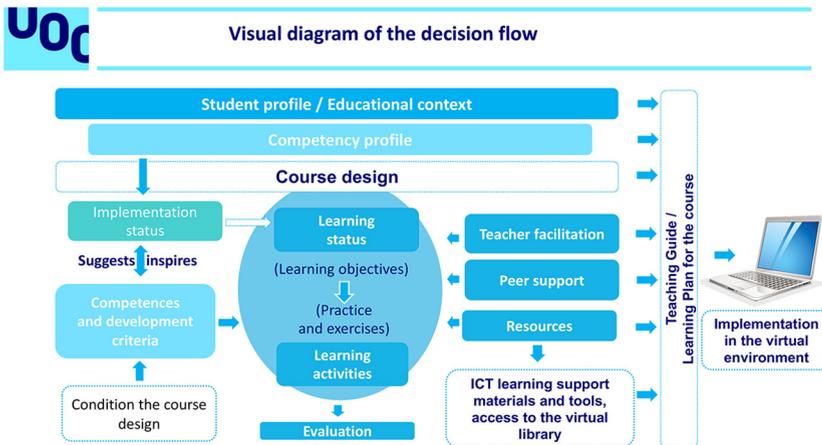
## 4. Decision-making flow in the design process

A schematic and visual representation of how to make decisions from a holistic design point of view is provided below.

Figure 3 shows how interactions and decision-making are organized, what products are generated throughout the design process and how these are to be translated into a teaching guide or learning guide, until they are finally implemented in the virtual classroom.

The process begins by analyzing the profile of the students we are targeting and the competences to be worked on. It is suggested to the designers to imagine application situations that can instigate the creation of scenarios or learning conditions that facilitate the design and creation of meaningful activities, specifying the assessment criteria and how this will be carried out. You also need to decide what kind of role all the actors will have, what kind of resources will be available, and how all this should be detailed in the teaching or learning guide before organizing and implementing all the resources in the classroom.

Figure 3. Techno-pedagogical design decision-making flow



Source: webinar Diseño de cursos en línea (Guàrdia, 2020)

## 5. Synthesis

To recapitulate, and in relation to the most relevant aspects of the design process, it is advisable to:

- Adopt a design methodology that provides us with pedagogical and technological criteria for making informed decisions – this is essential. Establishing a methodology that helps teachers to decide on all the variables involved in the process of designing or redesigning a course provides consistency and greater quality.
- Plan holistically, in addition to ensuring that activities and resources will be ready when the students need them to follow their own pace; this also helps us to anticipate possible needs. At the same time, it guides us from start to finish.
- Prepare a template with a checklist for each phase, with the relevant aspects and the products to select or elaborate, as this can be very useful for checking that nothing relevant to the course design is missing.
- Invest time in a good educational design, allowing us to give feedback and to personalize the group or individual needs of our students, while dealing with any unforeseen events that may arise.
- Document the design process and the results obtained, allowing you to review the course and introduce improvements to reuse it as many times as necessary.

## Learn more

“MOOC Design Principles. A Pedagogical Approach from the Learner’s Perspective”. *eLearning Papers* (no. 33): <[https://www.researchgate.net/publication/239608003\\_MOOC\\_Design\\_Principles\\_A\\_Pedagogical\\_Approach\\_from\\_the\\_Learner%27s\\_Perspective](https://www.researchgate.net/publication/239608003_MOOC_Design_Principles_A_Pedagogical_Approach_from_the_Learner%27s_Perspective)>

“Good practices in European Short Learning Programmes (E-SLP) in The Envisioning Report for Empowering Universities” (pp. 4-6): <[https://www.researchgate.net/publication/333647345\\_Good\\_practices\\_in\\_European\\_Short\\_Learning\\_Programmes\\_E-SLP\\_in\\_The\\_Envisioning\\_Report\\_for\\_Empowering\\_Universities\\_3\\_rd\\_edition](https://www.researchgate.net/publication/333647345_Good_practices_in_European_Short_Learning_Programmes_E-SLP_in_The_Envisioning_Report_for_Empowering_Universities_3_rd_edition)>

*Teaching in a digital age. Guidelines for designing teaching and learning*. Second edition (PDF version). Especially Chapter IV: “Methods of teaching with an online focus” (pp. 155-205): <<https://pressbooks.bccampus.ca/teachinginadigitalagev2/>>

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## Chapter III

# Keys to an online assessment<sup>1</sup>

Nati Cabrera and Maite Fernández-Ferrer

## 1. Introduction

This chapter deals with an important subject of concern to both teachers and students: the assessment of learning.

Learning assessment and what it represents in students' learning processes can be a tense issue, and when it is an online or virtual assessment, it makes us even more uneasy. In general, online assessment seems complicated and difficult to carry out, with limited guarantees of reliability. It leads to questions related to identity fraud, and assumes that several competences cannot be assessed virtually or have other limitations that we attribute even before exploring the possibilities. Students also likely have their own views on this, thinking it will perhaps be less demanding, that the grade will be of less value, or that trick questions will be designed as part of the assessment. Although for many students the use of technology has a motivating influence on their learning and assessment (Ion; Cano; Cabrera, 2016), both teachers and students often think that virtual assessment is less "real".

Throughout this chapter we will attempt to debunk this myth, less by showing the virtues of technology and more by demon-

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1. The authors use the terms "evaluation and assessment" interchangeably to describe the process by which information about student achievement and opportunities for improvement is assessed and obtained.

strating the added value of well-designed online assessment compared to traditional assessments. We will propose strategies and tips for designing online assessment that can be useful at any educational level and that supports student learning.

## **2. The challenge: designing learning assessment**

We often interpret assessment as a process that serves to accredit what our students know or have learned, and we stop there. In this limited interpretation, we turn it into a mere formality for measuring how much a student has learned at a given moment and to “name” (or rank) it as more or less insufficient or excellent. We equate assessment with grading.

When focusing our teaching task on something very concrete and not very gratifying, such as correcting and awarding marks (and far from what would be the true teaching vocation), we are also encouraging students to focus exclusively on passing this procedure that we set up, instead of improving their learning which is teachers’ core responsibility (Barnett, 2001). The challenge, therefore, is to differentiate between assessments for grading and assessments for learning, to understand the interrelationships between them, and to guide practice towards a new assessment culture, that of formative evaluation (Fernández-Ferrer, 2018).

Therefore, the first thing is to break through this traditional limited interpretation of assessment and turn it into a driving force of learning instead (Orsmond; Maw; Park; Gomez; Crook, 2013). With this approach, we acknowledge that the process of teaching and learning is not static, but one of continuous self-regula-

tion, through which assessment and awareness of what students achieve or lack, of their successes and errors, are what serves to enhance learning (Jorba; Sanmartí, 1996).

For this reason, our task as teachers is to accompany students throughout this process and help them develop their potential and achieve the proposed learning outcomes. This approach interprets online assessment as the guiding thread of learning which simultaneously helps us to keep students involved, active and motivated (Cabrera; Mayordomo; Espasa, 2016). In this interpretation, the grading function is also present, but it is not the fundamental reason to make the decisions about how assessment should be carried out for each learning outcome.

Finally, we believe that formative and online assessment should foster future learning, beyond the classroom (face-to-face or virtual) and beyond the present moment (Boud; Falchikov, 2006). A lot will depend on how we design the assessment. The most important element is the development and transformation of our own learning styles and those of our students (Boud; Falchikov, 2006).

What if we focus on promoting formative, continuous and skill-based online assessment?

### **3. The object of evaluation: what should we assess?**

Now that we have introduced the concept of *assessment*, we can focus on what we are going to evaluate.

It is essential to take the time and effort to outline and specify the object of assessment, so that students are aware and in order

to avoid confusion. This is always important, but even more so in a virtual environment. We must share everything in the classroom or in the virtual environment, in a structured and clear way that allows students to retrieve the information easily.

First, it is important to carefully identify which skills our students are going to develop, consider what learning activities can help them in this development, and specify what learning objectives or – from the student’s perspective – what learning outcomes we are going to be able to obtain as a result of carrying out the learning activities or tasks. During this process, we should consider what students should learn (curriculum), but also what they should be able to learn.

Focus on what they would like to learn and how they might like to learn it. It is important to concentrate on students’ needs rather than on what we would like to teach.

Let us also ensure that the learning promoted by the assessment activity is *situated* and *transferable*, that is, that it connects academic and real life and that it connects the classroom with the community. In this way, we will surely pose motivating challenges that are closer to the student, generating and maintaining their interest throughout the process. Of course, we must consider the educational level and different profiles of the group, as well as the context. As mentioned, not only is it important to be clear about what we are assessing, but also to invest time in making it clear to our students: let’s make sure they understand what we are going to do and what we are going to assess! It is therefore important to create spaces for dialogue, to listen and to answer questions, and to consider students’ suggestions. It is crucial to clearly and jointly establish the approach and parameters of the activity, as well as the object of assessment.

## 4. Assessment criteria: the great unknown

If the learning outcomes of each phase or task of the activity are clearly identified, we will also have identified *the evidence* that will be generated and that will allow us to assess students' progress and provide them with the feedback necessary for further improvement. However, we still need to identify the criteria for the continuous assessment of this evidence during the process. It is somewhat common for teachers to apply assessment criteria without making them explicit or sharing them with students, much less do so in advance.

Explaining and sharing the assessment criteria for the activity and for each assessable task or milestone, and discussing them synchronously or non-synchronously with students, will contribute decisively to making the assessment more transparent, so that the students take ownership (Zheng; Cui; Li *et al.*, 2018). It will also help us to apply these criteria from the beginning of the activity. It will allow us to articulate systems of self-assessment or peer assessment, ensuring that any agent who sets themselves up as an assessor can apply the same criteria (because they have previously appropriated them). Furthermore, promoting student ownership of the assessment criteria fosters and develops their evaluative judgement and, therefore, their own ability to assess themselves (Tai; Ajjawi; Boud *et al.*, 2018).

We can use various more or less sophisticated instruments, such as a *checklist* or a *rubric* (more explanatory), depending on what we are going to assess at any given time. We can also share student performances that we consider exemplary, if not in their entirety, in some aspect that is relevant. Sharing what we believe to be a good standard of quality in the execution of a certain task can also be a good strategy, especially in activities that are new to

students, which may be confusing and perhaps not representative of their skills. What is important is not the sophistication of the instrument, but its ability to provide valuable information to the student and the teacher.

Remember that, for each learning task that we evaluate, we must focus on what is most important to determine its quality. Of course, we cannot evaluate everything all the time because of the workload or lack of time, but also because it would distract students from what is most important.

As teachers, we are their guides, so let us shine a spotlight on the objective on which students should mainly focus in order to move in the intended direction. Let us avoid dwelling on small aspects that are not key to the learning we want to promote.

## **5. The importance of planning in the online evaluation process**

The effectiveness of online assessment also depends on the way it has been scheduled or planned. As a teaching team, we must decide:

- 1) When an activity begins and ends.
- 2) When we are going to provide feedback on it (this can be at the end of the task or, much more advisable, during the task, in order to provide indications for improvement throughout the process).
- 3) When we will share the evaluation and final grade with our students.

It is important to remember that within the planning, we must place feedback at the centre of the process, not only at the end (Brown, 2004). Specifically, by planning loops to provide this effective feedback during the process, we will be able to provide clues about how their work is progressing and what learning and skills they are managing to develop and what they are not yet able to develop (Brookhart, 2011). In addition, structuring the learning process and the evidence that students should provide and when could also contribute to helping them. For more information, see Chapter VIII, by Guasch and Espasa.

The usual or traditional parameters that measure this organization of time or effort – and therefore that help us to organize or plan our dedication (timetables, class hours, etc.) – do not exist in distance learning, so it is essential to generate new references or resources that help students to plan and measure their efforts.

Specifically, in an online environment, we can generate many elements that can help our students to situate themselves in time, in the task and in the feedback (what they should do and what they can expect from the teacher). In fact, a virtual environment allows us to make this planning much more visual and always accessible to the students, who can consult it whenever and wherever they want. Let's take advantage of it! For more information, see Chapter V, by Romero.

Dedicate a space to each activity or task for visually clarifying to students, through a figure or table, where they are in the assessment process, what they have already completed so far, and what they have yet to complete. It is also interesting to be able to inform them of the time required to complete the activity or the planned challenge. In other words, it is important to guide students on how many hours they will have to dedicate to the

task and how to help them improve their time management and organization; this is a key element, especially in an online education environment.

Finally, when the due date of the activity is approaching, the teacher can send a reminder, for example to the forum tool or the teacher's board, spaces where they can share with the students these issues related to the assessment activities. As mentioned earlier in this chapter, having a discussion space, forum or group chat can be very beneficial for everyone and informing students about the different communication channels, in addition to e-mail, can favour our teaching presence, which is fundamental in online education. The important thing is for teachers to systematize this type of communication strategy so that we generate a habit of behaviour in the classroom: for example through the same communication channels, messages with the same subject to place them within a specific context, so that students get used to the established dynamics. For more information, see Chapter VI, by Teresa Romeu.

## **6. Strategies and tools for assessment: how to choose?**

There are myriad strategies for assessing online learning. Your choice will depend on what you have decided to assess.

Using one strategy or the other will not make the evaluation process better or worse, or of higher or lower quality.

Although there are a multitude of classifications, to simplify, we could distinguish three groups of strategies that may be particularly useful:

**1)** Firstly, strategies and tools that allow for the validation or even accreditation of the understanding of content or processes. For example, online questionnaires with automated answers, checklists, self-corrective exercises, and so on.

**2)** Secondly, strategies that promote competence development through more complex activities in the form of challenges. For example, solving problems or cases, creating projects, participating in debates, simulations, and so on. You can think about presenting these types of tasks through a document that allows for online editing. Consequently, as teachers you will be able to make comments and suggestions for change and monitor the versions and improvements that your students enter. A fantastic way to carry out the feedback mentioned in the previous point!

Remember, though, that to provide continuous feedback, the evaluation process must be organized in different phases and give the students the opportunity to improve the project or the resolution of the case, for example. This way, the grade will always be given at the end of the activity or learning task, but it will be the result of the process rather than simply an evaluation of the final product.

**3)** The last and third classification is gamification (Mora; Riera; González; Arnedo-Moreno, 2017). If we want to foster students' motivation and commitment while assimilating knowledge and developing skills, this is a very good strategy. Gamification is a learning technique that transfers gaming to the education (or professional) environment in order to achieve better results and, in this case, to acquire knowledge and develop skills in a more effective and motivating way. Gaming has always been a learning strategy, and this is no different in a virtual environment!

Remember, though, that despite these moments of gaming, dialogue or debate, in order to be able to assess and provide

feedback to the students it is necessary to have already thought about how we are going to evaluate these activities and, above all, what concrete evidence the tools through which we carry out this gamification are going to provide.

## **7. From evaluated to evaluator student: switching roles!**

Today, we could say that critical thinking and self-regulated learning, or the ability to learn how to learn, are the most important skills in our society. If students do not have these skills, how will they know how to self-manage their own personal and professional learning processes later on (Nicol, 2010)? To promote the development of these key skills, it is essential to encourage student participation in the assessment process (Boud; Molloy, 2013). Our proposal for involving students in this process is to view them as evaluators of the process.

Students should, therefore, be part of the assessment and feedback process from the beginning of the course (Wanner; Palmer, 2018). In this sense, online assessment can provide mechanisms for articulating both self-assessment (i.e., students assessing their own learning process) and peer assessment (i.e., students assessing their peers) (Topping, 1998).

To achieve this involvement of students, it is important to establish when we have the possibility of giving our students this role. It can be for a single activity or a task with different deliveries and feedback or loops (Winstone; Carless, 2019). This intermediate feedback from peers could help students to improve their final delivery of the activity.

Secondly, it is important to remember the importance of having defined, clear and specific assessment criteria so that these “new” evaluators know the criteria for their assessments. Facilitating these criteria in a rubric-type instrument or checklist can be a great help!

Thirdly, it is interesting to consider the possibility of giving a specific value or percentage to this new responsibility of the students, so that this role is also assessed (even taken into account for the final grade). In this way, they will see the importance of this role and may be more motivated to do it properly.

Finally, and most importantly, staff are fundamental in the successful implementation of self- or peer assessment (Wanner; Palmer, 2018). As teachers, we must bear in mind that, despite giving this new role to the students throughout the process, the final responsibility for evaluating the semester lies with the teacher. For example, in the creation of an activity whose delivery has been divided into phases or loops (the first being the theoretical framework, the second the development, the third the results, etc.), students can have the option of self-assessing or peer-assessing their classmates in each of these phases to let them know their strong points and what they should improve on for each step. However, we the teachers must maintain a certain supervision of this evaluation process and assume that the final assessment will be our decision.

## 8. Synthesis

We hope that our reflections and proposals have been useful and inspiring, and to conclude, we would like to propose a

self-assessment exercise of your own evaluative practice, which will also help you to review the key aspects we have been working on. Shall we start?

Place yourself in your teaching context. Think about your group of students and how you have planned the assessment or are planning it, and try to assess the following aspects:

**1)** Are learning activities and assessment one and the same thing, and are they part of the same integrated, coherent approach that provides for improvement throughout the process?

**2)** Are the learning and assessment activities suitable for promoting the intended learning outcomes and generating the evidence that will enable us to assess them? Are they engaging and motivating for students? Do they promote learning that is both situated and transferable?

**3)** Are we clear about the evidence generated in the activities proposed and, more importantly, using what criteria will we evaluate them? Are the criteria understandable, clear and coherent? Have we thought about how to share and discuss them with the students?

**4)** When we have designed the activity, have we foreseen the accompaniment during the activity and the information or feedback that we are going to provide to the students (the planning of what, when and how they are going to receive it)? Have we shared this information with our students so that they know what they should do and what they can expect from our accompaniment?

**5)** Have we considered whether the students can become evaluators? If so, have we provided them with the assessment criteria so that they are clear about what they have to base their assessments on? Have we even considered assessing this new role and taking it into account in the final grading?

If you have come this far, remember one last, but essential thing: technology is a good ally for making sense of all these elements we have been working on and for managing them properly in the classroom. That said, this is a means to an end and not the end itself. Technology, when properly selected and managed, can enrich the process, monitor learning, enhance interaction, and ensure that information is given at the right time and that it is sufficient and reliable. So, let's use it to improve this process, but let's not make it the protagonist. The protagonists are undoubtedly our students.

## Learn more

### Webography

Smartpaper on “Assessment of learning in online educational contexts”: <[http://edulab.uoc.edu/wp-content/uploads/2020/04/Smartpapers-Edul@b\\_5\\_Avaluació-dels-aprenentatges-en-l%C3%ADnia-ENG.docx.pdf](http://edulab.uoc.edu/wp-content/uploads/2020/04/Smartpapers-Edul@b_5_Avaluació-dels-aprenentatges-en-l%C3%ADnia-ENG.docx.pdf)>

UNESCO review on “Thinking about Pedagogy in an Unfolding Pandemic”: <[https://issuu.com/educationinternational/docs/2020\\_research\\_covid-19\\_eng?fr=sYTY3OTEwMzc2ODU](https://issuu.com/educationinternational/docs/2020_research_covid-19_eng?fr=sYTY3OTEwMzc2ODU)>

### Portals of interest

New proposal from Google for Education: <<https://teachfromhome.google/intl/en/>>

## Examples of tools

“How to Create and Use a Rubric in Moodle?” YouTube Tutorial:  
<<https://www.youtube.com/watch?v=V46ESCJiXiw>>

How to promote gamification strategies or dialogue and debate among my students? Kahoot: <<https://kahoot.com/>>; Socrative: <<https://www.socrative.com/>> or Gosoapbox: <<https://www.gosoapbox.com>>

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## Chapter IV

# E-tivities for active learning

Marcelo Maina

Planning learning activities is a regular task of every teacher at any education level. Transforming this practice into the design of learning experiences in a context of increasing digitization implies a substantial change in the way we conceive of, interpret and create situations that are conducive to deep and meaningful learning.

