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# How to establish a lasting covid-19 compatible teaching

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**Abstract – The sanitary crisis of covid-19 forces universities to provide distance teaching and learning. This paper discusses three approaches: i) replicating existing lectures on video, ii) comodal teaching with the division of student audience into groups for face-to-face and distance learning, and iii) blended learning with a redistribution of learning activities.**

## I. INTRODUCTION

The covid-19 crisis has brought distance teaching into the focus of nearly all universities. Within days or weeks, teaching staff had to modify their practice and use teaching modes that were unfamiliar to most of them. The result, named emergency remote teaching,<sup>1</sup> secured the end of the academic year, but a degradation of the quality was unavoidable. As a relief of the sanitary crisis is still not within short sight, distance teaching becomes the new normalcy in universities. The persons in charge of curricula must therefore decide how to transform the programs to cope with two apparently contradictory values: first, the health and safety of their students and staff; second the quality of teaching and learning. Having been confronted with this dilemma at my university in Paris, France, I share in the following my personal thoughts and arguments to build a lasting covid-19 compatible teaching.

Health regulations require social distancing and can easily be met by distance learning. Although excellent programs entirely remote are developed, distance learning does not fit all type of learners. In particular the average student population who is today at universities is used to face-to-face learning, and is not prepared to stay away from the campus. Their student life and interaction with peers is part of their learning experience and an important factor of their motivation. This is important for all study years, but particularly for freshman years. They come directly from High School where they were neither trained for distance learning, not prepared for autonomous learning. Teaching in universities during the covid-pandemic should therefore, as much as possible, include face-to-face sessions, in addition to remote teaching and learning. The way how to articulate both is challenging, and should be carefully considered. The most straightforward solutions might not be the best ones to maintain efficient learning.

## II. VIDEO-LECTURING

A simple way of distancing the teacher and the students is to place a camera and a screen in between.

The teacher is recording or live streaming his lecture, and the students are listening. This is appealing to many teachers because they only have to learn how to use the video equipment, and can then perform as they are used to do. However, by doing so, the quality of the outcome is usually very poor, even if the technical part (sound and image quality) is satisfactory. One factor is fatigue. In our former on-campus teaching, our students had usually different classes that add up to four to eight hours per day in a classroom or lecture theater. The transposition of the sessions with the same length in front of a screen is useless, students will not be able to pay attention over such a long time. This sounds of course evident to every teacher, and nobody would ever ask students to listen to him or her for so many hours. But another consequence is that teachers within a department must cooperate to make sure that on a day when they program a video session, their colleagues don't do the same.

Another drawback of video-lecturing is the lack of interaction.<sup>2</sup> The teacher loses the feedback from the audience, that he usually feels intuitively as a competent professional. This feedback is essential for the teacher to adapt his/her behavior, such as accelerating or slowing down, reexplaining or remotivating. In addition, students are left in the role of the passive receiver of content. Due to the isolation and anonymity in front of their screen, they are often adopting a consumerist attitude. Many are no longer asking questions or giving comments. Students who feel more comfortable to post a question in an online chat than in front of a lecture theater, do exist, but they are not the majority. The teacher must therefore build into his lecture sequences where the students are obliged to react. Audience response systems are a useful tool for that purpose and can bring some improvements. Another possibility is to cut long video lectures into short sequences, and insert quizzes, exercises or other type of work.

## III. COMODAL TEACHING

As soon as they recognize the importance of face-to-face teaching, teachers exclude the exclusive use of video lecturing. The idea of comodal teaching appears rapidly. It means that some students are

TABLE I. MICROPLANNING OF COMODAL TEACHING SESSION<sup>a</sup>.

Time	Content	Teaching and learning activities		Management and equipment required
		Teacher	Student	
	<i>Indicate learning outcomes of the session</i>	<i>Indicate the activity of the teacher DURING the session</i>	In class: <i>Indicate the activity of the student present in class DURING the session</i> At distance (Synchronous): <i>Indicate the activity of the remote student DURING the session</i> At distance (Asynchronous): <i>Indicate the activity of the remote student DURING the watching of the recorded session</i>	<i>Indicate all operations and productions by teacher and students, and the equipment required</i>
			In class: At distance (Synchronous): At distance (Asynchronous):	
			In class: At distance (Synchronous): At distance (Asynchronous):	

<sup>a</sup>. Translated and adapted from U Laval.

present together with the teacher in a room, and others are following by video, either at the same time (live streaming) or later (recording).<sup>3</sup> The concept is well established and in use for instance at institutions with more than one campus, or to accommodate student populations with significant commuting.<sup>4</sup> The University of Laval has offered comodal teaching with a free choice by each student.<sup>5</sup> They can decide individually if they prefer to come to class, or watch it synchronously or asynchronously from home. Comodal teaching is challenging for the teacher, because it is necessary to consider three different audiences (on site, synchronous at distance, asynchronous at distance). For instance, usually the teacher is the only person with a microphone. Questions from the audience in the classroom are not audible for remote participants, and as a minimum the teacher must repeat them before answering. At the same time, he/she must keep an eye on the broadcasting system to see if any questions come from remote participants. Similarly, a live discussion in class is very interesting for those on site. They can confront their ideas and conceptions with their peers, and the teacher can directly intervene. Remote students will only be able to participate if they are connected in real time, all people in the room use a microphone, and a moderator distributes speech time equally between the on-site and the distant participants. Asynchronous remote students are left behind, because watching a discussion passively does not give the same learning experience.

