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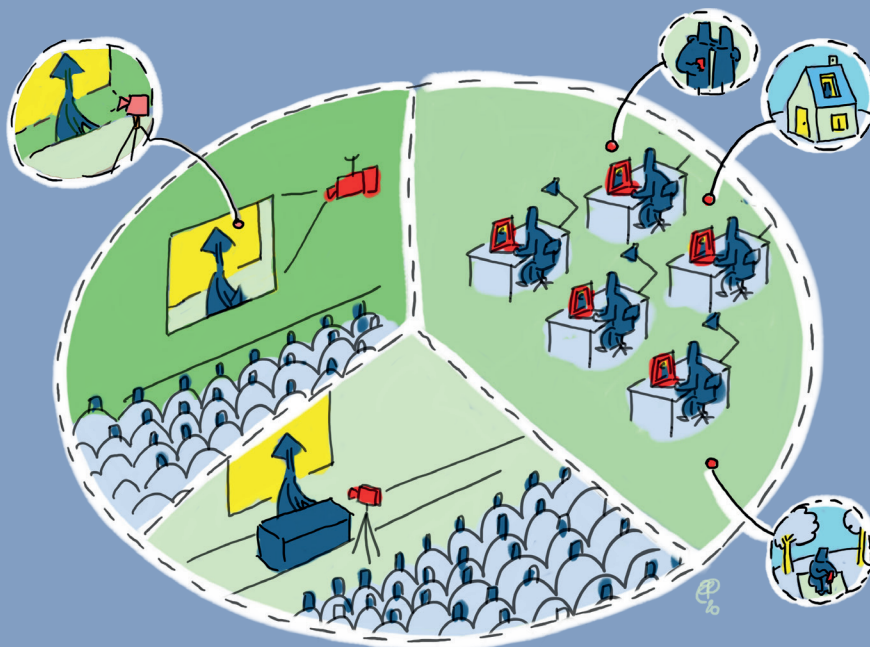
LOUVAIN  
LEARNING  
LAB

N° 12 *bis*– 2022

# Telepresence teaching (and learning)

**From the immersive  
to the virtual classroom**

Edited by Matthieu Petit and Annette Gourvil



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The Louvain Learning Lab (LLL) short guides provide an opportunity to keep track of the work of UCLouvain's teaching community in line with LLL's missions relating to supporting and promoting all parties involved in higher education.

With a view to collaborating with external partners, we have created a sub-collection of the short guide series, entitled *Les invités du LLL* (LLL Guest Contributors). This initiative allows us to include international studies that contribute to the University's missions by combining research data and experiments conducted in higher education institutions outside Belgium. We have had the pleasure of working with Annette Gourvil and Matthieu Petit on the first of this new series and our experience has underlined the value of embracing international collaboration on our short guides.

Our guest specialists have referred to specific situations that may differ from those at UCLouvain. You may also notice these differences in the illustrations or the vocabulary used. The booklet you have before you is intended for all teaching professionals, i.e. university lecturers and, more broadly, staff working in teaching establishments. We use the term "student" but the more inclusive term "learner" would also be appropriate. This guide may therefore be useful for instructors in all tiers of education.

What is telepresence? How do you attend lessons remotely? How do participants learn in a telepresence setting? How do you maintain a feeling of presence when teaching remotely? What do you need to look out for when teaching a class group remotely and synchronously? What interaction is possible between the students themselves and with the teacher? What are the possible learning outcomes? How do you assess the learning outcomes in this particular environment?

The answer to these questions can be found in this short guide and in its extended version, together with the theory, a number of approaches and learning perspectives you can try, and different ways you can reflect on your teaching practices.

Benoît Raucourt & Pascale Wouters, Co-editors of the LLL short guides

## **More than a short guide**

**In addition to the paper version, there is a fuller online version.**

Some of the content is not included in this guide but can be accessed online using QR codes. Scan the code to access more information in the form of videos, articles and other resources.