Learning design provides conceptual and procedural tools for the creation of learning experiences and situations that are formal to a greater or lesser degree and of different length and scope. Let us think of a design that goes from the macro (programmes, subjects, seminars, etc.) to the micro levels (activities, workshops, lessons, etc.). As Sangrà points out in Chapter I, the two levels are closely related, being, for example, the *programme* of a framework that provides a skill profile and the set of skills (transversal and specific) that encapsulate them. The *subjects* are, then, blocks addressing specific content aligned with the programme, and the *activities* represent a concrete, articulated and diverse level of learning. Through these activities, students will have multiple opportunities to work with and demonstrate the development of new knowledge and the degree of development of their competencies.

Learning Design is also concerned with how to promote optimal learning opportunities. The teacher, who is an expert in a specific discipline or knowledge, must undertake a complex and specific exercise – namely that of transforming knowledge

and experience into a deliberate action that creates the necessary conditions for the construction of knowledge and preparation of students for their future profession, vocation or job, as well as for responsible and active participation in society.

Peter Goodyear (2005) proposes a pedagogical framework to elucidate a path from theory to action that is very useful for the design of e-tivities. This framework proposes four hierarchically ordered layers. The upper level refers to a higher level of *pedagogical philosophy*, which deals with basic questions about how people learn and what knowledge is. At an immediate lower level is pedagogy understood in a comprehensive or high-level manner, and which is expressed through learning *methodologies* as large organized learning sequences. Problem solving, problem-based, inquiry-based, project-based learning or collaborative learning are some examples. The next level is *pedagogical strategies*, which deploy ways in which methodologies are applied to specific contexts and objectives. The lower level of the framework is the *tactical* level, which delves further into the developmental moments of an activity, for example promoting participation, offering guidance or introducing an element of reflection. These four levels inform the design of e-activities in a descriptive way at the early levels and in a more prescriptive way as they become more concrete.

The term *e-tivity* thus emphasizes the specific characteristics of a learning activity where the digital mediates and shapes. The term, coined by Prof. Gilly Salmon (2013), is presented as a framework that enables active and participatory online learning, referring to both the individual and group or collective attitude of those involved in a specific learning situation. Salmon's proposal draws on the application of learning principles and pedagogies that have been researched and documented in the sciences of education and educational technology.

E-tivities, understood in their dynamic of interaction, promote dialogue and collaboration, emphasize student self-management and, in short, promote active learning.

## 1. E-tivities and active learning

Active learning empowers the students involved in processes of individual and collective construction of knowledge. It invites us to adopt a high degree of commitment that should be based not only on a personal characteristic of the individual, but also driven and sustained by techno-pedagogical design. Merrill (2012), based on an exhaustive study of different theories on how knowledge is acquired and skills are developed, makes a synthesis that translates into a series of common principles with the aim of guiding design for learning:

- Learning is promoted when students are immersed in solving real-life problems or situations. The activity should be clear, allowing students to place themselves in a context and to identify the learning objectives of the activity. A progressive approach to the inquiry of a problem or the search for a solution, as well as timely teacher guidance, is key. The teacher demonstration of the process is often useful for activities that are of a certain complexity or length of time.
- Learning is promoted when prior knowledge, competencies and experiences are activated. The activity starts with an exercise that allows students to mobilize what they know about the topic. The starting point may be valid knowledge on which to build, or a partial, misaligned or even wrong inter-

pretation, on which it is also possible to build new knowledge. This situation can inform the teacher about the homogeneity or heterogeneity of the group and thus make decisions about how to organize more personalized teaching.

- Learning is promoted through teacher intervention, which is used to demonstrate what is to be learned. This is achieved not only by narrating, but by making use of strategies such as the presentation of good and bad examples of the use of concepts, the demonstration or visualization of processes, direction towards relevant sources of information, the comparison of solutions or the presentation of content in multiple alternative formats.
- Learning is promoted when new knowledge is applied by students. Effective learning demands student involvement in solving problems or proposing solutions, that is, immersion in doing and producing. Teaching intervention should accompany these processes according to a principle of opportunity and gradual distancing, thus fostering students' empowerment and autonomy.
- Learning is promoted when the activity encourages students to integrate new knowledge and apply skills to their daily personal or professional lives. The learning outcomes and specific assessment criteria are key elements of an activity that guides students in producing and making explicit what they have learned in a tangible, demonstrable way. In addition, providing possibilities to expose, defend and compare their achievements (either individually or in groups), or delve into somewhat structured reflective work, makes it possible to close a solid learning cycle that better enables the group of students to continue learning.

## 2. E-tivities: active methodologies

E-tivities in themselves imply a position on what we understand by knowledge and how it is constructed. There are various methodologies that promote active learning: problem solving, case studies, project-based, problem-based or inquiry-based pedagogies, collaborative learning (as explained by Guitert in Chapter X), gamification, design thinking, and so on.<sup>1</sup> All of them involve students in the generation of knowledge, the context of participation, and the development of a set of skills both specific and transversal.

## 3. E-tivities: the context and the environment

In e-tivities, unlike traditional activities where we have already internalized the constraints of physical space, we must take into account that the work environment has moved to a digital space.

A useful concept for reflecting on and making decisions regarding the digital environment and the applications facilitating the development of e-activities is that of *affordance*, which in design refers to that which the environment makes possible. In the specific field of techno-pedagogy, it is applied to think about the possible pedagogical actions (McLoughlin; Lee, 2007) offered by environments and tools: what actions the available technologies allow or not, and how the environment and availa-

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1. For further information about active methodologies, please consult: <<https://view.genial.ly/6238bae9202d870018a51adc/interactive-content-e-tivities-design-principles>>.

ble tools support the realization of e-activities. Let us think, first of all, about the learning management systems (e.g. Moodle) and their functionalities. Let's also go further and pay attention to, for example, web 2.0 technologies: those known for profoundly changing the use of the internet, encouraging participation in the creation and sharing of content, in the creation of collaborative content and in uses enriched more by social media, which continuously develops applications that incorporate more advanced functionalities. The affordances of this abundant variety of technological options (see Chapter V) open up specific potential opportunities for the planning of e-tivities based on active methodologies and centred around participation, interaction and the production of knowledge. In addition, when we consider or rethink activities for full online learning, we must pay special attention to the relationship between synchronicity and asynchronicity.

Both moments need to be combined attending to their interrelationship to coherently orchestrate integrated learning sequences and provide optimal opportunities for learning development.

There are a number of models for integrating technologies for learning that enable analysis, diagnosis and design, as well as implementation and reflection for decision-making about digital technologies in learning. For example, a widely adopted model is SAMR (Substitution, Augmentation, Modification and Redefinition) (Puentedura, 2006), which emphasizes guiding the teacher in the integration of technologies for the improvement (SA) or transformation (MR) of learning. Working on the design of e-tivities with a reference model facilitates a structured process and thoughtful decision-making about the optimal integration of technologies for learning. It is a tool that serves as a guide for the teacher in their role as learning designer.

Listing applications and tools is an almost impossible task due to their great variety and continuous development. However, it is possible, following Boetticher and Conrad (2016), to make some guidelines for the most appropriate selection:

- 1) Choose pedagogy over technology: this is a suggestion to avoid deciding on technologies exclusively based on the attractive aspects of a tool or environment.
- 2) Favour simple solutions based on the digital skills of teachers and students.
- 3) Involve students in the choosing of digital tools and resources.
- 4) Have strategies ready in case of technology problems and backups as a contingency plan.
- 5) Review the selection of technology tools every two to three terms.

## 4. Components of an e-tivity

We have been identifying key elements that define e-tivities from a pedagogical and technological perspective. We have also proposed certain concepts and referenced models that allow us to design and make decisions about e-tivities. We can now turn to the general and basic components of e-tivity design:

- Identify the desired skills and learning outcomes.
- Define the type of production or delivery to be made by students and the way in which knowledge and skills can be made explicit and demonstrated in a tangible way.

- Consider from the outset what the assessment will look like.
- Choose the methodology that best suits the purposes of the activity and define how to implement it, taking into account the available resources, the environment, the tools, and so on. Always keep in mind students' skill profile.
- Acknowledge that the design requires creativity, and therefore the decisions of each aspect will influence others as we move towards a final design.
- Integrate the active role of students and the identification of the key moments of teaching intervention.

An e-activity should respect the principle of “constructive alignment” (Biggs; Tang, 2011), which emphasizes a coherent articulation of three key aspects: learning outcomes, type of activity, and assessment (see Chapter III). This concept is very important to keep in mind from the beginning of the design of an e-tivity, but it should also be reviewed in the final phase, as a conceptual instrument to verify that this alignment is respected. While the emphasis is placed on the three axes mentioned above, the coherence and relevance of all the components, including the selected learning resources, the planning of feedback according to specific purposes and moments (see Chapter VIII), and the selection of appropriate technologies for an agile and non-intrusive development of the e-tivity can be included to ensure the coherence of the activity as a whole.

## 5. Types of e-tivities

We present here a non-exhaustive list of possible e-tivities (Ornellas, Romero, 2004; Guàrdia *et al.*, 2004) that can be considered either independently or as a combination. They are based on the purpose and moment in which they may intervene in a given learning sequence:

**1) Analysis and synthesis:** these are usually individual and are aimed at organizing the knowledge acquired in combination with other previous content or with certain situations. We are talking about concept maps, diagrams, timelines, infographics, posters, and so on.

**2) Research or problem-solving:** these can be individual or in small groups. They pose a significant situation (related to reality) from which a more or less guided method of inquiry is implemented to obtain solutions. Good examples include case studies, projects and field work.

**3) Interaction and communication:** these can be an activity in themselves or integrated, for example in case studies or projects. In the online environment, the teacher must be attentive and encourage students to express themselves, debate, discuss preconceived ideas, and the like. Activities of this kind may be virtual debates or group polls followed by discussion.

**4) Collaborative knowledge construction:** the emphasis is on involving students in a project to solve real-world situations through negotiation and collaborative creation of solutions.

**5) Reflection:** these activate previous experiences or conclude an experience in a conscious way, critically positioning students in front of facts and situations that help them to internalize

knowledge. They can take the form of reflective diaries in a blog, directed readings with questions, portfolios, and similar.

Bonk and Khoo (2014) present over one hundred examples of e-tivities, organized into ten motivational principles of learning:<sup>2</sup>

- **Climate:** to generate a feeling of belonging and comfort.
- **Encouragement:** to encourage involvement and participation.
- **Curiosity:** to promote interest in going into more depth.
- **Variety:** to avoid monotony and surprise.
- **Autonomy:** to allow students to progress at their own pace.
- **Relevance:** to provide meaning and usefulness.
- **Interactivity:** to work in an active and participative way.
- **Involvement:** to maintain a personal and group commitment.
- **Tension:** to, in a controlled way, destabilize and move to action.
- **Productivity:** to enable learning to become evident and visible.

## 6. E-tivities, blended and discontinuous learning

It is time now to look in greater depth at how to implement e-tivities in online environments, whether or not articulated face-to-face; that is, in the design of learning experiences in entirely online, blended (or hybrid) modalities, or simply with a technology-enhanced learning approach. This distinction is all the more pertinent in the new context, in which COVID-19 has emerged.

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2. More information in the following infographic: <<https://view.genial.ly/6238bc5f0f21790011e4487a/interactive-content-e-tivities-design-principles>>.

The temporary closure of institutions has prompted the development of new and immediate responses to teaching and learning from the entire education sector. The new modality, known as emergency remote teaching, focuses on designing rapid and effective interventions to ensure the continuity of studies at all levels of education. Although this scenario is still uncertain, it is possible in a future where similar unforeseen situations could demand immediate action. This complex panorama requires the design of learning experiences that can be implemented in a timely manner responding to circumstances and contingencies (see Chapter I). It gave rise to a novel design approach to discontinuous or intermittent class attendance. Considered from the perspective of a transition from face-to-face to online learning, it is possible to propose alternative scenarios that allow for a certain level of reversibility.

To help us illustrate the situation, we will use the online flipped classroom approach. The flipped class initially arose for the purpose of diversifying the face-to-face class, which was teacher-centred and predominantly expository. In this approach, face-to-face moments are transformed into spaces for interaction, and technology is used for the purpose of extending learning to the digital world. Very briefly, in the asynchronous online environment, students familiarize themselves with the content, while in class with the teacher, they question, further explore, problematize, collaborate, put into practice, build or consolidate new knowledge (Figure 4).

In designing for alternative scenarios, in which physical attendance is not always guaranteed, the axis shifts towards synchronicity or asynchronicity. These moments should not be univocally associated with individual, group or collaborative work. There are many possible combinations, in par-

ticular thanks to the availability of user-friendly technologies. Videoconferencing applications have evolved to support synchronous online interaction and collaborative work by a group or team simultaneously. Most of these programmes offer the ability to present documents in multiple formats, share screens and whiteboards, create teams to work separately, record sessions, and much more.

However, in designing an alternative scenario that is entirely online, the concepts, principles and recommendations for e-tivities will serve primarily as a guide. The face-to-face class transposed to an online version will necessarily differ. Online, attention spans decrease and designs focused on student motivation and engagement are required. Professor Ron Owston (2020) proposes a series of models for working on synchronicity, taking into account the role of the teacher and the students, with an emphasis on the latter. The dynamization of the sessions and control of the online environment are key, and fall mainly to the teacher.

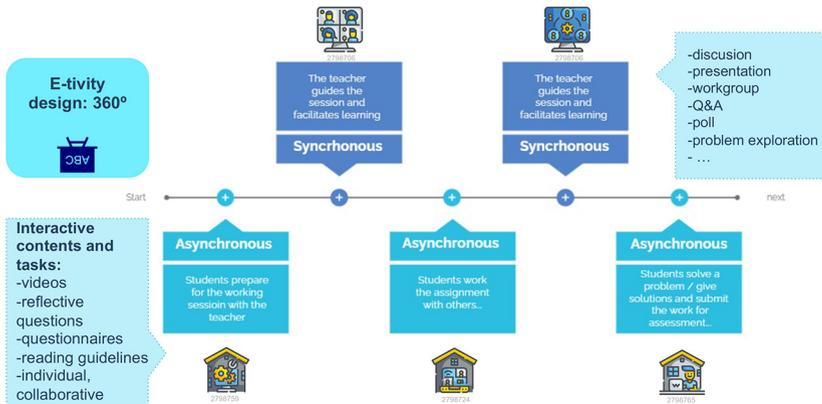
- The balanced interactive model, in which teacher and student interventions are equally distributed. The online session begins with an “ice-breaker” activity, followed by a brief presentation by the teacher and some time for checking students’ understanding of the activity or purpose. The students then move on to work in teams in separate rooms. Later, the whole class comes back together for a sharing session. Questions are answered and a synthesis is produced at the end.
- The student-led seminar model also proposes to start with an “ice-breaker” activity. Then, one student (or group of students) delivers a presentation and asks a key question to trigger discussion among the participants. This action is repeated

by another student. Finally, a survey is conducted in order to corroborate understanding of what has been discussed, which serves as a basis for the teacher to end the session with a synthesis.

- The interactive video model, in which the audio-visual presentation is the distinctive feature. The session starts, as in previous models, with an “ice-breaker” activity. After this, a video is shown lasting a maximum of ten minutes, followed by questions and discussion. This is repeated three times, culminating in a comprehension survey followed by a summary. The videos used present cases, illustrate procedures, and so on, and are generally videos that required a certain amount of production. Jack Koumi (n.d.) presents thirty-three pedagogical uses of videos organized into four categories: facilitating cognition, providing realistic or amplified experiences not otherwise accessible, promoting the development of affective traits, and demonstrating skills.
- The content-based model, which is based on a predominantly lecturing method and is articulated around a sequence of brief presentations of approximately ten minutes each, followed by questions. This is repeated until the end of the session, when the teacher presents a summary of what has been worked on.

These models are indicative and designed for a duration of sixty minutes. The possibilities of implementing these models also depend on the affordances of the videoconferencing systems used. It is also useful to mention at this point the use of online synchronous sessions to carry out individual or group tutorials.

**Figure 4.** The online flipped classroom (representation): active synchronicity and asynchronicity



Source: prepared by the authors (icons from [www.flaticon.com](http://www.flaticon.com))

## 7. E-tivities: final recommendations

To summarize, it is appropriate to stress that the design of e-tivities includes working on topics and issues of interest to students, in an effort to connect knowledge with present and future experiences. In addition, e-tivities are characterized by the use of active methodologies orientated towards learning outcomes and closely related to the development of skills. The dynamics involve the interaction of both teachers and students with the content conveyed through the teaching materials, which, integrated in strategies and tactics for learning, promote active forms of familiarization, elaboration, assessment and reflection. A balanced allocation of individual, team or group-class work should be appropriately scheduled, seeking a balance that also takes into account synchronicity and times of autonomous work. Tools and

functionalities of the digital environment should be orientated towards supporting, enabling and even generating curiosity, thus encouraging motivation. The presence of the teacher at all times, synchronously or asynchronously, but also through a quality design, formative feedback and assessment, revalues the teaching role at the same time that empowers the student.

Finally, it should be noted that the challenge of rethinking the learning experience is an opportunity to approach teaching as a reflective practice. Documenting and evaluating the design or redesign of our learning transforms teaching into a place for experimentation and inquiry, where professional practice is the object of study with the clear purpose of educational improvement or innovation. Critical moments can thus be transformed into a stimulus for professional growth and the improvement of educational quality.

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## Chapter V

# Essential tools and resources for online teaching

Marc Romero

## 1. Some preliminary considerations

There is a need to carry out online training actions that allow for discontinuous attendance (Sangrà, 2020), so the teaching team needs a series of tools and resources that enable them to take advantage of the potential of online teaching to ensure their students learn. However, for this to happen, it is necessary to adapt the training activity according to the following aspects:

- The objective to be pursued, given that it will be the focus of the training activity.
- The level of the students, since no activity of this type makes sense without considering their level of knowledge, which will allow the activity to be adapted to provide a better learning experience.
- The available technology, because, in many cases, it is the education institution that provides the technological solutions.

Technology can enhance the teaching task if it is chosen and used appropriately, but it can also limit it if teaching activities are subjected to technological requirements. The concepts of *tools* and *resources* are very diffuse, as they are often used as synonyms. For this reason, in this chapter both concepts will be distinguished, referring to *tools* as programmes or applications

(desktop, web or mobile) that allow for the development of teaching, and *resources* as educational content in various formats that support the act of training.

Throughout the chapter, a series of tools and resources will be presented, as well as a series of criteria for selecting the most suitable ones for the development of learning activities.