Teacher who want to switch to comodal teaching are therefore obliged to design a microplanning of their sessions that includes the content of their class, their own activity and what each of the different audiences is supposed to do. This can be done in form of a table as suggested by the University of Laval (Table I.<sup>6</sup>).

The University of Lausanne, Switzerland, recommends their teachers to include in comodal lectures every 12-15min an activity on Wooclap or similar audience response systems to maintain the engagement and participation of all students.<sup>7</sup>

The bottom line is that comodal teaching requires more investment from the teacher than setting up equipment for recording and broadcasting. Teaching sequences must be designed carefully beforehand, and some degree of multitasking is required during teaching.

#### IV. BLENDED LEARNING

Instead of dividing the audience into groups that follow on site or at distance, one might think of dividing the lecture into parts to be done face-to-face or remotely. Thus, it comes to blended learning.<sup>8</sup> Despite extensive literature and practice of blended learning, many teachers in higher education have not thought of it before the covid-19 pandemic. Most of us tend to reproduce teaching modes that we experienced and appreciated when we were students, and blended learning was rarely in place when nowadays academics were sitting themselves in the rows of lecture halls.

I often witnessed that teachers, when asked to move parts of their lecture to distance learning, were checking which of their chapters they want to keep face-to-face and which one can be done at distance, then looking for tools to efficiently transmit information abroad. This approach does not consider what it needs for the student to be done to acquire that content, i. e. it ignores learning activities. An efficient switch from face-to-face teaching to blended learning must therefore start by going one step back and reconsider the learning outcomes of the class. For each of the learning outcomes, there should be several learning activities possible to achieve them.

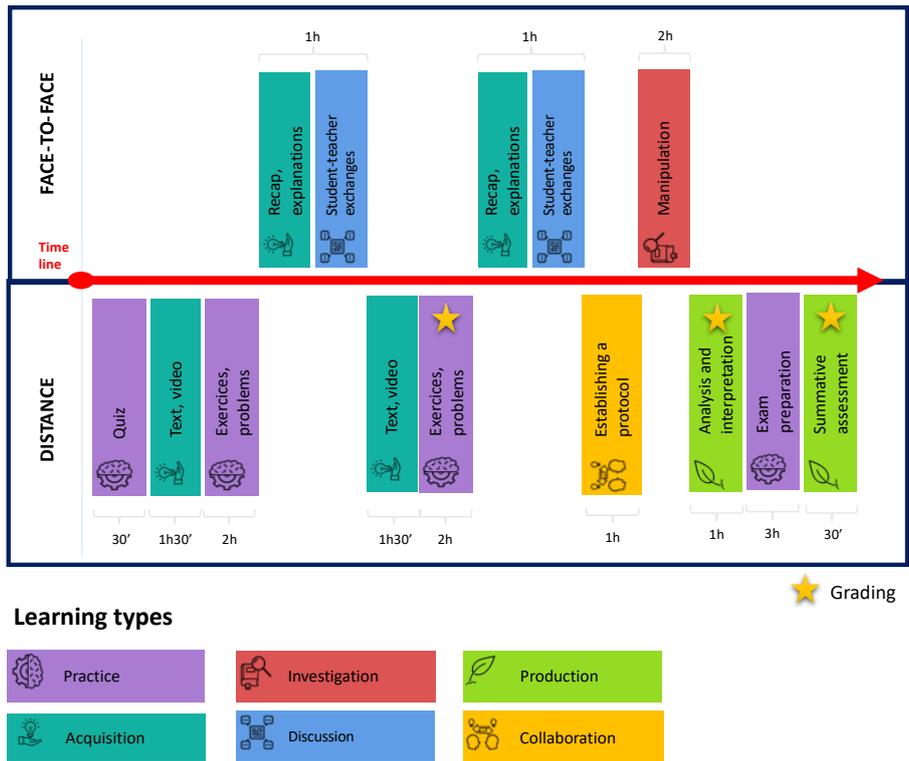


Fig. 1. Example of a distribution of learning activities between face-to-face and distance sessions.

The teacher should list them, and then categorize them according to where his/her input is the most valuable (supervision / autonomy), and when all students should work together at the same time or individually at their own pace (synchronous / asynchronous). Once this has been done, the teacher can decide what activity should be kept in class, and what can be done at distance. The decision should be made on a pedagogical base, not depending on technical considerations. For example, some learning outcomes can be met by group work. Students can work together in small groups when sitting together around a table in a classroom, but they can also work on a shared document (google docs, sheets and slides are just one example) while sitting each one at home. So, the type of work to be done does not justify in general the decision between face-to-face and distance learning sessions. The teacher must consider how his/her student population would behave. One might think that Freshman are less used to group

work on a new subject, and more easily distracted when not in class, whereas in graduate school or vocational training, the students are more autonomous, more self-guided and target oriented and are very well able to organize group work at distance.

In order to break down a course sequence with its set of leaning outcomes into learning activities, one might use the ABC Learning Design<sup>9</sup> that was developed by UCL, London and is now in use by many universities, including my own.<sup>10</sup> Learning activities are organized into six groups of learning types:<sup>11</sup> acquisition,<sup>[a]</sup> collaboration,<sup>[b]</sup> discussion,<sup>[c]</sup> investigation,<sup>[d]</sup> practice,<sup>[e]</sup> and production.<sup>[f]</sup> Within each group coexist learning activities with and without digital technologies. Teaching teams can combine learning activities of different types within a storyboard for their course or curriculum. Although the ABC method can be used for any teaching mode, it is particularly useful when switching from

[a] Learning through acquisition is what learners are doing when they are listening to a lecture or podcast, reading from books or websites, and watching demos or videos.

[b] Learning through collaboration embraces mainly discussion, practice, and production. Building on investigations and acquisition, it is about taking part in the process of knowledge building itself.

[c] Learning through discussion requires the learner to articulate their ideas and questions, and to challenge and respond to the ideas and questions from the teacher, and/or from their peers.

[d] Learning through investigation guides the learner to explore, compare and critique the texts, documents and resources that reflect the concepts and ideas being taught.

[e] Learning through practice enables the learner to adapt their actions to the task goal, and use the feedback to improve their next action. Feedback may come from self-reflection, from peers, from the teacher, or from the activity itself, if it shows them how to improve the result of their action in relation to the goal.

[f] Learning through production is the way the teacher motivates the learner to consolidate what they have learned by articulating their current conceptual understanding and how they used it in practice.

conventional teaching to blended learning. As an example, Figure 1 is showing how to rearrange a science class that originally had a lecture, a tutorial and a laboratory session into distance and face-to-face sessions. The overall working time for the student is constant, but the time of face-to-face sessions is reduced. During the covid-19 pandemic, this allows to organize smaller groups and ensure social distancing. After the pandemic, such a blended approach opens new possibilities for the organization of our curricula with less space-time constraints.

The teacher focuses his/her face-to-face interventions on those sessions where they are the most valuable, i. e. for explanations, discussions, or demonstrations. During the distance learning sessions, he/she is not absent, but the input is in form of the organization of the teaching material, and feedback to exercises.

## VI. REFERENCES

Last check of all links on 18/10/2020.

<sup>1</sup> C. Hodges, S. Moore, B. Lockee, T. Trust, A. Bond, "The difference between emergency remote teaching and online learning", <https://er.educause.edu/articles/2020/3/the-difference-between-emergency-remote-teaching-and-online-learning>

<sup>2</sup> This video demonstrates, with a smile, the need of personal interaction while lecturing: M. Chauvin, R. Fernandez, B. Gondouin, C. Gonzalez, M. Malzieu, M. Stef, "As it used to be", <https://www.youtube.com/watch?v=j15oZWRgiHs>

<sup>3</sup> Brian J. Beatty, Hybrid-Flexible Course Design : Implementing student-directed hybrid classes ; <https://edtechbooks.org/hyflex>

<sup>4</sup> <https://library.educause.edu/media/files/library/2010/11/eli7066-pdf.pdf>

<sup>5</sup> J. Gobeil-Proulx, "What do university students think about hybrid-flexible, or HyFlex courses?", <https://www.erudit.org/fr/revues/ritpu/2019-v16-n1-ritpu05061/1066594ar/>

## V. CONCLUSIONS

Increasing the part of distance teaching and learning as a response to the sanitary crisis can take different forms. Recording lectures on video is straightforward, but the pedagogical value is very limited. Comodal teaching is appealing, but it requires careful microplanning and places the teacher in the challenging situation to deal with different audiences at once. Blended learning seems to be a better choice. In order to redesign existing lectures, it is important to go back to the learning outcomes, and redistribute learning activities between face-to-face and distance learning, supervised and autonomous learning, synchronous and asynchronous learning. Only when this is done, one should think about the tools, digital or conventional, to be employed. Teaching support centers in higher education institutions therefore must not only provide technical guidance with IT, but also give individual support for learning design to go through the sanitary crisis.

<sup>6</sup> [https://www.enseigner.ulaval.ca/sites/default/files/microplanification\\_cours\\_comodal.docx](https://www.enseigner.ulaval.ca/sites/default/files/microplanification_cours_comodal.docx)

<sup>7</sup> Jean-François Van de Poel, Centre de Soutien à l'Enseignement, UNIL, oral communication 16/6/2020.

<sup>8</sup> J. Keengwe (Ed.), "Blended Learning Pedagogies and Professional Development in Higher Education", IGI Global, Hershey PA (USA), 2019.

<sup>9</sup> C. Young, N. Perovic, "ABC Learning Design method" UCL 2015, <https://abc-ld.org>

<sup>10</sup> Translations and adaptations of the ABC method: <https://abc-ld.org/download-abc/translations/>

<sup>11</sup> D. Laurillard, "Teaching as a Design Science", Routledge New York and London, 2012.