## 2. Tools for online teaching

There are numerous tools that can be useful for the development of online teaching, so it is necessary for teachers to have criteria to choose the most useful ones, prioritizing pedagogical criteria over technological ones. The main ones among the former are the following, according to Ponz (2016) and Avella-Ibáñez et al (2017):

- Type of educational activity: considering the aspects mentioned in the chapter on e-activities for active learning, the teacher will have to choose the most suitable tools according to the activity they want to develop.
- Teaching and student digital competencies: as discussed in the chapter on key strategies in distance teaching, the degree of teaching digital competencies is an important factor, as it will give you criteria for selecting those tools with a degree of technical complexity suitable for students' skill level.
- Degree of flexibility of the tool: depending on the possibilities and experience of both the teacher and the students, the degree of flexibility of the tools should be taken into account,

whether for content creation, communication or collaboration, for example.

It is also necessary to highlight the technical specifications, so the following criteria are proposed from a technical point of view:

- Ease of use: tools that do not require advanced technical knowledge and that have an intuitive and user-friendly interface should be selected.
- Licence cost: the use of tools with free and open licences should be encouraged. If this is not possible, there are many tools that, despite not being totally free, have a free section and controlled advertising.
- Cross-platform design and interoperability: the selected tools should be usable on any operating system or platform and on multiple devices, whether desktop or mobile.
- Security and privacy: it is necessary to use digital environments that are secure and prevent any manipulation of student data.
- Ability to produce content in multiple formats: it is important to choose tools that allow both teachers and students to produce attractive and motivating content.
- Degree of updating: the use of old tools can pose a threat to the privacy and security of the devices.

It is therefore very necessary to prioritize the use of tools that are frequently updated and avoid bugs or security problems.

This chapter presents a series of tools classified according to their possible function in the educational field.

## 2.1. Search engines and content curators

This category analyzes the tools that allow the teaching staff to access, manage and disseminate content easily and effectively for educational purposes.

- Search engines: we focus only on those search engines that allow for a more specialized search or that give more privacy to user data: Google Scholar allows for finding academic references, Qwant and DuckDuckGo stand out for not tracking user activity, Pixabay is one of the best-known image search engines, which gives access to both images and free videos, and CC Search enables you to search for content to be reused under any of the Creative Commons licences.
- Content curation: Pinterest is based on images, PearlTrees saves each content as a pearl that can be grouped into broader categories, Paper.li offers the possibility of creating a digital newspaper according to the interests of each user, Flipboard and Scoop.it allow you to create a channel of topics where publications that are interesting to the user are added every day, and Scoop.it also allows you to share content, filter and store them to read them.

## 2.2. Personal/social communication tools

Communication tools are the most widespread because of their ease of use and usefulness.

Personal communication tools are those used to communicate with other people directly; the following stand out:

- Instant messaging tools: they allow for communication between users or groups of users quickly and are very useful for carrying out collaborative activities. WhatsApp, Slack and Telegram offer instant messaging between users; the first of these also offers videoconferencing, and the latter two offer the creation of channels by subject. Other tools include Google Hangouts and Discord, which also allows video calls with up to fifty people.
- Videoconferencing tools: these can be useful for multiple activities, such as virtual tutorials with chat interaction and video meetings between students. Some of the most popular ones include Jitsi Meet, BigBlueButton and OpenMeetings (freely licensed), Zoom, Avaya Spaces for Free, Skype and Hangouts Meet, which are proprietary.

Social communication tools, known as *social media*, allow both teachers and students to produce content and disseminate it online. Among them, the following stand out:

- Blogs: the best-known platforms are Blogger, Wordpress and Edublogs (which, although more focused on education, is based on Wordpress).
- Social networks: among these tools, the best known are Facebook, Twitter, Instagram, Pinterest (the latter two are based on the sharing of visual content) and LinkedIn, focused on the professional field.

### **2.3. Content creation tools**

Nowadays, many tools that allow both teachers and students to produce content in multiple formats in a creative way promote

an active role for students as they constitute a form of expression and generation of knowledge. The following are notable for their possible educational uses:

- Image editors: Gimp and Photoscape are freely licensed desktop solutions. Pxlr and Fotor are an online alternative for computers and have a mobile app.
- Video editors: some of the best known are Kdenlive, Openshot or Avidemux, which are open-source downloadable programmes for computers; and Moovly and Animoto, which are paid online editors with different modes.
- Screen capturers: these are very useful tools for creating tutorials or demonstrations. Examples include ScreenCastify, Screencast o'Matic and Loom, which are online and paid (with a more limited free use option).
- Multimedia presentations: these types of tools are the most common in the educational field for presenting content. The most popular platforms – all of them online – are Google presentations, Prezi and Powtoon.
- Infographics: this type of visual representation of information is a very useful way of showing content in a synthesised manner. Some of the most important ones are Genially (which also allows the creation of presentations and gamification), Infogram, Venngage, Canva and Piktochart.
- Creation of comics: comics are a very useful creative activity for the expression of ideas and knowledge by students, so it is worth highlighting some tools such as Pixton, Storyboardthat and Makebeliefscomix.
- Podcast tools: they allow for the creation of audios with thematic content, even in the form of a radio programme.

Among the tools that offer this are Audacity, Vocaroo, Podomatic, Spreaker.

- Website creation: there are many tools available, such as GoogleSites, Wix and Weebly.

## 2.4. Collaborative tools

Collaborative knowledge creation is a basic activity for teachers and students (as we will be explain in the chapter on online collaboration), so there are also a number of tools that enable this:

- Wikis: this has an extensive history of use in the educational field, especially at university level, but its usability means it is also used at other stages. Some of the best known are MediaWiki, SlimWiki and DokuWiki.
- Documents, presentations and boards: these tools allow for the realization of many activities in which all the students in a team can put their ideas and contributions into practice. Among them, the Google Suite and Padlet tools stand out.
- Project planning and management: some tools that make it easier to carry out projects online are worth mentioning. The most useful are Google Calendar and the project management tools Trello, Ntask, Project.co, Topggl and Asana.
- Interactive online whiteboards: these tools allow actions that could be carried out on a whiteboard, but with the potential for online collaboration. Some options are OpenBoard, Idroo, Miro (also allows videoconferencing) and ExplainEverything.

## 2.5. Creating activities

Creating interactive activities with students can be a great motivational resource in online environments, as it can break the monotony of academic work.

- **Gamification:** there are several tools for creating quizzes, live quizzes and quiz games, such as Socrative, Poll Everywhere, Learnclick, Mentimeter (also presentations), Kahoot, Quizizz, Cerebriti and Trivinet. Other useful tools include Edmodo, Jclie, Educandy and Hotpotatoes, which are useful for creating interactive games, and Deck.toys, Wordwall and Edpuzzle, which allow you to create interactive lessons using games.
- **Portfolios:** as discussed in the chapter on keys to simple and effective online assessment, this type of activity can be carried out through blogs or even websites.  
However, there are two specific tools for this purpose: Seesaw and StudentShaw.
- **Flashcards and mind maps:** this kind of activity is very effective for extracting, organizing and memorizing information of any kind. Two of the most popular tools are Mindmeister and Bubbl.us.

## 2.6. Tips for using digital tools in online education

It is very important that the use of tools be rational and take advantage of their potential, so a number of basic tips should be considered:

1) Avoid lecturing on content. It is necessary to be aware that the online training process is different from the face-to-face one; it is necessary to avoid using the tools to reproduce what would be done in a traditional way and rather take advantage the possibilities of online learning so that students can experiment, work and transfer the contents themselves.

2) Prioritize simplicity in the use of tools. They should be simple and intuitive and allow different tasks to be carried out at the same time, so it is more advisable to use a single tool effectively than to use too many.

3) Use the tools creatively. The tools can have multiple benefits, and when explored creatively, they can also be a motivating element for students and teachers.

4) Promote the use of tools that facilitate an active role of the student. Tools that encourage the development of active learning, for example through, research or experimentation. They can be more enriching if they are implemented in a collaborative way.

5) Balanced use of synchronicity and videoconferencing. These types of applications provide proximity in online environments, as they show the relationships between students, the teacher can observe both spoken and facial language, but their use should be moderate and dedicated to those activities in which it is necessary, and they should not last more than an hour or so.

### **3. Resources for online teaching**

The use of educational resources in the academic environment has many possibilities depending on the intention of their use: whether to expand information on a specific subject, allow

for exploration and experimentation, or ensure the adaptation of a particular content to a specific type of student. For this reason, it is necessary to have a set of quality criteria for selecting the most appropriate resources (Kurilovas *et al.*, 2014; Senter for IKT i utdanningen, 2018):

- Reliability of the information and identification of authors. When dealing with resources in the educational field, they must have a degree of rigour in terms of reliability; the sources must be contrasted.
- Adequacy of language, style and grammar. The resources used have to be an example for the students, so any containing significant linguistic mistakes should not be used.
- Validity of the content. There are many resources with a more playful or commercial purpose than educational, so not only should the authors and the style be contrasted, but also the content itself that is transmitted, so that it is appropriate to the educational text.
- Possibilities for interaction. A properly designed interactive resource can be very useful given its motivational capacity and can even help to better understand certain types of content.
- Reusability according to educational need. The reusability or adaptability of a resource is an important aspect to take into account, as it allows for adaptation to students' characteristics.
- Provision of support material. The fact that the teacher has a guide for its use will facilitate its application from a didactic point of view.
- Quality in instructional design. As discussed in the chapter on online course design, the design of resources should promote an applied approach to learning and not be based on lectures.

- Promoting or respecting differences. It is necessary to ensure that resources do not include any type of discriminatory or degrading content (based on age, gender, religion, sexual orientation or any other).
- Technical aspects. Pay attention to navigation and usability, ease of use, accessibility and degree of updating.

Some of these criteria are not strictly necessary for using an educational resource in online teaching, but it is recommended to prioritize those resources that meet the highest possible number in order to ensure their quality.

### **3.1. Main educational resources on the web**

Given the great expansion of the Internet in the field of education in recent decades, there are infinite online educational resources developed by educational institutions and organizations, teachers and even students. For this reason, we have compiled a selection of useful resources for online teaching that will give teaching staff clues about what kind of resources to look for and where to find them. However, there are many more. We have also prioritized those that are open, as well as the following sources:

- Repositories of open educational resources. These repositories, created by educational institutions and organizations, provide access to academic quality content at different levels. From an international point of view, MERLOT (also known as Multimedia Educational Resource for Learning and Online Teaching), which was created by Sonoma State University (California); OER Commons, which can be considered a

library hosting thousands of open educational resources and was created by the Institute for Knowledge Management in Education in the United States; ERIC, which is considered the largest online education database and is funded by the U.S. Department of Education; and CK-12, which is a non-profit organization located in California providing access to myriad K-12 basic education resources. From a national point of view in Spain, the repository of the Instituto Nacional de Tecnologías Educativas y Formación del profesorado (INTEF) and Procomun (Red Educativa de Recursos en Abierto), also from INTEF, which compiles close to 100,000 resources, are noteworthy educational resources. In the university sphere, MDX (Materiales Docentes en Red) is a repository containing digital resources from Catalan universities, and O2 is the open repository of the Universitat Oberta de Catalunya, which publishes resources and learning objects generated by the teaching staff, research products and other institutional resources.

- OpenCourseWare repositories of universities. The following stand out: at an international level, OpenCourseWare Consortium, OCW Consortium Europe and MIT OpenCourseWare; and at a national level, Open CourseWare of the Universitat Oberta de Catalunya, UCM Abierta and UNED Abierta.
- Open digital libraries. These are portals or websites that collect open educational resources without necessarily being linked to the teaching activity of an institution. One of the most outstanding is Khan Academy. As defined on its own website, it is a non-profit organization offering exercises, videos and even a personalized learning panel in areas such as, for example, mathematics, science and programming. In addition, Educatribu is a web space created by a diverse team

of teachers and professors at different levels with the aim of openly sharing educational resources and practices.

- Educational portals. The difference between these and digital libraries is very subtle, and in some cases they could be considered the same, but educational portals offer a series of services to users in addition to access to resources and activities, such as technological tools or communication services. Among the international (Latin American) ones, for example, Eduteka, created by the Colombian university ICESI; Colombia Aprende, a portal that offers a virtual campus, communities for practice and discussion, as well as a series of resources for teachers at different levels; and Educ.ar, the educational portal of the Ministry of Education of Argentina, which offers resources at basic and intermediate levels for teachers, headteachers and families. Other international examples include Teacher Toolkit, which is the Most Influential Blog on Education in the UK, LINCS, which stands for Literacy Information and Communication System and is a literacy group designed to promote and organize resources for adult education, and Education.com which is was designed for newcomers and veteran teachers, homeschoolers, primary students, secondary students, special needs students and English Language Learners (ELLs).
- Educational blogs. Practically from the inceptions of blogs in the 2000s, this medium has been a very useful form of expression for teachers as it is an up-to-date source of knowledge where one can find all kinds of resources created by people from the educational community. Among them, two types of blogs are worth mentioning: firstly, those created by foundations and associations of schools and teachers, including, for example, *Nexus education*, which is defined as “A community enterprise created for sharing ideas”. Their aim is “to give

teachers a platform, through video blogs and school stories, enabling a community eager to help and inform each other to shape UK education for the better”. Secondly, the blogs of teachers who share their experiences and resources are highly recommended, such as *Ms. Cassidy’s Classroom Blog*, created by a Canadian first-grade teacher Kathy Cassidy which invites readers to interact with students and her dynamic lessons. In addition, she posts witness of her students and videos showing their activities. *ScienceFix*, created by middle school science teacher Darren Fix which disseminates science lessons and experiments. Other example is *Cool Cat Teacher Blog | Be a Better Teacher* which gives daily advices, ideas and inspiration to be a better teacher using technology.

Therefore, when looking for resources for online teaching, the best option is to look for those that have been developed by educators or institutions.

## 4. Recommendations

Throughout this chapter we have presented a series of tools and resources that can be useful for non-classroom teaching, as well as criteria for selecting the most appropriate ones.

In conclusion, we present a series of basic recommendations based on the needs of both teachers and students based on main recommendations in this chapter:

- Prioritize the design of the activity over the tool. Taking into account the aspects discussed in the chapters dedicated to the

design of online courses and e-activities for active learning, a training activity should not be designed on the basis of the utilities of a particular tool, but rather the other way round. A good design of an activity does not require the most complex tools; simplicity should take precedence over technological complexity.

- Preliminary analysis of the tools and resources to be used based on certain factors, such as the level of digital competence of teachers and students, the objective to be achieved, the skills to be developed, the methodological approach, the time available and the infrastructures.
- Check the reliability and test the tools and resources before using them. Although the countless tools and resources, as well as the lack of time for didactic design and planning, can lead to improvisation, it is necessary to dedicate some time to their analysis to ensure their validity and reliability in an educational environment.
- Consider licences for use or reuse. In the case of educational resources, it is very important to check and respect the licences of use and, if possible, to prioritize those whose licences allow their reuse and adaptation, since they can be adapted to the context in which they will be applied as well as to the target audience and the objective to be achieved.
- Encourage students to search for tools and resources. Giving students the freedom to choose the tools and resources they use is a good strategy to enhance their active learning; obviously, the teacher must offer guidance. Such a strategy is more feasible with mature students, so it is not applicable to all educational stages.
- Be aware that many tools involve the transfer of our data. Bearing in mind that some of the tools proposed in this chapter are not free licence, it is important to consider that, when they are used, part of the personal data (email, date of birth,

location) is transferred to the corporations that have created them. In the event that teachers and students are not happy with this, open-source tools should be chosen instead.

As illustrated in this chapter and in the rest of the publication, the transition from face-to-face teaching to online teaching is a complex process that depends on many factors, such as the people involved, contexts, resources and tools, providing teachers with a series of criteria and strategies for this simplifies the process considerably.

## Learn more

Educational App Store: <<https://www.educationalappstore.com/app-lists/apps-for-education>>

“6 Tech Tools for Enhancing Communication In the Classroom (and Out)”: <<https://www.schoology.com/blog/6-tech-tools-enhancing-communication-classroom-and-out>>

Centre for Learning & Performance Technologies: Directory of Learning & Performance Tools: <<http://c4lpt.co.uk/directory-of-learning-performance-tools/>>

“Techno-pedagogical considerations to integrate videoconferencing into educational activities (I)”: <<http://edulab.uoc.edu/en/2020/04/21/techno-pedagogical-considerations-to-integrate-videoconferencing-into-educational-activities/>>

“Techno-pedagogical considerations to integrate videoconferencing into educational activities (II)”: <<http://edulab.uoc.edu/en/2020/04/23/techno-pedagogical-considerations-to-integrate-videoconferencing-into-educational-activities-ii/>>

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<[http://eqnet.eun.org/c/document\\_library/get\\_file?folderId=11090&name=DLFE-101.pdf](http://eqnet.eun.org/c/document_library/get_file?folderId=11090&name=DLFE-101.pdf)>



## Chapter VI

# Five key strategies for online teaching

Teresa Romeu

Faced with the countless teaching-learning strategies that we can implement in online teaching, we will prioritize those that we consider fundamental. To this end, we will answer the following question: what key strategies for online teaching can guide us and facilitate meaningful student learning?

As we will see, social presence allows us to create interaction dynamics among students through a feeling of belonging to the group. This is why we must develop interaction and collaborative learning dynamics throughout the learning process in order to keep the students motivated.

Before addressing the key strategies for online teaching, which is the subject of this chapter, it is pertinent to present some preliminary considerations that will allow us to better specify the context of implementation of teaching strategies in online teaching.

## 1. Preliminary considerations

These preliminary considerations refer to 1) the incorporation of active and collaborative methodologies, 2) the integration of digital competencies in the teaching activity, as well as 3) teacher presence as a fundamental element of online learning environments.

We will now briefly describe each of these, although they have already been mentioned in previous chapters.

**1) Incorporation of active and collaborative methodologies.**

The continuous and unstoppable development of digital technologies involves new ways of participating and living in a digitalized society. In the field of education, this massive irruption of digital technologies generates new possibilities for teaching and, of course, new ways of learning, which is becoming an essential and necessary challenge.

It is in this context that it is necessary to incorporate active collaborative methodologies (Romeu *et al.*, 2016; Guitert *et al.*, 2015) based on the pedagogical use of technology, orientated towards the transversality of knowledge and enabling the acquisition of competencies.

In Chapters II and IV, Guàrdia and Maina have already mentioned these methodologies, but here we will reinforce them. These methodologies ensure student-centred learning and allow us to promote the collaboration, reinforcement and expansion of the educational possibilities of every student. In these methodologies, the role of the teacher is not that of a simple transmitter of knowledge, but that of a facilitator and guide of learning.

Some active collaborative methodologies that can serve as an example and that have been previously presented are project-based learning, problem-based learning, challenge-based learning, flipped classroom, gamification and design thinking, among the most prominent.

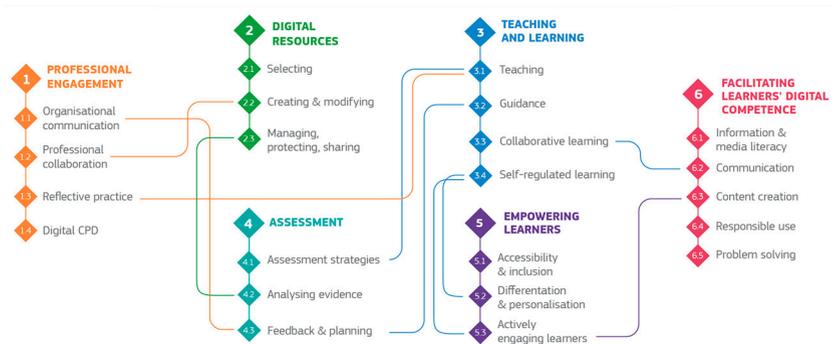
Chapter X is devoted specifically to collaboration, and Guitert gives an extended account of collaborative methodology.

## 2) Integration of digital competencies in teaching.

The COVID-19 lockdown highlighted the importance of the acquisition of digital competencies by teachers. For their full professional development, it is not only necessary to integrate digital skills in terms of the mere instrumental use of digital technologies, but also their methodological application in the learning processes.

Based on the generic framework of digital skills of European citizens and through the reference framework *DigComp* (2013), the European Commission configures the specific framework of digital competencies for teachers of all educational levels, called *DigCompEdu* (2017), which includes the instrumental and methodological digital competencies necessary for development as a teacher (Figure 5).

Figure 5. Overview of the *DigCompEdu* framework



Source: prepared by the authors

For teachers, being digitally competent makes it possible to:

- Communicate in digital environments.
- Efficiently manage digital information.
- Increase participation in online educational networks.

- Create and develop your professional identity online.
- Promote inclusion and diversity.
- Assess learners through online tools and resources.

And all of this from a critical view of technologies (Ryan *et al.*, 2010). Offering a variety of resources to use with students enriches the teaching and learning process.

### 3) Teaching presence in online learning environments.

A third aspect that will allow us to situate the context of the following sections is the teaching presence, as highlighted by various authors (Bowers, Kumar, 2015; Garrison, Anderson, 2010; Preisman, 2014).

So, why is it necessary to have a teaching presence in a non-face-to-face environment? Because it allows us to overcome the physical absence and it is necessary and essential for accompanying the online student (Garrison, 2007). Teacher presence allows us to generate empathy and establish a relationship of trust in a pleasant atmosphere. In this sense, the way in which a teacher establishes his or her presence in the online learning environment has an important impact on the overall learning experience of the students.

Teaching presence has various dimensions: social, affective and didactic. The social dimension makes it possible for students to feel that they are part of a learning community (Garrison, 2007).

Having discussed the context, and considering the three aforementioned elements, we will now approach the five key strategies of online teaching.

## 2. Communication and interaction strategy

In this first strategy, the teaching presence takes on the role of moderator of interaction.

We must bear in mind that messages are the basic communication tool in the virtual environment. Therefore, we must take care over the communicative style of the messages: an appropriate tone, concise, always positive, neutral and direct. Messages must transmit clear information from a friendly and respectful position.

On the other hand, we must take into account the elements that are part of the message. Thus, every message should include a sign-off and a signature, and before sending it, it should be reviewed and corrected to avoid errors. In addition to choosing and specifying the content well, we can enrich communication with visual resources. In this sense, the message can be textual, visual or audio, complemented with gestural elements (emoticons). Through this strategy, we facilitate interaction with students. For it to work, communication must be consistent and fluid, promoting social relations. It is important to define the objective of the asynchronous spaces, designed for more intense and extended activities, while the synchronous spaces allow for the development of more operational and concrete activities. A certain balance must be sought between these spaces.

When opening a communication channel or space, we must be sure to define the specific use it is going to have and, above all, to incorporate well-established guidelines, which must be made explicit to students beforehand. Moreover, there is no point in opening more and more spaces if they are not maintained over time and there is no continuous social interaction.

It is important to highlight the convenience of using asynchronous spaces as opposed to synchronous spaces. This strat-

egy allows us to develop social interaction, so necessary for the maintenance and monitoring of students in online learning dynamics. We recommend the use of different spaces, some of them open in time, such as the forum, and others of limited use in time, such as the debate. In any case, it is recommended that these spaces be stable over time and that as teachers we be proactive in generating activity in them.

In relation to the forum, it is interesting to redirect messages of doubts or questions received in the personal mailbox, explaining to the students that they can share questions in the forum which other students in the classroom may also have. The teacher's response becomes extensive and benefits everyone, as well as promoting mutual support and collaboration.

According to studies carried out at our university, using language other than written, such as oral or visual, facilitates proximity and helps students in their learning process.

From the above, we can already deduce that without this first strategy it would be difficult to carry out online teaching and, of course, to implement the rest of the teaching strategies that we present below.

### **3. Planning and management strategy**

In this second strategy, the teaching presence takes on the role of organizer of time and information.

Although in a virtual environment planning should be part of the design, in other words the phase prior to the implementation of a course or subject, in implementation we will have to re-plan tasks and activities to adapt them to the course of events and to

the individual needs of the learners. It should be noted that if this re-planning is shared with learners, the tasks will be much better integrated and students will be more aware of taking them on. This is why making weekly work plans with students can be a good option, as well as opening places for individual work planning.

Time is a key factor, so the teacher will have to specify the availability of time and the frequency of connection. Being an online teacher does not mean being available twenty-four hours a day. Time is measured differently from in face-to-face teaching, and this must be taken into account when delivering messages in order to avoid repetition or gaps in content. Response times must be scheduled and adapted to the personalized pace of the students who need it. In this sense, it is necessary to time messages in order to avoid repetition or gaps in content.

In relation to the management of information, it is necessary to prioritize what is fundamental and filter content in an effective, efficient way. All communication and information management spaces must be well-ordered in the virtual classroom, so that access is easy and clear. With regard to the virtual classroom, organize information in the communication spaces and the information management spaces correctly (folders, files, labelled, ordered, etc.). Do not forget that we act as a mirror for our students.

#### **4. Revitalization strategy**

In this third strategy, the presence of the teacher takes on the role of facilitator of the collaborative learning process.

In a distance environment, a proactive task on the part of the students is necessary. In this sense, the teacher must seek active student participation. But how? By showing an open attitude to dialogue; raising questions to increase understanding or having the students themselves raise them; favouring debate and dialogue, encouraging students to respond to each other; promoting interaction between peers; favouring group work dynamics, and so on.

For example, holding virtual debates is a good strategy for dynamization, as it allows us as teachers to adopt a different role from our usual one: we become the moderators of a debate (we modulate interventions, prioritizing some topics over others). In any case, the role of moderator involves opening up debate, moderating with a correct follow-up of the conversation threads and, above all, closing the debate by reaching conclusions.

## **5. Orientation and motivation strategy**

In this fourth strategy, the teaching presence takes on the role of mediator of the learning process.

This strategy serves to generate a pleasant and trusting environment. It is important to ask students how they feel and to show interest in the tasks they are performing in general, but above all to guide the learning process.

To guide learning well, activities should be presented in a gradual way, providing regular guidelines established to achieve skills; showing the different sources of information they can access; gradually presenting new information; reminding them of the objective of the activity; incorporating learning resources

in a gradual and paced way; providing alternative activities (either reinforcement or extension); and, at all times, conveying reassurance and security.

## 6. Assessment strategy

In this fifth and final strategy, the teaching presence takes on the role of evaluator of the entire learning process.

The assessment strategy promotes continuous, formative assessment, as Cabrera and Fernández-Ferrer explain in Chapter III. However, given that it is one of the important strategies, we insist upon this. And we ask ourselves: how should we promote continuous and formative assessment? Well, by incorporating the active role of students in the assessment of their learning, reflecting on what is going well, on what is not going well, and also on what can be improved. All these reflections can be carried out through self-assessments, co-assessments and group dynamics (Romeu; Romero; Guitert, 2016). On the other hand, teachers must carry out periodical and continuous monitoring of the activity, always specifying the criteria by which they will evaluate and collect evidence of progress (Romeu; Romero; Guitert, 2016) of the tasks, as well as providing regular feedback.

Learning-oriented assessment goes beyond qualification, which is linked to examinations. Qualification consists of the sum of “evidence” collected during the learning process, such as participation in debates and shared discussions or synchronous meetings, production of individual or group work, the completion of projects, peer-assigned assessments, and similar. With all this evidence collected, assessment is configured. We must

gradually incorporate learning analytics that provide us with new information and data that improve the quality of the feedback. In Chapter VIII, Guasch and Espasa make explicit mention of feedback, so we will not expand on this here.

## 7. Conclusion

We have analyzed active and collaborative methodologies, and these involve:

- Active interaction dynamics.
- Promotion of autonomy and motivation to learn.
- Meaningful learning.
- Results orientated towards a focus on process.
- Achievement of competences thanks to the integral work of activities, resources, tools, environment and assessment.
- Awaken curiosity, creativity and imagination.
- To develop digital competencies.

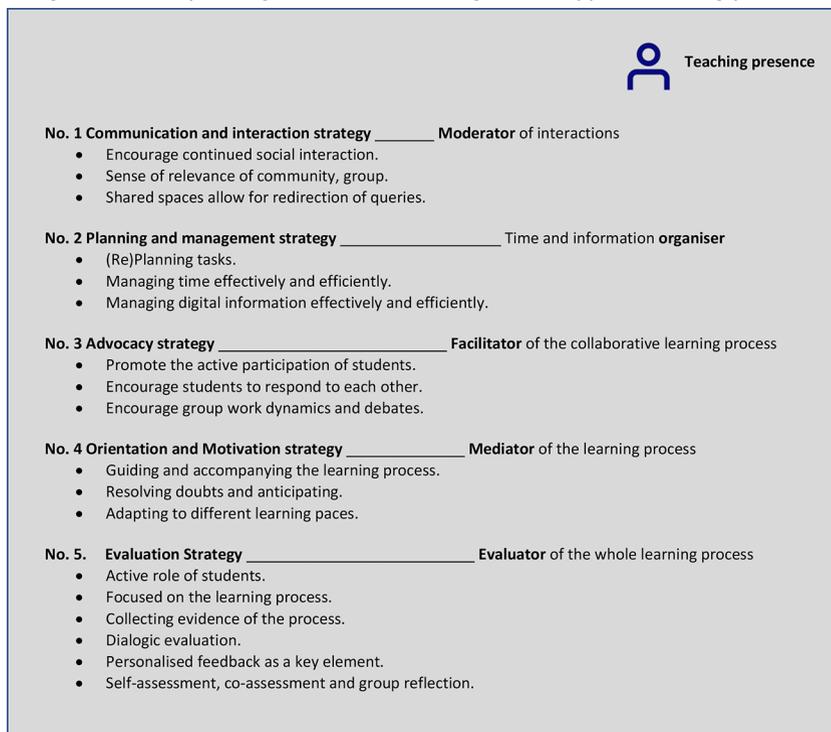
In this sense, it is recommended to introduce teaching innovations that enhance the inclusion of this type of methodologies. We have also highlighted the need to incorporate digital technologies into teaching and learning processes.

If necessary, teachers should be trained instrumentally and methodologically in the use of ICT. It should be borne in mind that instrumental mastery is necessary, but not sufficient to carry out quality online teaching. In addition, we have addressed the teaching presence as a fundamental element in a virtual environment, in its social, affective and pedagogical dimensions

(Garrison, 2007). In this teaching presence, it is necessary to pique students', because the reality is that they are easily distracted and that they do many things at the same time. As the philosopher Plutarch said, "students are not vessels to be filled, but torches to be lit", and the key to lighting these torches is to awaken their curiosity.

Focusing on the implementation of teaching strategies in online training, we have addressed five key strategies, which we summarize in Figure 6.

**Figure 6.** Five key strategies for online teaching and the type of teaching presence



Source: prepared by the authors

## Learn more

The following resources are provided in open access and in different formats to complement or deepen the guidelines discussed in this chapter.

*Strategies for Online Teaching.* <[https://materials.campus.uoc.edu/daisy/Materials/PID\\_00272151/pdf/PID\\_00272151.pdf](https://materials.campus.uoc.edu/daisy/Materials/PID_00272151/pdf/PID_00272151.pdf)>

*Recommendations for online teamwork.* Key elements for developing optimal teamwork are included: <[https://materials.campus.uoc.edu/cdocent/PID\\_00272163/](https://materials.campus.uoc.edu/cdocent/PID_00272163/)>

*Guidelines on virtual debates.* Guidelines and indications for conducting a virtual discussion in an e-learning environment are provided: <[http://materials.cv.uoc.edu/daisy/Materials/PID\\_00267091/pdf/PID\\_00267091.pdf](http://materials.cv.uoc.edu/daisy/Materials/PID_00267091/pdf/PID_00267091.pdf)>

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## Chapter VII

# **Pedagogical and technological mediation for competency development**

Antoni Badia

## **1. The challenge of teaching competencies in online environments**

This chapter presents five key principles for designing pedagogical and technological mediation to develop competencies. We focus on online teaching and learning applicable at any education level, but these guiding principles can also be used for blended learning.

Before describing the five principles, it is necessary to present two key preliminary requirements. These requirements contextualize the understanding and application of criteria to online teaching for teachers aiming to develop their students' skills.

Firstly, teachers should be aware that mediating in a skill-based teaching and learning approach requires all involved change (conceptual and emotional). Secondly, teachers need to change their understanding of the role of technology in online learning environments. The use of technology for acquiring knowledge and for collaborative learning is important. However, teachers' use of technology also must come with support and guidance in constructing knowledge and developing competencies (Badia; García; Meneses, 2017).

## 2. Five principles for promoting skill development

### 2.1. Defining and characterizing a specific skill

There are multiple ways of defining a competency according to the field of application (academic or professional) or the geographical space and educational level of reference. There are also multiple types of competencies, including basic (Monereo, 2005), professional, digital, or emotional competencies.

Acting competently implies a way of thinking, doing, and feeling, guided by a conscious and explicit purpose, which makes it possible for humans to perform adequately to act and solve problems in specific contexts. We define the concept of *competency* by involving and carrying out these actions:

- 1) Apply general and specific knowledge appropriately.
- 2) Adopt approaches appropriate to carrying out thought and action.
- 3) Interpret the primary conditions and factors that define a real, given context.

Based on this definition, to perform competently means having a sufficient level of knowledge (1). One way of categorizing this knowledge would be to analyze the subject's declarative knowledge (conceptions and beliefs, among other aspects) and to understand which field of knowledge it derives from; what skills are necessary to carry out a competent performance; what instruments can be used to apply competencies; and what values and attitudes (and emotions) are involved.

A student's performance is competent if it is well adjusted to the most influential characteristics or conditions in a context or social situation. A competent performance also requires strategic and (self-) regulated ways of thinking (2) that enable the best decisions to be made throughout a competent performance. Finally, a competent performance presupposes that the individual can interpret the actual situation (prototypical or atypical) within which a competent performance is carried out (3). Some authors have referred to this ability and knowledge (Monereo, Badia, 2013) as *strategic knowledge of the context*.

The components of a competent performance are presented below in Table 1. It is useful to define and characterize the specific competency that an online training process is aiming to enhance.

**Table 1.** Components of a competent performance

<b>Dimensions</b>	<b>Components</b>
<b>Applying knowledge</b>	Declarative knowledge (concepts and ideas)
	Skills (general and specific)
	Emotional predisposition
<b>Regulating thought and action</b>	Plan the action
	Monitor action
	Matching action to objectives
	Evaluating performance
<b>Interpreting contextual information</b>	Knowledge of motives and purposes (why and what for)
	Knowledge of people (with whom)
	Knowledge of time (when to do what)
	Knowledge of the place (where to do what)

Source: prepared by the authors

Competent performance results from appropriately interweaving the three components, so it is often difficult or impossible to identify or isolate any of them except for analytical purposes.

## **2.2. Undertaking detailed analysis of a competency performance in real scenarios**

Before planning the teaching of a particular competency in a specific educational or training context, it is essential to carry out two activities. First, the instructional designer should identify real prototypical contexts where that competency is necessary to act appropriately. These can be typical situations or unexpected or problematic, but possible, situations. Second, the designer needs to analyze some of these contexts of activity to extract all the information related to the analyzed competency performance.

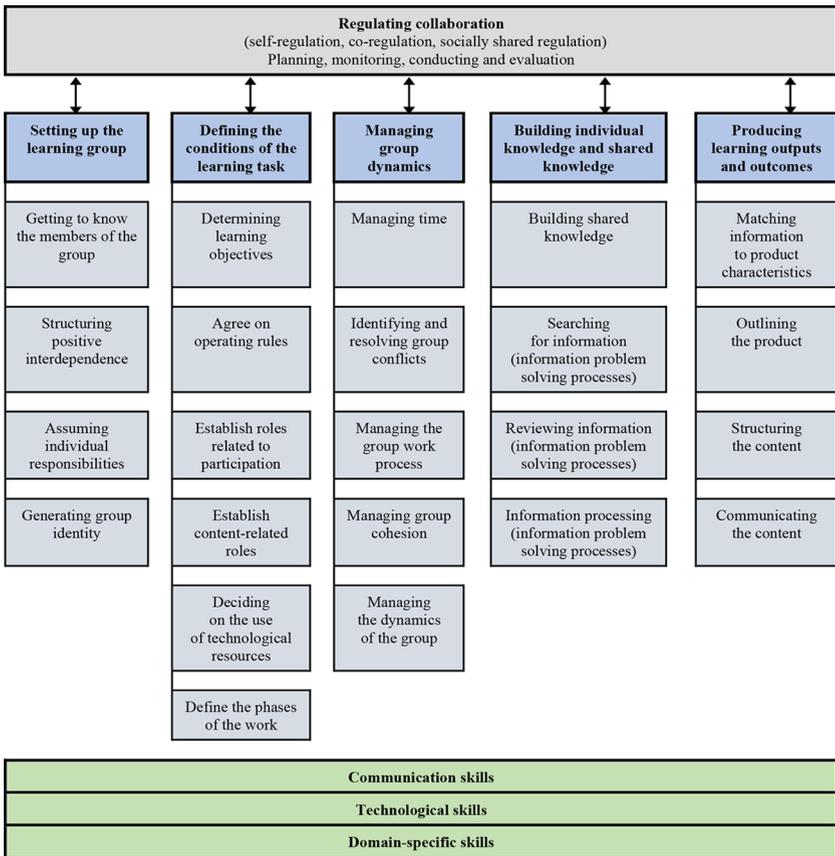
It is impossible to give an example that would be meaningful to all potential readers of this chapter. Therefore, we can give two examples, one from the professional world and one from the academic world. The first concerns the position of a supermarket cashier and their competency in charging customers, and the second deals with the competency of learning to cooperate.

To analyze the first competency performance, posing the question to a person observing the work of a cashier might result in a surprising response. The answer to the question is neither brief nor simple. Analyzing this competency would comprise having detailed knowledge of all the elements in Table 1. Beyond analyzing the prototypical activity of scanning the items and charging the customer, we would realize that this competency also includes giving an adequate response to myriad unexpected situations, which require activating strategic knowledge and self-regulating

thought and action. Some of these situations might be how to react to a customer who intends to steal, how to respond to someone who attempts to pay with fake money, or how to respond to a customer without enough money to pay for their purchase.

Changing the scenario, the competency of learning to cooperate would require different knowledge and competencies than the previous example. Figure 7 summarizes the set of skills involved in this competency.

**Figure 7.** Skills involved in the competency of learning to cooperate



Source: Badia (2015)

Detailed analysis of competency performance in a real scenario is an essential activity for instructional designers and teachers as a preliminary step to teaching this competency in a training proposal, be it face-to-face or online.

### **2.3. Ensuring the educational institution is sufficiently prepared**

Promoting competency development is only possible if the whole institution is committed to this educational purpose. Examples of organizational aspects of competency development are discussed below.

The educational institution should adopt a reference educational model in which competency teaching is a key distinguishing feature. A professional, educational (or training) model should have at least three purposes: to promote the acquisition of knowledge, promote the development of competencies, and foster the development of professional identity (Monereo; Badia, 2020).

The technological design of the online learning environment and its capabilities enhances (or add barriers to) the possibility of implementing a pedagogical model based on competency teaching. The technological characteristics of online environments, such as Moodle, and of teaching and learning tools have varying effects on the use and assessment that teachers make of online environments (Badia; Martín; Gómez, 2019).

The institutional approach adopted for the creation and management of learning resources should be consistent with competency teaching. Based on our definition of competency, teaching materials should reflect the three types of components in Table 1, and these three types should be highly interrelated.

Finally, implementing competency teaching is facilitated if one of the selection criteria in the recruitment policy of teachers is professional competencies in the respective profession. Teachers should have sufficient subject expertise.

## 2.4. Designing competency teaching

The design of teaching focusing on developing certain competencies differs from instructional designs based on constructing knowledge. To illustrate this idea, we provide an example based on students in journalism developing the competency of writing a newspaper article.

The first step is to analyze the competency, considering the three components mentioned above: what knowledge this competency includes (e.g., knowledge of journalistic writing); what ways of thinking need to be considered (e.g., how to access, collect and manage information related to the article); what knowledge of the immediate context needs to be taken into account (e.g., the relationship between the article and the contextual knowledge); and what knowledge of the wider context needs to be considered (e.g., the relationship between the political, social or economic contexts and the article's topic).

The second step is to acquire detailed information about the skills required for this competency in real-life contexts. Teachers may have this knowledge because they have worked in this professional field (as journalists). However, if the teachers do not have prior professional experience, they should seek advice from experienced professionals. The professionals consulted should, where possible, excel in their work (e.g., the teachers could interview well-known journalists). This step

should precisely classify conceptual knowledge, procedural and strategic skills, and emotional and attitudinal predispositions that describe the reference competency performance in a very detailed way.

The third step could be to decide on the learning resources and how they represent the different components and dimensions of this competency. For example, the teachers might select technological applications that good journalists use and show them to students. Alternatively, they might prepare written material on the typical textual structures of a news article. Selecting several articles and asking a few (good) journalists to make a critical analysis of each could also be effective. To better promote the development of this competency, the journalist's voice could be recorded to illustrate the decisions made while writing an article. The composition of the article could then be understood in real time. Finally, the fourth step is to provide excellent professional trainers (journalists with good references) to instruct on how to write an article, so that the progress of the article can be visualized in real time.

Beyond being talented journalists, teachers should have the capacity to clearly explain the competencies they demonstrate in their professional practice.

At this stage of preparation, it is advisable to assess and ensure that all the aspects mentioned in Table 1 complement each other. These aspects should be considered holistically to ensure that they will be useful as an educational aid for journalism students at a later stage in their education.

## 2.5. Having criteria to implement the training proposal

Promoting the development of competencies is a different form of teaching activity from teaching content to be transformed into knowledge. The criteria for deciding how to teach that many teachers commonly use for teaching content, assessing knowledge and “trying to finish the syllabus” are not appropriate for competency teaching. A range of approaches to teaching competencies are discussed below.

1) The first step in the implementation process is to create an authentic context for learning (Castelló; Monereo, 2009). Situations must be constructed for the learner to act and learn in the learning process (Castelló; Monereo, 2009).

An authentic context is characterized by (virtually) placing the learner in front of a set of challenges, demands or problems to which he or she has to respond or solve not as a learner, but as an agent acting within this context. There are many types of contexts, such as a professional context, a common-sense context (e.g., family) or a scientific context. An authentic learning context comprises cognitive demands, production conditions, resolution phases, performance resources and social interactions, all of which should be similar to real contexts. The competencies and skills involved (and taught) must be important and useful in real contexts, since the student has to perform in these contexts when the training process is completed (Álvarez, 2017). Online learning environments are suitable scenarios for building “authentic situations” for the development of competencies (Monereo; Sánchez-Busqués; Suñé, 2012).

2) The second step is to obtain information about the learner's prior competencies, which can be diverse. The information should include the three types of components described in Table 1. To personalize the process of competency development, this information must be obtained, assessed and returned to each learner together with useful individual orientations so that they can guide their own learning process during the training process.

3) The third step is for students to understand that the object of the training process is the development of specific competencies. They need to understand that, although it is essential to acquire knowledge for competency development, developing competencies is not the same as developing specific skills.

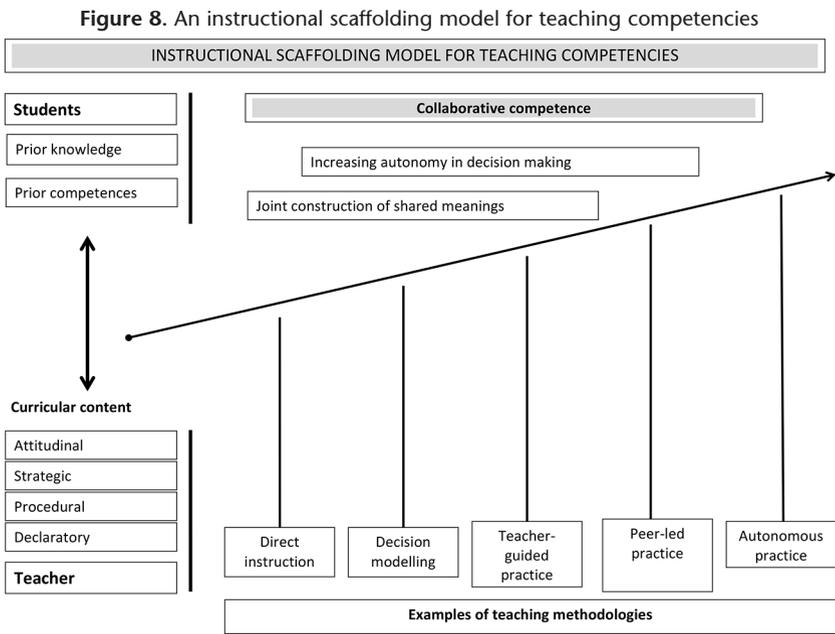
The learning process must go beyond acquiring knowledge. The students should be aware of this aspect to understand the entire training process, to be able to make the right decisions and self-regulate the process, and to understand the result of the accreditation of their competencies development (Monereo; Badia, 2013).

4) Teachers must be familiar with pedagogical principles for competency teaching to lead the process and make the best decisions at the right time. Some key principles in competency teaching are the adoption of personal voices that give meaning to a competency performance, the learning and implementation of specific skills, the transfer of control of the teacher's competency performance to the student, or the increase of responsibility in the participation in communities of practice (Sanz, 2005).

5) The next step consists of acquiring a methodological reference sequence for competency teaching. Below, in Figure 8, we present an example of such a sequence.

This methodological sequence provides three fundamental elements for online competency teaching (Badia; Monereo, 2008):

1) it makes it possible to specify and apply from an operational point of view the key training principles indicated in the previous point; 2) it can be a reference to make decisions during the implementation of the training proposal, either in processes for all students or in personalized developments; and 3) it includes diverse teaching methodologies useful for promoting all components of a competency considered in Table 1.



Source: Badia (2015)

6) The teaching staff should have a system of assessment and accreditation effective for competency development. They need to adopt new assessment tools appropriate for this purpose. Using e-portfolios is an example of a technological tool that fits well with this educational purpose (Barberà; Bautista; Espasa; Guasch, 2006).

### 3. Summary and recommendations

This chapter concludes with three recommendations for those teachers who wish to improve the quality and innovation of their teaching in online learning environments.

First, as a teacher who teaches online, we encourage you to make competencies teaching one of the key elements that distinguishes your future activity, both regarding the design and implementation of training programmes and in relation to research on the conditions, elements, factors, and outcomes involved in competency teaching.

Second, note it is not a quick and easy path to become an expert teacher in this field. Before taking the plunge into teaching in online environments, we recommend you analyze your institution to assess whether you are ready to make the leap; plan a training process that helps you progress, which includes a significant immersion in scenarios where the skills you intend to teach are necessary (e.g., the professional scenario); or start by trying a pilot programme of educational innovation with limited scope.

Finally, we recommend that you increase your skills in using specific technologies for teaching competencies. A wide variety of technological tools is available to intervene effectively in educational training. These technical tools can provide specific aids for students when developing their competencies.

## Learn more

Eurydice Report. *Developing key competences at school in Europe: Challenges and opportunities for policy*: <<https://op.europa.eu/en/publication-detail/-/publication/47063155-d7f7-4de8-87b0-8103e8b84197/language-en>>

“Council Recommendation on Key Competences for Lifelong Learning”:  
<<https://education.ec.europa.eu/focus-topics/improving-quality/about/key-competences>>

“Key competences and basic skills”: <<https://education.ec.europa.eu/levels/school/key-competences-basic-skills>>

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## Chapter VIII

# Less is more: fewer corrections and more feedback for learning

Teresa Guasch and Anna Espasa

We have a long road ahead of us to climb to the top of a mountain, or complete a marathon; there are many metaphors that surely represent the learning process. What is important to emphasize is that it is a joint process between students and teachers. In general, we can accompany or guide our students by “watching” them, but the need for guidance or help is an essential element in a dynamic context that requires us to change with respect to face-to-face teaching. It can be in many ways, but the important thing is that this guide or help in learning is even more present in distance learning. We materialize this help with feedback to guide the students as to where to go and how: What is the best way? Am I doing it right? How far am I from my goal? What do I need to improve and how? Where do I need to go?

This is the key topic of this chapter, where we propose a change of orientation with respect to the way in which we often interpret this process of supporting and guiding students.<sup>1</sup> Many teachers devote much time to organizing assignments<sup>2</sup> and correcting them.

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1. We will refer indistinctly to student, pupil and student body, in an inclusive manner, also referring to learners from early childhood education through compulsory education to university education.

2. When we talk about activities we refer to exercises, projects, challenges or any kind of training proposal.

The change consists of devoting less effort to correction and more effort to providing adjustments and support during the learning process.

In this chapter we will show that without feedback, there is no improvement in learning. Research shows that it is not essential that the feedback come from the teacher, although students say that they prefer it; it is not necessary that the feedback be given in writing or that be is very extensive, what is essential is that there is feedback. By feedback, we do not mean correction, but rather support, constructive comments that help to understand the corrections, to know where to go, and that accompany the student in the learning process.

In this process of guiding our students, feedback is one of the key elements. It is an essential aid to the teaching and learning process, and in a remote or virtual environment it becomes a central element to promote learning.

We have structured the chapter around six main questions related to designing and giving feedback and, most importantly, address how to involve students and make it useful to them. The questions are:

- 1) What do we mean by feedback?
- 2) What characteristics should feedback have?
- 3) What information should the feedback contain?
- 4) When to provide feedback?
- 5) How should feedback be given? (Resources and strategies.)
- 6) How to involve students so that they can make use of the feedback?

For each of these questions, a brief research-based explanation will be given and some examples or practical recommenda-

tions will be presented, as well as key ideas to keep in mind when designing the teaching and learning process.

## 1. What do we mean by feedback?

One might think that correction is already a form of feedback. However, this is not the case if it is not associated with further information that explains the correction and provides guidance on what needs to be done to improve. These nuances would be feedback. We understand feedback within the framework of formative and competency assessment (as presented in Chapter IV). In this sense, and as we have previously mentioned, feedback is a key element of the teaching-learning process, since it provides students with relevant information about what they have done well, what they have not done, what they can improve, and how.

This is not just information provided by teaching staff, but rather a process of dialogue (Ajjawi; Boud, 2017) consisting of three phases:

- 1) Providing feedback to support progress by the teacher, among students, or even automatically.
- 2) Receiving the feedback, which entails reading it, understanding it and deciding what to do with the help received; and finally.
- 3) Implementing the feedback, which means making changes in order to improve the activity. This dialogue can be internal, that is, with oneself, with the teaching team or also with colleagues.

In summary, the key idea would be to ask if we are satisfied by merely providing corrections or if we can change focus to help the student understand how to improve and progress by offering the necessary guidance.

Now that we have an understanding of feedback, the next section explains the essential characteristics of useful feedback.

## **2. What characteristics should feedback have?**

We highlight five characteristics of feedback that help to generate a dialogue to promote learning (dialogical feedback):

**1)** It should enable any learner to know how they are progressing in terms of the goals or competencies they need to achieve. In this sense, the student should have information about what they are doing well, what can be improved, and how.

**2)** It should be related to the learning process and not to the person. Research indicates that we should avoid value judgments and focus on giving feedback on the content, on the challenge that has been presented. As Gibbs and Simpson (2009) point out, “critical feedback that focuses on personal characteristics can be demotivating and can negatively affect ‘self-efficacy’ or students’ sense of competence [...]. In contrast, content-focused feedback gives the learner options for action and is less associated with ego” (p. 31).

**3)** It should be motivational, encouraging the learner to achieve the learning objectives. In general, we receive more messages about what we have not done well, rather what we do well and how we can improve that particular activity, challenge or

project. It is, therefore, important that we help students to persist and understand how to continue, because it will help them to achieve the proposed objective.

4) You must ensure that the learner incorporates the feedback into their activity. It is only effective if they use it, integrate it and implement it to improve their learning process. Therefore, strategies must be introduced to monitor how the feedback is used and implemented.

How many times have you seen students not taking into account the corrections and comments received, despite the time invested in the corrections? As proposed, we must reorientate focus to ensure that the student reads the comments and, therefore, reviews the feedback received. In section 5, we will see strategies on how to encourage this.

5) It should allow options for improvement of the activity in order to integrate feedback (“feedforward”), either during the process of the activity or in future activities of the same subject or course. Section 6 explains how to do this.

The key idea of this section is to focus on not only designing good feedback but also creating opportunities (through the design of the activities, for example) for the learner to use the feedback received and implement changes.

### **3. What information should feedback contain?**

Research shows that feedback should not only be corrective, but also suggestive; it should integrate recommendations on how to improve learning (Guasch; Espasa; Martinez-Melo, 2019).

This means that the feedback must identify errors and give the correct answer (*correction*), and also give suggestions or propose questions for self-interrogation in order to advance in the learning process (which we understand by *elaboration*). In short, for feedback to be formative, it must include suggestions for improvement and guidance on how to improve the learning process.

We often see feedback that only indicates: “This is not correct”, “check this” or “very good”. These examples would be incomplete considering the framework of this chapter, in which we advocate a dialogic feedback process. It would be necessary to include suggestions or questions that allow students to question themselves about their own learning process, for example: “This idea is not correct, check section  $x$  of the mathematics to understand this concept well and, if you have any doubts, share them in the classroom forum and we will solve them together. Alternatively, you know that I am available”.

The key idea is to move away from (exclusively) corrective feedback and to propose epistemic and suggestive feedback, based on questions, suggestions and reflections that lead to dialogue (whether internal, with the teacher, or with colleagues) and that guide us on how to move forward.

#### **4. When to provide feedback?**

When considering the timing of feedback, we must differentiate between feedback that is given during the learning process and feedback that is given after an assessment activity.

The feedback given during the learning process is directly associated with the resolution of doubts. In an online teaching

and learning process, feedback should be given as soon as possible in order to guarantee the fluency of the learning process.

Feedback after an assessment activity can be given at different times:

- It can be given immediately, and in this case, the feedback consists of sharing with the students the answer or solution to that activity. Then, the student has to carry out a self-assessment process, which will consist of comparing their activity with the model. This type of feedback is common when there are overcrowded classrooms or when the exercises or activities promote algorithmic knowledge.
- It may be a few days later. In some cases, the activities require correction, and the teacher must have enough time to correct it and produce the feedback. This is typically the case for activities with more declarative or conceptual knowledge (heuristic).

The educational contexts are dynamic and include more hybrid teaching practices (face-to-face and virtual) or distance, remote, technology-supported or fully online teaching. In these scenarios, it is advisable to plan the timing of feedback and to do so sequentially. For example, if assignments are planned on a weekly basis, feedback should be included in this planning, and should contain the following information:

- At what time of the week will the student receive feedback. For example, in a hybrid teaching scenario and with primary school students, the hours of presence could be used to facilitate feedback. On the other hand, in a distance university teaching model, it could be agreed that, on the last day of the

week, two hours would be dedicated to providing this feedback in a group videoconference.

- In what format it will be provided. By means of a response and promoting self-assessment, via e-mail (to resolve doubts), individually because a group of students has carried out an important activity and we are interested in each one receiving detailed information about what they have done well and what they have to improve, or in a group through a videoconferencing tool.

The key is to include the timing and format of the feedback as part of the in the planning phase so that students know when to expect guidance that will allow them to assess and be aware of their progress.

## **5. How should feedback be given? Resources and strategies**

From a learning point of view, personalized feedback is the best. However, from the teacher's perspective, providing personalized feedback could be too time-consuming. This leads us to explain what is meant by personalized feedback.

When we refer to personalized feedback, we do not mean individual feedback for each student, but rather i adjusting it to the needs of the student, as well as making sense to them and allowing them to understand that the learning process is adapted to their interests and needs. Typically, learners' needs and interests are similar and can be grouped together, so the time invested in providing feedback can be reduced. Providing per-

sonalized feedback allows the learner to feel much more engaged and better able to understand and make use of the information provided.

Here are some guidelines and resources on how to provide personalized feedback. It is important to bear in mind the purpose of the feedback, as well as the learning situation (student profile, learning content, etc.) in order to choose the most appropriate strategy:

**1)** The most basic level for giving personalized feedback remotely is via email. This does not mean that each email has to be individual; you can group students according to their needs and send a message to all those who need to improve on the same aspect.

**2)** Create a bank of comments. This strategy refers to the possibility of saving the comments that have been provided to a specific learner, so that they can be easily retrieved and used for others who have the same needs.

**3)** A slightly more advanced level is the rubric. This is a double-entry table in which the aspects to be assessed are defined and crossed with the levels of development: low, medium and high; or beginner, apprentice, practitioner, expert, and so on. The important thing about a rubric is:

- To clearly define each of the levels so that students understand why they are at that level of development.
- To give instructions to students on what they have to do to move from one level to another.
- To share the rubric with students at the beginning of the activity so that they know what they are expected to do at each level from the beginning of the activity.

4) Another type of feedback is written comments integrated into a document. This is a very personalized and contextualized feedback, in the sense that the person giving the feedback can refer directly to a sentence or a specific idea.

5) Another resource to give personalized feedback in this changing text is audio-feedback. This refers to any kind of feedback by means of a voice file. Studies have concluded that this type of feedback is valued by students, since the voice is an element of closeness. This type of feedback can be given in different ways:

- Using WhatsApp or a similar tool. A voice message can be very useful and effective. It can be used to resolve doubts quickly. Obviously, you, as teachers, set the rules of use.
- For older students, there are tools such as Adobe Acrobat Reader, which allows you to add audio comments in the document itself, or Word or PowerPoint documents, where audio and video can also be inserted.

6) Video feedback is also a highly recommendable option for providing feedback. The results of research on this type of feedback also show that students value it very highly (Espasa *et al.*, 2019). Seeing the person giving the feedback makes it possible to reduce the physical distance and increase the level of personalization. There are numerous tools that allow video recording, which can then be posted in the virtual environment being used or sent by email. If video feedback is provided, there are two issues to consider: 1) the time for preparation and 2) the size of the video file, as if it is too large, this can lead to problems in sending it.

7) Finally, videoconferencing is very useful for teaching and learning situations in which teacher and students do not share the

same physical space. It can be a synchronous feedback strategy, carried out in large or small groups. The important thing is that students know that the purpose of the videoconference is to give and receive feedback.

The key is to choose the most appropriate strategy or resource to deliver feedback to our students. In order to do this, we need to take into account the objective of the feedback and the specific learning situation. The most important issue is to accompany the students throughout the learning process and, above all, to think about what they have to do with that feedback in order to clearly explain it to them. This will be expanded upon in the next section.

## **6. How to engage students so that they make use of feedback?**

Research on feedback points to different reasons why students do not use the feedback they receive. For example, according to Weaver (2006), it may be that the feedback focuses only on negative aspects (de-motivating), that it is unclear, that it does not contain guidance on what improvements should be implemented, or that it is not connected to the assessment criteria.

The keys for students to use and feedback are twofold: on the one hand, a well-established feedback design and, on the other hand, to place students as the real protagonists of the process.

In relation to the first point, which refers to a good design of the feedback, we refer to the previous section on what it should be like and what characteristics it should have.

In short, feedback should not only be based on correction, but should clarify to the students what they have done well, what they can improve and how.

What do we mean when we say that the students have to be the real protagonists of the feedback process?

Placing students as the protagonists of the feedback process requires it to become a communication aid and a dialogue with the teaching staff (it can also be an internal dialogue or a dialogue with peers), and for it to lead them to make decisions. Therefore, it is not just a question of receiving and reading some comments from the teaching staff – it must involve making-decisions based on the comments received which leads to improved learning. In fact, this is closely related to what has been mentioned previously about the opportunity we have to show students that they are making progress. In other words, we need to plan times for students to demonstrate these improvements. This is key to ensuring that learners make use of the feedback they have received.

Finally, when we refer to how students can be involved in the use of feedback, it is necessary to specify what we mean by students' feedback literacy. As teachers, we must explain to students what they should do with feedback, we must teach them what is expected of them in relation to feedback (feedback literacy).

This feedback-related literacy requires four aspects of students (Carless; Boud, 2018): 1) assess the importance of feedback and understand that it is not a one way street, but that they must be engaged; 2) stop self-evaluating; 3) manage the emotions that the feedback may cause (it is not easy to make use of it when it highlights the aspects of the work done that need to be improved); and 4) make decisions and take action based on the feedback received.

In this sense, it is important to emphasize that this type of feedback is a shared process between teacher and students (Carless; Winstone, 2020), and both must be engaged in order for it to really contribute to learning.

In line with the previous section, which recommends that the feedback be planned with the students on a weekly basis, we now present how the students can be engaged in order to integrate and use it:

**1)** A space can be planned at the beginning of the week to explain the students what kind of feedback will be provided and what the students are expected to do with it. At this point, you can also introduce the assessment criteria.

**2)** In order to guarantee opportunities for improvement, it is recommended to link the activities of one week with the following week. In this way, students can first work on some content, then receive feedback and have time to integrate it in the activity or assignment; the following week, the activity is resumed and the improvements that students have been able to implement are discussed.

**3)** Promote feedback among students. In this way, students learn and become active while giving feedback. In other words, as long as students are asked to give feedback (for example, from one group to another or from one student to another), they come into contact with it and become familiar with what feedback is; this promotes the notion that they are in a position to make use of it (Espasa *et al.*, 2018).

**4)** A very simple strategy to put into practice is to offer feedback a few days before the grade is issued.

A key idea on how to engage learners to use the feedback they receive and transform it into improvements is that we have to put efforts in the design of the feedback (see section 2) and that we explain to learners – make them literate – about what is expected from them in relation to feedback.

## 7. Synthesis

We began this chapter by proposing to change the generalized concept of *correction* to promote an interpretation of feedback as a personalized support that provides guidance on how to progress. In order to achieve this change, practical recommendations have been presented from strategies for the design, planning and development of feedback to students' engagement, so that the feedback makes sense. We can summarize this journey in five points:

- 1) Explain and share the importance of feedback. Remember that the feedback can come from the teacher, from a student, or it can take place between students, but it has to be designed beforehand.
- 2) Highlight what is correct, what is incorrect and what needs to be improved, and above all how to do it. This should be communicated in the most personalized way possible.
- 3) Plan feedback sequentially (e.g. weekly): explain when and how it will be given.
- 4) Design opportunities for students to demonstrate improvements made or incorporated in the activities/assignments.

5) Use technologies to optimize the investment of time in giving feedback.

These five recommendations revolve around a saying that has been conveyed throughout the chapter: “Less is more”. Design, propose fewer activities and assignments to correct and put the focus on offering constructive comments that help learners to know where to go and, therefore, that help them to improve. In this way, together with your students, you will reach the end of the road, the top of the mountain or the marathon you have started.

## Learn more

**Fiock, H.; Garcia, H.** (2020). “How to give your students better feedback with technology. Advice Guide”. *The Chronicle of Higher Education*: <<https://www.chronicle.com/article/how-to-give-your-students-better-feedback-with-technology/#1>>

“The Developing Engagement with Feedback Toolkit (DEFT)”: <<https://www.advance-he.ac.uk/knowledge-hub/developing-engagement-feedback-toolkit-deft>>

Material from the University of Strathclyde (Glasgow) on feedback: <<https://www.strath.ac.uk/learnteach/informationforstudents/students/assessfeedback/>>

Feedback-focused projects: <<http://www.feed2learn.com/projects/>>

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## Chapter IX

# Generate critical digital attitudes in students

Juliana E. Raffaghelli

## 1. Inhabiting cyberspace today: a challenge

The dawn of the Internet provided a space for the expansion of access to information with an enormous impact on new forms of expression and citizen participation (Castells, 2001). Towards the end of the 2000s, social networks appeared as an environment to promote prosocial behaviour and emancipation, which would be intrinsically related to learning networks and networked learning (De Haro, 2010; Díaz Gandasegui, 2011). Navigation and interaction through mobile technologies (mobile phones and tablets) also appeared. This new form of ubiquitous interaction, which is evolving at a dizzying speed, generated another technological phenomenon: that of portable cyberspace, which travels with us and expands our cognition, emotions and interaction with the outside world easily and immediately.

During this technological evolution, there was a prevailing view connecting the technology of participatory and creative cultures (Jenkins, 2008). Albeit very veiled, in the 1990s there was already talk of certain risks of exposure and the need to use netiquette to communicate on the web (Pautrat, 2014). However, the opening up of cyberspace, and in particular the immediacy of social networks, has led us to see a number of problems of medium to very high social impact. Some such phenomena include cyberbullying, early screen addiction and the current problem of *datification*, or the use (and abuse) of data extracted through the continuous

tracing of data based on the millions of operations carried out by users of digital technologies, mobiles, the smart city, and similar. In addition, the ubiquity and ease of use of mobile phones, which is experienced as a highly positive element for digital participation and creativity, also brings to light serious implications on the psycho-physical health of users, even more so if the user is a child or a young student.

Undoubtedly, the recent health crisis of the COVID-19 pandemic and its associated containment measures have placed an unprecedented level of pressure on the education system and taken its actors to an unprecedented level of emergency non-face-to-face didactics. Indeed, the exacerbation of negative aspects of technological mediation in communication and participation in educational contexts has been noted (Bozkurt *et al.*, 2020).

Against this backdrop, there is a great need currently to develop a critical digital attitude that allows us to understand the positive and negative implications of technology in order to overcome the social distance beyond the emergency.

In this chapter, we are going to review the levels of development of the critical digital attitude, from the identification of the elements of which it consists to the teaching strategies to develop this attitude.

Before we begin the tour, let us address some conceptual issues. When we look for the word *critical*, we find several definitions with both negative and positive meanings. By adding these definitions together, and in short, we can consider that a critical approach involves a positioning in the face of the seriousness of a fact, where a crisis is generated that leads to disruption and generates a “suitable or opportune occasion for something”. However, critical action in the trajectories of philosophical and social thought has been based on this action of analysis

and breakdown of objects of study in order to aim for human improvement: we will look at this in more detail in the following section. We could affirm that a critical attitude predisposes us to different visions in order to go deeper, to understand in order to improve. Therefore, a critical digital attitude involves a consciously regulated and self-directed use of the digital medium and technological tools, based on behaviour, emotions, rationality and thought, and also on social relations, in order to achieve a constructive and creative sense of digital technologies.

## **2. Critical approach in pedagogical and techno-pedagogical theory**

In the educational sciences, on the basis of social sciences and cultural studies in relation to a long philosophical tradition, critical thinking is identified as a higher faculty of the human psyche. The lines of critical thinking and knowledge construction, emerging from American cognitive and educational psychology, give us important guidelines on how this skill is to be developed (Huber, 2020). It is a transversal competence to explore the non-obvious, to bring the fallacy to light, and it is necessary in all areas of life.

In recent years, given the complexity of the context of a global knowledge society, Edgar Morin indicates training of critical thinking skills as one of the “seven fundamental knowledge” components (Morin; Ciurana; Motta, 2002).

However, the critical perspective has also been applied to educational practice as a fundamental basis for developing a critical attitude. The problem of human collectives not represented in a

generalizing discourse of the social “norm” is an example. Some of the lines that have led us to explore these ideas in education are Freire’s and Don Milani’s critical pedagogy, Illich’s unschooling and homeschooling, as well as Martha Nussbaum’s social justice for the development of capacities. In addition, in relation to specific groups, intercultural pedagogy, the work on education and feminism, on inclusion and universal design for diversity. All these theories are born of contexts of activism and the need for representation of disadvantaged groups, and they in turn generate critical movements.<sup>1</sup>

These movements influence studies into technology in education. The most important impact relates to the idea that technologies do not have a transformative and innovative value in and of themselves, but that everything simply depends on how they are wielded and used and what kind of message is intended to be given by the power groups that manage them (Selwyn, 2014). The contribution of media education has been very important in this regard, orientated as it has been towards understanding the media. Some will remember that this was done by Umberto Eco in the sixties and seventies, with the semiotics of mass media (Parola; Ranieri, 2010). More recently, we have seen a series of contributions dealing with the psychosocial and physical impact of technological consumption, in a context where technology mediates (and will increasingly mediate, with artificial intelligence) what we do.

Technologies, properly used, can mediate and expand communicative, cognitive and metacognitive processes; above all, they can be vectors of socio-economic integration through, for

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1. Bibliography available in the section provided at the end of the chapter (“Learn more”).

example, access to open educational resources. However, this value is discussed without a good critical approach to balance the often-invisible negative aspects of such technologies.

### **3. Develop a critical digital attitude**

We will use a table of analysis of the different levels of working with the critical digital attitude, based on the type of human interaction with technology. These levels are based on the schematic definitions of the spheres of human psychology in such interaction, as defined in general psychology: behaviour, affectivity and emotions, cognition and social interaction (Mora; Martín, 2010). Although this is a schematic operation, all levels are necessarily intertwined. We will define the learning objectives for each of these areas and present teaching strategies for each level. In addition, readers wishing to delve deeper into the literature and case studies of this work at each level, will find a dossier prepared specifically to accompany and expand upon this chapter.

#### **3.1. Behavioural level**

- Learning objectives. Acquire skills and knowledge to regulate aspects such as the length of exposure to technologies and the terms and conditions of use of applications and programmes. Also, consider the importance of the aspects of care of spaces, instruments and work context, in other words the material relationship with the digital and technological environment.

- Teaching strategy. Reconfigure the learning objectives so that the length of exposure to the technological medium is limited, so that it does not cause fatigue, anxiety or stress. It is necessary to remember the indications relating to the use of screens by young children. The most recent studies report various negative effects on attention span, memory and information processing in children who make inappropriate use of technology. Likewise, we cannot forget that the habits of adolescents, young people in university education and adults themselves involve major dilemmas: screen addiction is a real problem.

Faced with this situation, educational teams must first work on mapping the situation. More than ever, teamwork among teachers is crucial for a better organization of the training offer, with shifts of recognition of the individual situation and family habits concerning equipment use.

Balancing and considering whether it is necessary to relegate content in order to improve this balance of technological mediation can initially bear important fruit in more advanced phases of the school year or academic term. If necessary, we must work as a team with social and local government services in order to generate forms of support for extreme situations that escape the work of teachers. Work on the experiences of using technology can be done at any age. The important thing is to teach how to “see behind the scenes”, to look at what the technological medium offers us and what it hides from us.

## 3.2. Emotional level

- Learning objectives. To detect and critically regulate the emotions that the technological medium generates in us. The aim is to explore how a video game or an interaction on a social network or music channel affects us emotionally.
- Teaching strategy. Find spaces to talk about emotions in the use of digital media, touching on topics such as frustration at not being able to understand the functioning of a technology, the types of emotions generated by video games, and so on. An institutional strategy is always recommended – it can be delegated to a teaching work group or in tutorial strategies at the university – to accompany students in the monitoring and regulation of their own emotional states when using technology.

Some examples collected during lockdown show teaching staff committed to this emotional relationship: a letter to students written daily by the rector and disseminated through university channels about the daily effort made in this situation of risk; a teacher's message on Twitter to share with her students how she had dedicated time for her students to comment on how they felt in times of crisis, determining an infinite flow of messages from the students; or a teacher who used simple means to transmit a task that generated a positive emotional state not only in the students, but also in their families. Undoubtedly, teachers should not overuse these strategies, as doing so could have the opposite effect.

### 3.3. Cognitive level

- Learning objectives. To acquire skills to filter the quality of the information consumed through the development of critical thinking, precisely to carry out this selection of technological tools and types of information.
- Teaching strategy. We could not speak of a single strategy. To begin with, the collaborative curation, so to speak, of the types of technologies that we use in the classroom or at home with an influence on teaching (for example, mobile devices). Also, working on techniques that lead students to analyze their communicative processes to detect forms of reasoning, from their premises to their conclusions, based on logical arguments or, so in vogue today, statistical data and dynamic visualizations. This work leads to the development of informational competence (Olivares; Roca, 2012), which is ultimately the basis of epistemic development, and the ability to analyze, interpret and conclude in a methodical way. When this process has been done well in school, one arrives at university with the basic skills to cope with learning the scientific method and academic writing (UNESCO, 2017).

In this sense, there are two types of teaching work methods that were widely used between the 1990s and the first decade of the 21st century and that could now regain importance: debate (Sánchez, 2017) and knowledge building through dialogue (García; Sánchez; Govea, 2009). Although they can be implemented in person (especially debate), it is possible to use microblogging or videoconferencing, and particularly online forums in the case of knowledge construction. In a short period of time, these techniques propose problems to students and

place them in a situation of interacting, in a competitive or constructive way, to reach better, enriching positions, based on the use of the other's language (inter-textuality) and invention (which is well denoted when metaphors are created).

Working in and with social media opens a gigantic chapter too extensive to be covered here. However, its analysis from different perspectives is part of today's media education, and relates to applying critical thinking skills to check the forms, facts and sources of the information that circulates in such unique communicative contexts as Facebook, Twitter and Instagram, to name but a few. Often, we receive an audio or text-based message, its content generates indignation or concern, and we immediately share it. This initial information can be biased, generating an emotional reaction that prevents analysis of the content, followed by a social reaction (I share because a particular group of people will share my anger or concern, or because I will protect them from something I feel is a danger). This has an impact when a fake news story goes viral: the hatred or concern is massified.

Consequently, teaching the ability to verify the authenticity of news is a fundamental technique in a critical digital attitude. The technique of fact checking or source checking, particularly promoted by networks of journalists, is work that we can do with our students in various disciplines, such as language teaching or in scientific environments, to dismantle post-truth. In this sense, it is also possible to use open data as an educational resource; it can be a way to train advanced skills of checking facts and sources, as in the cases of *Barcelona Reptes Dades Obertes* ('Barcelona Challenges Open Data') and *A Scuola di Open Coesione* ('For a school of open cohesion'), the first in Catalonia, and the latter throughout Italy. In fact, understanding manipulation through

statistics constitutes a basic level of data literacy. We are also witnessing today a phenomenon called *datification*, characterized by the continuous extraction of data from the platforms and applications we use, which is then processed through computer algorithms. Understanding this phenomenon is also part of a critical understanding of the characteristics of the digital medium (Raffaghelli, 2020).

### 3.4. Social level

- Learning objectives. To deal with communicative and relational processes in the network, which involves a) developing active empathy in order to understand the limitations of communication and interaction in the digital medium; and b) understanding that whoever is on the other side of the network may have malicious intentions and may cause us harm.
- Teaching strategy. Explore issues of equity in the technological environment (accessibility and inclusion, correct communication behaviour to avoid hate speech) and cybersecurity issues (who might be on the other side, what to share about myself). Let's take the case of an assignment in which Twitter or Instagram can be used to post learning materials and outcomes.

In relation to the equitable and safe use of the technological environment, does it require too high a bandwidth? Can everyone afford to generate a video and upload it to an Instagram or TikTok account? When posting on Instagram or TikTok, what limitations will there be to accessibility if adequate metadata or multichannelling is not proposed to make the material discov-

erable? And when posting content, both teacher and student will have to think about what will be shown. If a video or a photograph is exposed and there is an undesirable encounter with a troll making unpleasant comments, what can be done? Does the medium offer forms of protection and reporting? We cannot forget the old netiquette of the 1990s for communicating properly via digital media, which today becomes a more complex prevention of hate speech on social networks. It is a matter of working on written communication in forums and on social networks by combating victimization, discriminatory connotations, and nationalism, and deconstructing ethnocentrism and patriarchal discourse.

## 4. Conclusions

Throughout this chapter, we have learned that the critical approach to technological mediation, which today is presented as a necessity in the face of a complex and apparently novel phenomenology, is supported by social, cultural and educational studies that already have a long trajectory, and aim to:

- 1) Discover and develop skills to explore the non-evident, unrepresented collectives and generalized and generalizing discourse.
- 2) To show the fallacies (and risks) of technological development as a solution to educational problems.

We have analyzed human interaction with the technological environment through a four-level reading scheme (behavioural,

emotional, cognitive and social) and generated the following recommendations for each of them:

- Behavioural. Work on technology use can be done at any age, teaching to “see behind the scenes”, what the technological medium offers us and what it hides from us.
- Emotional. An institutional strategy is recommended to accompany students in monitoring and regulating their own emotional states when using technology. This can be delegated to a teaching work group or to tutoring strategies at the university.
- Cognitive. At this level, we aim at epistemic development, which involves:
  - Know-how, analysis of the ambiguity of language, the presence of prejudices, manipulative language that uses emotions rather than verifiable evidence or technicalities to cloud the reading of evidence, as well as spurious statistics.
  - Starting from knowing how to be, to decentre oneself in order to develop a multi-perspective view of the facts and to prudently draw conclusions. This continuous exercise requires patience, honesty and intellectual humility.
- Social. While it is recommended to work with experts (police forces, professionals in psychology, social work, jurisprudence, government administration, etc.) to address cybersecurity issues, especially in secondary school, the topic can be treated as a central aspect of an activity (in social sciences, for example) or as the initial phase of a relationship with a technological medium, when using free applications, social networks or private platforms for classwork.

To assess each of the skills acquired, rubrics can be developed that can even be applied for self-assessment and peer assess-

ment, increasing awareness of the skills at each level (Cabrera; Fernández, 2020). In any case, the keys to effective participation in online environments and activities (Maina, 2020; Romeu, 2020) will have to be thought out from the design (Guàrdia, 2020) in order to include, assess and evaluate the development of a critical attitude. Particular emphasis will have to be placed on the typologies of resources needed (Romero, 2020), as an activity that, as we have seen in this chapter, has implications at every level involved in the analysis of a critical digital attitude.

Finally, it is important to consider the concept of the *education community* as a human group composed of teachers, families and students to combat the inappropriate, inequitable or conflictive use of technologies (Guitert, 2020; Sangrà, 2020).

Indeed, it would be important to close with the praise of completeness (Morin, 1997) and “slow education” (Domènech, 2009). While technologies in recent years have been used to facilitate and simplify content, and to accelerate time, a future vision of them should be aligned with an intelligent, measured and meditated use for learning through mediation and not through technological domination.

## Learn more

Dossier with literature, tools and cases for each of the four levels to develop a critical digital attitude (Juliana E. Raffaghelli): <[https://jraffaghelli.files.wordpress.com/2022/03/uoc-webinar\\_series.docx.pdf](https://jraffaghelli.files.wordpress.com/2022/03/uoc-webinar_series.docx.pdf)>

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## Chapter X

# Networked collaboration for teachers and for students

Montse Guitert

## 1. Introduction

Digital technologies facilitate networked collaborative processes in a way we could never have imagined. We can incorporate them into online teaching – particularly during this pandemic, but we have to do so from a double perspective: among teachers as a strategy for improving teaching, and among students to motivate them to create shared knowledge and facilitate their learning process.

The aim of this chapter is to provide guidelines for efficient networked collaboration that adds value to learning processes from early childhood education to lifelong learning, to make teachers aware of what is required, what attitudes are put into play, what levels of collaboration exist, what critical processes exist and what activities can facilitate this collaboration.

Given the transversal nature of collaboration, some aspects of it have been mentioned in other chapters. Here we will deal with network collaboration: what it is, how it can be carried out and what activities encourage it, both among students and among teachers.

## 2. Networked collaboration in education

When we talk about networked collaboration in education we must look at two axes. One, for me the main one, is the pedagogical value (Guitert; Pérez-Mateo, 2013). Another is the amplification that digital technologies can offer, bearing in mind, as has already been mentioned in other chapters, that they have no value on their own.

In the age of confinement, we have experienced the potential of digital technologies. We are carrying out communication, interaction and even collaboration thanks to their potential, aspects that we could not have imagined before the pandemic. But we must also be very critical of them, as discussed in Chapter IX, and be aware of the digital divide. Although it may seem impossible now, as we integrate digital technologies into our personal and professional lives, they will become transparent or invisible, like electricity.

To situate the concept of *collaboration* in education, in line with Rubia and Guitert (2014), I will refer to its origins, to the learning theories of Piaget and Vigostky, and to the pedagogy of Freinet, Rousseau, Neill, Makarenko, Cousinet, Ferrer i Guàrdia and Rué, among others, which have allowed pedagogical models to evolve towards processes of cooperation and peer learning. These theoretical perspectives have guided good school practices over the last 50 years, making them the most recognized, accepted and widespread methodological visions in the educational projects of schools, with words such as “group work”, “teamwork” and, of course, “cooperative learning”. They have also become the basis for innovation in education and are now widespread.

The European Higher Education Area (EHEA) has been implemented at all levels of education, from early childhood,

primary and secondary education to higher education, which has been boosted by the implementation of the European Higher Education Area.

At the end of the 1990s, the idea began to emerge that technology and, above all, its uses should be incorporated into collaborative learning, peer learning and teamwork, and this coincided with the arrival of the first virtual universities and online education. At this time, computer supported collaborative learning (CSCL) – Dillenbourg’s computer-based collaborative learning – emerged. It emphasizes learning and knowledge construction, which are affected by interaction and collaboration through the potential of technologies (Dillenbourg, Fischer, 2009; Koschmann, 2017).

Subsequently, a debate was established between *cooperative* and *collaborative*; in the end, with the introduction of ICT, *collaborative* ultimately became the magic word when talking about networked learning, although in the school environment, the term *cooperation* is more commonly used.

We define *collaborative learning* as a process of interaction and reciprocity among students, which facilitates the joint construction of a common goal through individual work. It is a shared, coordinated and interdependent process, in which students work using online collaborative tools in order to achieve a common goal (Guitert; Perez-Mateo, 2013).

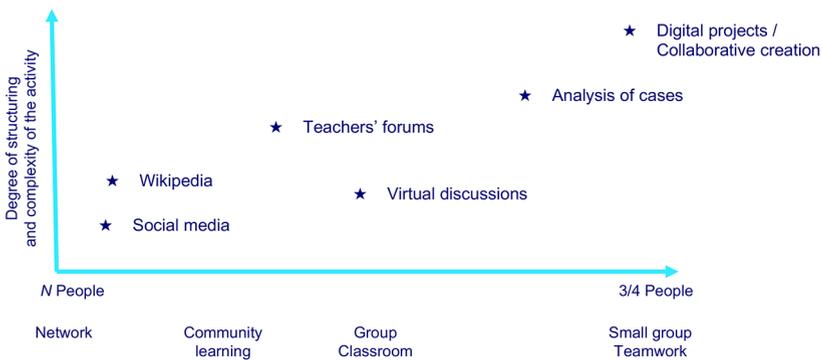
Collaborating always involves individual work, and if it is done in a network, the potential of technology allows us to collaborate asynchronously, without the need to coincide in space or especially in time. This allows a significant degree of flexibility, both for the teaching team and for the student. In the words of one student: “Collaborative networking is not always connected”.

## 2.1. Levels of collaboration

In the educational context, there are different levels of collaboration depending on the number of people involved and the degree of complexity of the activity, as shown in the Figure 9.

Figure 9. Levels of network collaboration

### Levels of collaboration



Source: prepared by the authors

As can be seen in the graph, both a virtual debate, which can be carried out in a classroom group with a medium-low level of complexity, and a digital project driven by four students, which requires a high level of structure and complexity, are collaborative activities. Both initiatives are very suitable for an online environment, as presented in the Chapter IV.

## 2.2. Four key critical processes

I will now present the four critical processes of networked collaboration. I describe them as critical because they occur in

any collaborative situation and at the same time, in a networked environment, they are essential for collaboration to flow, and if they are not taken into account, it is difficult for it to materialize. In this context, it is necessary to make them explicit, promote them and organize them better than in a face-to-face environment, where we take them for granted.

In the research carried out, we have shown the importance of these processes in situations of network collaboration. We have also concluded that these processes, which are essential to make explicit in a virtual environment, also improve collaboration and teamwork in a face-to-face environment.

These processes are:

**1) Culture of collaboration.** Each member must bear in mind that their work is subordinate to the common objective; they must be aware of what it means to collaborate, as well as displaying attitudes that facilitate it, such as transparency, commitment, respect, tolerance, motivation, initiative, active participation, and so on. It is worth remembering that technology makes it possible to work asynchronously in both space and time, which favours flexibility.

**2) Organization and planning.** It is important to define operating rules, distribute roles and plan processes well, as well as to review them throughout the process. Information must also be organized. Organization and planning are key issues in an online environment, as discussed in the first chapter of this book.

**3) Communication.** In a collaborative process, it is important for communication to be participatory, regular, concise, clear and appropriate to the code of conduct on the Internet (netiquette). For example, in order to carry out a debate, it is important to define the rules of operation. It is also important to take into account the role of asynchronicity.

4) Assessment and evaluation. Each member must evaluate their personal work and that of their colleagues, show the processes and reflect on what they have learnt. That is to say, to carry out processes of self- and co-assessment.

## 2.3. Collaborative tools

In order to develop collaborative processes, tools are an essential element, but in many cases they will not depend solely on oneself but also on the devices available, the selection of the environment and the platforms and tools provided by the institution, among other aspects.

I am not going to go into this aspect in depth because Chapter V has specifically dealt with it. I am simply going to point out that there are tools for collaborative, communication and social communication.

Once the generic aspects related to network collaboration have been presented, in the next section we will deal with elements linked to collaboration between teachers.

## 3. Networked collaborative teaching

Collaborative teaching allows us to cope with the transformation of teaching that is required at this time, and to make the most of the potential of digital technologies.

There are two key reasons that lead me to present the importance of collaborative teaching: the first is that, in education in the digital era, it is deemed unfeasible to carry out online teach-

ing in an individualized way, as has been expressed throughout this book (Guitert, 2014). The second is because, if the teaching team wants students to collaborate online, they must have previously experienced what it entails and what strategies, activities and resources facilitate it.

### 3.1. Phases of online teaching

Collaboration between teachers should parallel the phases of online teaching: design, implementation and closure (Guitert; Romeu, 2019), presented by Romeu in Chapter VI. Thus, in the design phase, the teaching staff must co-design the courses and activities, share the teaching in the implementation phase, and jointly assess and reflect on the results obtained in the closure phase.

Throughout the collaborative teaching process, the ways in which digital teaching competence is applied is evident (Generalitat de Catalunya, Department of Education, 2018); this refers to didactic and methodological skills, but ICT competence is also necessary, referring to the instrumental use of technologies.

In its application, the teacher starts with an instrumental concern about how to use a tool and progresses towards a methodological concern about which tools are best for the teaching they want to implement.

In online teaching, as mentioned above, it is necessary to strengthen organization. For this reason, as we have shown in the research of Romeu *et al.* (2016), in order to carry out collaborative teaching, the figure of the mediator or coordinator is strategic, given that they make it possible to make explicit and manage all the critical processes described above.

### 3.2. Collaborative activities by phases

Once we have defined how teaching collaboration is developed in the different phases, we are going to present some examples of what activities to carry out in each phase. The activities we present here are not new, but they can all be carried out asynchronously on the network, mediated by digital technologies.

- Co-design phase. The activity that had been planned for the face-to-face scenario must be rethought within the framework of a teaching team, selecting or co-designing the appropriate resources and tools, developing a timetable and defining the assessment (Monguillot *et al.*, 2017a). With all of this, a solid design is achieved through innovative processes.
- Sharing teaching. If, within the framework of a teaching team, doubts, discoveries, resources, strategies, and the like are shared, it is possible to communicate them. Teachers, re-planning, assessment tools and improvements that are revealed in the implementation help to improve teaching (Monguillot *et al.*, 2017b).
- Common assessment. At the end of the course, the assessment of the academic results and of the students' satisfaction with the innovations experienced, as well as the proposals for improvement, enable a reflective practice to be carried out (Schön, 1987).

As a result of collaborative teaching throughout the process, communities of practice can be created (Wenger, 1998).

## 4. Networked student collaboration

According to the studies of Avello Martínez and Duarte, (2016); Rubia and Guitert (2014); Guitert and Pérez-Matteo (2013); Hmelo-Silver, Chinn, Chan and O'Donnell (2013), collaborative learning increases motivation, persistence and effectiveness in the exchange of ideas among students. It is in the group collaboration processes themselves that the group learns to collaborate, incorporating communication strategies and action in the event of conflict and acquiring problem-solving and knowledge creation skills, as well as methodologies for information exchange and participation, as suggested by Badia in Chapter VI. For all of this, the teaching role is key throughout the collaboration process, from design to assessment and closure, as well as the proposal of activities that facilitate this process.

### 4.1. Teaching role

Collaborative activities among students do not mean that the teacher figure disappears, as their presence continues to be crucial throughout the process.

At the moment of design, the teacher makes decisions about the value of the activity, the grouping of students, the level of collaboration, the duration, the assessment and the tools and resources that they may have at their disposal, in addition to those aspects mentioned by Guàrdia in Chapter II.

In the implementation phase, on the other hand, the teacher encourages students' personal and group autonomy, reinforces positive attitudes for collaboration, and monitors the process to motivate and resolve conflicts (Monguillot *et al.*, 2018). Specifically, it:

- Favours personal and group autonomy.
- Reinforces attitudes.
- Motivates and energizes collaboration: at this time, in particular, it is very important to motivate the students.
- Follows up on the collaboration.
- Manages conflicts.
- Provides individual and group feedback.
- Promotes students' digital competence.

## 4.2. Activities to promote critical processes

In order to define those collaborative activities that can facilitate the critical processes of network collaboration, we will focus on those with the highest level of collaboration, such as a project of three or four people. In other words, group work that is carried out asynchronously, basically without coinciding in space or time. Exemplifying it with a project (Pérez-Mateo *et al.*, 2014) makes it possible to offer collaborative activities that can reinforce all the processes at the highest level of collaboration, and this makes it possible to select those activities that can be applied to any lower level of collaboration.

Critical core processes can be fostered through the following activities:

### 1) Activities to promote the culture of collaboration.

Through the research conducted, it has become clear how important it is for students to be aware of this in collaborative situations. For this reason, we propose activities such as:

- Virtual debate on a case of online collaboration. This activity helps students to become aware that a common objective must be defined that can only be achieved through the work of everyone, in which each member is a key player and to achieve it, attitudes favouring collaboration, such as respect, tolerance, active participation, commitment, motivation and clarity, among others, must be brought into play. It must also be taken into account that individual work is essential to carry it out.
- Agreeing on the name of the group. This activity helps students to create their own identity. It trains their ability to come to agreements online, which will later be key in the execution of the activity.
- Defining the theme of the project. This is another activity that brings into play skills such as negotiation and decision-making.

## 2) Activities for organization and planning.

These are activities that, if made explicit, favour group management processes: a fundamental element in network collaboration.

- Define agreements or rules of operation. The group of students should describe what the role of each one will be, how they will organize themselves and what tasks they will carry out, what communication rules they will have, what attitudes will govern the functioning of the team, how they will organize information, what their actions will be in case of unforeseen events, how they will review these agreements, and similar.

- Group planning. Students should organize themselves temporarily in a network by weeks or by tasks, and each one should distribute the activities to be carried out. Re-planning should be considered.

**3)** Activities for participatory, civic and efficient communication.

- Communication rules. The regularity of connections and availability must be defined, what guidelines will be followed and what channels will be used. This aspect is evidenced in the voice of the students with expressions such as: “The low level of participation and constancy makes collaboration difficult” or “we let classmates know in the event of absence”. These rules can be added to the agreements.
- Synchronous and asynchronous work. Not all collaborative work must be synchronous. Asynchronous communication allows for more flexibility and also enhances more reflective and knowledge creation tasks. Synchronous is more suitable for making decisions, reaching consensus and solving problems. Working in a networked group does not necessarily involve always being connected. Much of the work can be done asynchronously thanks to the potential of digital technologies.

**4)** Activities for continuous assessment. This aspect has already been dealt with in Chapters III and VIII, but we are going to highlight some aspects that are key in collaborative situations, especially in small groups:

- An active role for students in assessment (Romeu *et al.*, 2016) is key to improving collaborative processes. This can take the

form of self-assessment, co-assessment, group reflection or peer assessment. Assessing peers helps to evaluate one's own learning process.

- The teacher, as a facilitator, must evaluate the process, not just the results. In addition to evidence of students' learning results, the online environment also includes forum discussions, the history of the documents, and so on. Collaborative tools, thanks to learning analytics, allow teachers to keep track of the individual work of each member of a group. During the process, the teacher must give group and individual feedback. The individual grade of each member of the group can vary according to the evidence of the individual process of each student.

The creation of all these activities takes time, but research shows that time invested in consolidating the group is then reduced in the execution of the project or complex activity.

## **5. By way of conclusion and recommendations**

We close this chapter by highlighting those aspects that we consider relevant and applicable in a collaborative online teaching situation in any educational context, from early childhood education to lifelong higher education. We include the benefits of networked collaboration for both teachers and students and conclude with a guide to networked collaboration.

There is a direct relationship between the levels of collaboration and the four critical processes: collaborative culture, organization and planning, communication and finally assessment. The

more complex the level of collaboration, the more important it is to take into account the critical processes, and in the case of activities with students, to get involved in defining them. By way of example, in a collaborative virtual project, it is advisable for students to define the agreements or rules of operation and group planning, while in a virtual debate, it is usually the teacher who sets the rules and proposes the planning.

In short, networked collaboration between teachers helps to improve pedagogical practice and facilitates professional development and the social dimension (Romeu *et al.*, 2016), as well as improving teachers' digital competencies. It is equally beneficial for students, since it emphasizes their active role, promotes the construction of knowledge and acquisition of skills, and reduces social isolation (Pérez-Mateo; Guitert, 2012).

We end this chapter with a Decalogue outlining network collaboration and reflecting upon those elements that favour a good process:

- Be aware of collaboration: common goals and activities.
- Make processes explicit and leave evidence.
- Without individual work there is no collaboration.
- Collaborating takes time, which is recouped in learning outcomes.
- Define agreements/operational rules (roles).
- Planning and reviewing, (re)planning.
- Participatory, civic and efficient communication (asynchrony).
- Agile management and good organization of information.
- Use the most appropriate tools in each situation.
- Apply assessment processes.
- By collaborating as a network, we will be stronger and go further.

## Learn more

### Teachers

*Collaborative online teaching: Digital competences at the UOC:* <[https://materials.campus.uoc.edu/cdocent/PID\\_00272153/](https://materials.campus.uoc.edu/cdocent/PID_00272153/)>

*Strategies for Online Teaching:* <[https://materials.campus.uoc.edu/daisy/Materials/PID\\_00272151/pdf/PID\\_00272151.pdf](https://materials.campus.uoc.edu/daisy/Materials/PID_00272151/pdf/PID_00272151.pdf)>

### Students

“Key elements in the design of collaborative activities in the network”:  
<<http://edulab.uoc.edu/wp-content/uploads/2018/12/Smartpaper-Edul@b-1-Key-elements-in-the-design-of-collaborative-activities-in-the-network.pdf>>

*Recommendations for online teamwork:* <[https://materials.campus.uoc.edu/cdocent/PID\\_00272163/](https://materials.campus.uoc.edu/cdocent/PID_00272163/)>

*Collaborative learning in virtual environments: methodological development:*  
<[http://materials.cv.uoc.edu/daisy/Materials/PID\\_00267626/pdf/PID\\_00267626.pdf](http://materials.cv.uoc.edu/daisy/Materials/PID_00267626/pdf/PID_00267626.pdf)>

*Communication in the Network:* <[http://materials.cv.uoc.edu/daisy/Materials/PID\\_00267098/pdf/PID\\_00267098.pdf](http://materials.cv.uoc.edu/daisy/Materials/PID_00267098/pdf/PID_00267098.pdf)>

*Guidelines on virtual debates:* <[http://materials.cv.uoc.edu/daisy/Materials/PID\\_00267091/pdf/PID\\_00267091.pdf](http://materials.cv.uoc.edu/daisy/Materials/PID_00267091/pdf/PID_00267091.pdf)>

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## Epilogue I

**Learning from experience during the pandemic to build innovative education for unshaped futures (IE4UF)**

Trine Jensen

*Life can only be understood backwards; but it must be lived forwards.*

Søren Kierkegaard

The COVID-19 pandemic shook the world of higher education when social distancing became the key measure for preventing further spread of the virus. Before the pandemic, the concept of the *university* was overwhelmingly based on physical presence for intellectual exchange and debate among students and staff; libraries and laboratories were shared learning and research spaces with access to books and other resources; and social gatherings were a defining feature of campus life, ranging from extra-curricular activities to dormitory life for many universities around the world.

In light of the rapid spread of COVID-19 in early 2020, the World Health Organization (WHO) officially declared the health crisis a pandemic on 11th March. Suddenly, universities across the world had to shift their campus-based operations to remote ones. The shift was unforeseen and therefore unplanned for, but as we have to “live our lives forwards”, the academic community around the world did their utmost to implement solutions to ensure that academia and its operations could continue from a distance, relying as never before on communication facilitated by digital technologies. It must be underlined that these measures were put in place not by choice, but rather enforced so as to

avoid any disruption at a time of the global health crisis that was jeopardizing learning paths and the futures of students around the world.

Now, more than 1 year into the pandemic, we may be mentally exhausted by the forever-changing measures put in place to fight the virus, but we have also become somewhat accustomed to living with constant uncertainty about the not-so-distant future. In this new state, the unanswered question before us is: what happens next in terms of digital transformation when social distancing rules are relaxed and the use of digital technologies in teaching and learning is once again a choice rather than a necessity?

It was in this context that the International Association of Universities (IAU) partnered with Universitat Oberta de Catalunya (UOC) in Spain – a fully online university with 25 years of experience in developing and designing online education. IAU and UOC co-created an online series entitled *Innovative Education for Unshaped Futures*: a series comprising six chapters examining elements of digital transformation and which aims to look for beyond the pandemic, discussing the innovations, changes and movements resulting from this forced global laboratory of distance learning. The series also brings together representatives from both online and campus-based universities in order to explore their different points of view and experiences to stimulate the debate. Albert Sangrà, who coordinated this publication and who is also curating the IAU-UOC series on behalf of UOC, raised an important question in the first chapter of the series, “Will the pendulum simply revert back to the state before the pandemic?” I join Albert in saying that I hope not. In this epilogue, I will present a few reasons why I believe that the base has been moved; that the pendulum

has already changed course and cannot simply revert back to its pre-pandemic state.

## **Responding to the different needs of different learners**

In the *Second LAU Global Survey Report on the Impact of COVID-19 on Higher Education around the World*, 87% of responding institutions confirm that they offer distance learning (Jensen; Marinoni; Van't Land, 2022). In contrast, the *LAU Global Survey Report on Higher Education in a Digital Era* (Jensen, 2019), based on data collected 1 year prior to the pandemic, showed that blended and online teaching and learning were very marginal in the majority of institutions. This illustrates that the area in which we have observed the most significant change in higher education during the pandemic is in teaching and learning. However, while teaching staff have done their utmost to continue to provide higher education despite constraints, it remains important to distinguish between *emergency* remote teaching and learning, and well-designed and planned online teaching and learning. One in four institutions reports that fewer than 25% of their teaching staff had experience with online or distance teaching and learning before the pandemic (Jensen; Marinoni; Van't Land, 2022). The situation is clearly different now, yet as shown throughout the chapters of this publication, designing distance education is, in many ways, different from designing face-to-face education. One of the key problems during the pandemic is that face-to-face education has been simulated in the online space, which is far from an optimal learning experience for students. The chapters in this publication

provide practical and easily-accessible recommendations on how to succeed in designing online learning and to better grasp the differences between online and face-to-face learning. One of the lessons learnt is therefore that if the future is going to be blended, we must invest time in capacity-building for teaching staff to allow them to draw on the advantages of face-to-face learning when students are on campus and on those of online learning in cases where studying may be more effective from a distance.

Living in an increasingly digital world, we need different modes of learning in order to respond to the different needs of different learners. We need the flexibility that comes with online learning, where the learner has the opportunity to manage their time accordingly, to fit in with other responsibilities and commitments parallel to their studies, especially in a world where lifelong learning is becoming increasingly important. At the same time, we also need the social communities created by universities where young students come together to exchange ideas, create social bonds and develop beyond the curriculum as individuals. Many students have been suffering from isolation when studying at home – we therefore also need to acknowledge that universities represent more than just the credentials that students take with them when they leave, particularly for the younger student population. More than simply providing the physical setting for formal teaching and learning, universities also create a safe and responsible space for forming young people as they support them in their transition from a world of education and learning to a world of work and learning.

The question, therefore, is not a choice between face-to-face or online learning, but rather how to enhance the use of different modes of learning. What is common to all despite the

different modes of learning, is that what counts in the end is not the mode of learning but rather the quality of the learning process, taking into consideration the needs of the learner and the specificities of the discipline taught.

## **The mainstreaming effect of the pandemic – a new starting point**

A rather positive outcome of the pandemic is the number of responding institutions (42%) reporting that crisis management during the pandemic greatly enhanced transversal collaboration within higher education institutions (Jensen; Marinoni; Van't Land, 2022). Prior to the pandemic, innovations in digital transformation were often driven by innovation hubs or centres within the universities and this often concerned a limited group of staff. The pandemic experience has created a new starting point for conversation and exchange, as the entire higher education community from leadership to administration, from teaching staff to students, has been affected by the pandemic. Everyone has had to adapt to an ever-evolving situation, rethinking or reorganizing their working processes and tasks and moving to reliance on digital technologies for communication and outreach. This does not necessarily imply that these new ways of operating should be maintained beyond the pandemic, but it offers a new starting point for assessing and evaluating what works and what doesn't; the pandemic has forced the entire higher education community into a huge global laboratory of digital transformation. There is certainly no one-size-fits-all solution, but there is a new starting point for discussing digital transformation of higher education

from the institutional perspective. This is what I categorize as the mainstreaming effect of digital transformation. Even policies and regulations at the national level have been changed in some countries to adapt to the changing context. As *Life is understood backwards*, it is now time to learn from this process and discuss how we wish to shape the post-pandemic world, informed by the lessons learnt. These conversations now have the potential to be much more inclusive across institutions compared to prior to the pandemic, yet we must invest time to discuss these lessons.

## **An open door for more inclusive collaboration**

The essence of the mandate of the International Association of Universities (IAU) is to facilitate collaboration among higher education institutions globally. Over the 70 years of existence, we have been confronted with barriers linked to funding and visa procedures when organising global in-person events or meetings. While I believe that we still need to continue to offer in-person meetings and events at the global level, we are again at a new crossroads in time, where universities across the world have become more familiar with using digital meeting rooms. This offers new opportunities for more inclusive collaboration among universities, as it is possible to meet and exchange beyond borders – provided, of course that you have the devices and necessary access to the internet. It can be explored in teaching and learning through Collaborative Online International Learning (COIL), through collaboration among peers from institutions in different countries, and through international collaboration in research. In this respect, it is worth mention-

ing that the 193 Member States of UNESCO will adopt a new normative instrument in form of a Recommendation on Open Science in November 2021, which is a step towards democratizing access to knowledge in our common pursuit of solutions to the challenges of our time through collaboration – although it is a complex process. So, while the measures at hand during the pandemic do not fully replace the value of in-person meetings and events and academic mobility, they still offer a complementary space for more inclusive and international collaboration.

## **The ethical dimension of data**

The first three changes highlighted some of the positive developments that we observed as a consequence of the pandemic. The last two, on the other hand, represent some of the most important challenges ahead in order to achieve a fair, transparent and inclusive digital transformation of higher education.

Increasing the use of digital technologies in higher education also entails an expansion in the generation of digital data; data on students and learning, lectures and electronic interaction among staff and students, various formats of information that can be shared, disseminated and analyzed. Moving forward, it is therefore crucial that we think about how we use and make use of the data and that those who contribute or provide the data are aware of how the data is used, as is covered in Chapter IX of this publication. Higher education institutions hold the dual responsibility of educating students to understand how their digital interactions leave digital footprints and data. On the other hand, higher education institutions must also have solid privacy

policies to ensure transparency and accountability. This is far from a simple balancing act, and it is entangled with questions of data propriety when using private service providers for tools and platforms for learning. Yet, in this state of change, we have the opportunity to exchange and discuss how to create a safe and fair online space for the entire academic community. Debates around ethics and norms must be at the centre of this discussion.

## **Building bridges in a world of inequalities**

The question of inequalities is the most difficult one of all to be addressed as, despite a certain progress, it remains a long-term issue. Prior to the pandemic, 58% of institutions in Africa reported that unreliable internet was the main obstacle to pursuing digital transformation of higher education, against only 5% of respondents in Europe (Jensen, 2019). The pandemic has served as a magnifying glass, highlighting inequalities in higher education during this pandemic. The *First IAU Global Survey Report on the Impact of Covid-19 on Higher Education around the World* showed that 24% of responding institutions in Africa cancelled teaching and learning altogether; in other world regions this only concerned 3% (Marinoni; Van't Land; Jensen, 2020). We see disparities across regions, within countries and within institutions. Distance learning requires access to the internet, data and devices, as well as the necessary competencies to make use of them. This has become the main way to access information, but it is a very unequal path which is compounded by profound differences in terms of opportunities to take part in and contribute to knowledge society. This is a problem that cannot be solved

by the higher education sector alone, yet we must reflect on the impact of these knowledge divides and address them through international collaboration. This is a global responsibility in an increasingly digital world, as also stated by Sangrà in Chapter I.

## Conclusion

Not many things are certain at the moment, except the fact that the future is uncertain. This is exactly the condition that students face when leaving university and entering the world of work. It is therefore our responsibility to educate our students to learn how to learn, to navigate complexity, to apply critical thinking and to question information sources, to be able to distinguish facts from disinformation and opinions. We are living in an increasingly digital world that comes with challenges as well as opportunities – the opportunity before us today is to build on the experience gained from the pandemic and to actively shape the digital transformation of higher education as we move forward. To answer Albert's question regarding whether the pendulum will simply move back to its initial starting point before the pandemic, I believe that it will continue to move, change direction and that the higher education community will rise to the challenges and continue to innovate. We owe it to students, both present and future, to continue in our pursuit of quality higher education through *innovative education for unshaped futures (IE4UF)*.

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## Epilogue II

# Towards hybrid or blended models more adaptable to our uncertain times

Albert Sangrà

*That's what it's all about; meeting people who make you see things you don't see.  
Let them teach you to look with different eyes.*

Mario Benedetti

Every effort will be made to ensure that the coming academic years can begin as normally as possible, in the sense that classes will begin in-person. This must be the case. No one doubts that school, at least, should be face-to-face, since it is also a very important space for socialization, especially at an early age.

The fact is, however, that we are not in a position to know what eventualities we are going to face, not only during the next school year, but for a period of time that is, at the moment, indeterminate. And if there is a circumstance, which is not at all desirable, of course, that students are unable to attend schools, it will be necessary for the schools to go to them. As we have said before, doing nothing is not an option.

This pandemic is far from over, and new outbreaks will probably happen, even if they force only partial lockdowns and their duration is reduced.

But even in the case that, for everyone's sake, an ultimate solution could be found, our society has to start designing more flexible educational models that could face uncertainty and unexpected situations in a better position and with a greater guarantee of success, too. It is in this context that the concept of *hybrid* or *blended educational* strongly emerge. The *hybrid*, *mixed* or *blended* con-

cept can be understood in many ways (Armellini; Padilla, 2021). From the possibility that the same student receives part of his or her education in person and the rest online (Vaughan; Cleveland-Innes; Garrison, 2013), to different groups of students, some in a classroom and others connected remotely (Beatty, 2019), to completely online models, in which they alternate synchronous moments of learning with asynchronous moments.

There is no single view of what is hybrid or blended. In the same way that we generalize, although there is a wide diversity of online education models, which depend on the way in which we activate or use their potential components, talking about hybrid or blended models is exactly the same, which, on the other hand, is also the case when we refer to face-to-face modalities.

There is, however, something that is decisive for the case at hand, and that is who can make the decision to apply one model or another. The design of most of the models has been carried out in situations of normality, where we could control most of the fundamental variables that make up such models.

It is not at all clear that this is the situation in which we will find ourselves. What will happen when our situation is not entirely normal or is very uncertain? What will happen when we are subject to the volatility of the situation? What will happen when we cannot decide for ourselves? Well, it will be necessary to establish the different possible scenarios within this situation of uncertainty, which will allow us to act accordingly, depending on how the conditions may alter the application of our educational model. Therefore, although hybrid models respond to situations in which the decision can be made to determine the face-to-face and the online parts that make them up, in our case, we are probably faced with a slightly different need: that of knowing how to

design programmes in situations that unexpectedly make face-to-face attendance impossible.

## **Towards discontinuous or intermittent in-presence models**

It is likely that during the next academic years we will have to face a *discontinuous or intermittent presence*. The course may begin face-to-face, but we will have to prepare for moments of intermittency through the online modality, and in which we will have to give full support to the students.

From there, it is necessary to start designing programmes that envisage the achievement of each skill or competence in the two different environments, face-to-face and online, and to establish the links that will make it possible to connect the activities carried out in one environment with the other. The discontinuous in-presence model is forced upon us by the impossibility of coinciding in space in a given period, probably of indeterminate duration. Faced with these moments of blackout, the abilities and foresight of our teaching staff will be key for to us to overcome the situation with flying colours, provided that the teaching team has the appropriate support and training. In these actions, we will always have to add a well-designed communication strategy, also aimed at the families so that they have all the information and it is easy for them to understand what we do and what their role is in this discontinuous in-presence modality.

Although many aspects that have generated a situation of educational inequality could be greatly alleviated with the application of the aforementioned strategies, we must not forget that

there are a series of essential conditions to be able to obtain a good performance from the virtual times of the discontinuous in-presence model. It is necessary to provide access to the Internet and to sufficient devices for all families, and to guarantee that the teaching staff has the necessary tools at home to sufficiently carry out online distance teaching.

## **Designing face-to-face and online times to generate a fluid transition**

The main objective should be to achieve a smooth transition between the face-to-face and the online moments. This fluidity will allow – unexpected – changes not to be experienced in a traumatic way, but in a natural one. The change and what it entails, when the result is known, will be assumed with greater serenity. This will allow us to reduce the emotional tension that uncertainty and unexpected situations produce among students, teachers and families.

We must design the face-to-face and online times as if they were a continuum, even if we do not know when one or the other will arrive. We should not design face-to-face and online moments separately from one another.

We urgently need to extend the concept of the *360° environment* to the digital dimension as well. Only then will we be able to make sense of the whole. It is necessary to link the face-to-face and the virtual, so that, when it is convenient, both flow quite naturally. It is very important that during face-to-face classes we teach and learn how to use the virtual environments efficiently, both for the teaching group as well as the students (students’

digital competence). It is important to keep in mind the principle that learning is not only what happens when the teacher is watching.

The usual result of putting this principle into practice is, for some, the concept of *flipped classroom*. But it is not exactly that. Firstly, because the flipped classroom has been decided by us in a normal situation, unlike this. Also, because in the online period, we should not limit the basic activity of students to reading or viewing content. Many other learning activities can be carried out online, individually or in groups: synthesis exercises, case analyses, virtual role-plays, debates, projects, and more. Previous chapters describe a good set of examples that will help us. The criteria for deciding which activities to use are given by their possibilities of interaction (face-to-face or online) and the motivation they can generate among students to get them involved. Obviously, in order to apply these methodologies in an online environment, teachers must be trained.

## **Managing time differently: a reasonable and sustainable distribution of synchrony and asynchrony**

Digital environments are much underused, especially with regard to the value they can bring to the educational process. To get the most out of them, the design must be developed from an online distance situation, from a completely different perspective from the way we have been doing it. When it is the other way around, the lack of experience in the online modality greatly limits the possibilities of design and execution of activities or

resources that the digital environment provides, because we think from a different point of view than the way we have been doing it, from a face-to-face and, therefore, limiting point of view. The use of synchronicity and asynchronicity is a good example of this.

Interaction cannot be exclusively synchronous, because maintaining it would be unsustainable. It is necessary to discover, value and apply asynchronous mechanisms in the design of programmes, understanding them as intimately interwoven parts in the flow of the educational process. Just like the moments of presence and non-presence, the moments of synchronicity and asynchronicity must also be designed simultaneously.

We must discover the potential that asynchrony holds for learning and value it as a mechanism that provides more agility and flexibility. It gives this to us and to students, allowing them to use the devices they have at home at different times, contributing to the redistribution of these resources. Asynchronicity must be learnt in order to use it during the face-to-face period, thus facilitating the fluid change of environments.

## **Redefine the organization**

Our educational institutions have been organized and dimensioned on the basis of face-to-face education alone. That is why it is often so difficult to transform them digitally. We now face the challenge of reorganizing our routines and our spaces, but also our non-spaces. To do this, we will have to act for and with teachers and students.

On the one hand, it is very important to support the development of students' autonomy and their capacity for planning

and self-regulation (Zimmerman, 2008). In fact, it is important to recover the concept of *developing students' profession as learners*.

This is the set of abilities and skills that allow us to get the most out of our own effort. We must reorganize ourselves to develop to the maximum, and not only on paper, the competence of learning to learn, and technologies can help us to do so (Rocosa; Sangrà; Cabrera, 2018). At the same time, we must ensure that they make their own the digital environment in which they will interact with their peers and teachers, and which they will share with their families at home.

On the other hand, many of the teaching staff have felt overwhelmed by the recent workload, both tangible and emotional, caused by the number of hours they have had to spend in front of a camera or responding to students' messages in real time. Many felt as if they were spending twenty-four hours a day, seven days a week attending to their class group(s). This cannot be repeated.

It is true that by learning and practising the aforementioned strategies, teachers' workloads will decrease. But that alone will not be enough. There is a misconception that online education is cheaper, because it works with fewer resources. This is not true. If you want to provide a quality online modality in a context of discontinuous presence, you have to assume certain costs that are strictly necessary, as well as assuming a certain degree of new organisation of learning.

Ratios must be adjusted to this new situation, so that teachers' working hours are redistributed, given that there are two spaces (online and face-to-face) and both must be attended to. Administrations should value the use of support teaching staff in these circumstances. For example, the possibility of creating new positions for teaching assistants in online contexts would be

an idea of great interest. This, in turn, would make it possible to prepare and train teachers for the future development of education in an increasingly digitalized society. Such a role should, in no way, be synonymous with precariousness.

In the same way, it could be considered that students doing internships should also do them online, supporting the teaching group that, in those specific periods, must work from home. In this sense, it is very important that the teachers of the future have internalized and experienced the digital reality, and that this is also done during their initial training period, which qualifies them for professional practice.

We certainly do not know what the immediate future will look like, but we do know that we will not be able to react in the same way as we have done now, because we have already been warned. Intuiting possible scenarios and designing models that can give them a response is the way that guarantees us better results. The assumption of the ideas set out above can allow us to move smoothly between face-to-face and online moments, without the learning process suffering as a result. We need long-term vision and a great capacity for analysis and conviction. Online education is on our side. Let's go.

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# IMPROVING ONLINE TEACHING

PRACTICAL GUIDE FOR QUALITY  
ONLINE EDUCATION

The COVID-19 pandemic has shaken the foundations of our education. From one day to another, our students found impossible to attend to educational centres, which have been closed due to the lockdown established in most of the countries. Unexpectedly, educational institutions have been forced to adopt emergency solutions, migrating towards remote teaching models, the unique solution to face the situation.

From this experience, education professionals start to reflect on whether online education can be a valid ally that allows the development of hybrid solutions in our educational systems. The answer is yes, but what has been done so far is not, strictly speaking, online education.

This book presents a series of proposals to improve online education and to be able to face future situations of discontinuous presence that may happen, due to possible new total or partial lockdowns. It wants to be a support tool for all education professionals who need or want to take full advantage of the transformative potential that online education can provide.

With this book you will learn about:

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- ✓ online education; ✓ collaborative learning; ✓ e-tivities;
- ✓ techno-pedagogical design; ✓ feedback; ✓ online assessment;
- ✓ critical digital attitude; ✓ networked collaborative teaching;
- ✓ social distance; ✓ remote teaching



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