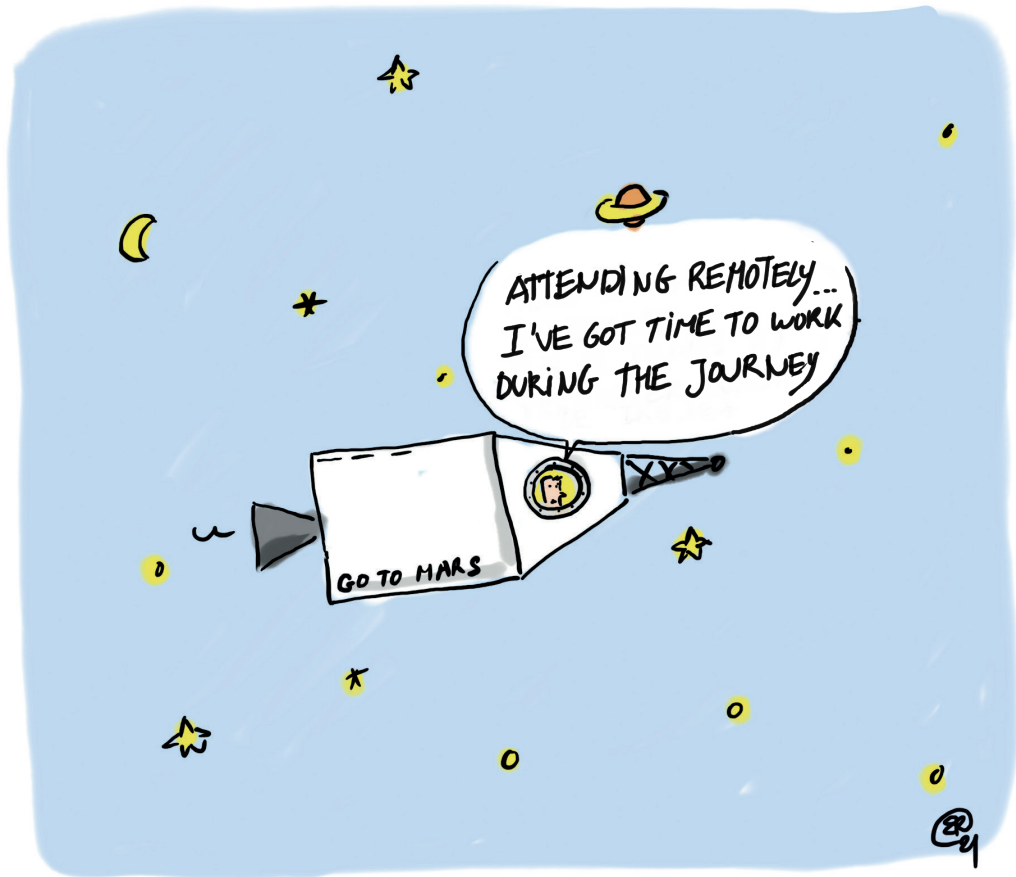


### **How to read QR codes**

Use your favourite app. If you don't have one, you can download an app such as "i-nigma" from the AppStore or PlayStore. Once installed, simply open it and scan the QR code.



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## Introduction

Initially designed for remote work and meetings in the business world (Lawson, Comber, Gage & Cullum-Hanshaw, 2010), video conferencing and web conferencing tools have been rapidly adopted by the education community, especially in higher education, since the early 1990s (Macedo-Rouet, 2009). Enabling a number of people in different locations to come together for synchronous discussions is one of the ways we can accommodate the gradual (and recently accelerated) emergence of remote and online teaching.

The massification and internationalisation of education has highlighted the value of these tools, which, thanks to technological advances, offer high sound and image quality. Their flexibility enhances accessibility and their functionality is conducive to learning, potentially even collaborative learning. The COVID-19 pandemic has resulted in lockdowns, reduced travel, and social distancing regulations, so the matter is extremely topical. Should such a crisis ever recur, we must be ready to ensure that teaching can continue.

Some universities and schools have not only created (or adapted) digital environments for distance and online learning, but also have interconnected classrooms (immersive or non-immersive) to offer bimodal teaching (both face-to-face and remotely). It is also possible to supplement in-person lessons with virtual classroom learning using a web conferencing system. Depending on the equipment it has in place, and its desired learning outcomes, the same establishment may have different telepresence systems so it can offer hybrid education.

Primarily aimed at teaching professionals, this short guide, which is documented by research – including output from the TOPIC (Telepresence as an Opportunity for Pedagogical Innovation and Conception) project (Meyer & Lameul, 2018) – is intended to offer practical advice to help teachers improve (and reflect on) their teaching practices and, most importantly, enable them to provide students with meaningful and diverse learning experiences with a telepresence element.

**Matthieu Petit**, *professor at Université de Sherbrooke and research associate of the CRIFPE (interuniversity research centre for teacher training and practice)*

**Annette Gourvil**, *director of Atelier Canopé 35, Réseau Canopé (former head of the Pedagogy and Innovation department at the Université Bretagne-Loire - UBL)*

## 2

# What is telepresence?



Suddenly (because of the COVID-19 pandemic), **remote working** has become a reality for a large number of people in different fields the world over. Even though remote working was already established in a few sectors well before the current global health crisis, many have had to rapidly adapt to working from home.

**Telemedicine** is seen as a way forward for medical consultations (and a promising solution to our over-burdened health systems), and **telepsychotherapy** is proving to be an effective way of offering psychological support, regardless of distance, while updating the clinical psychiatric model. In other words, tools that exploit the potential of technological progress enable people to be present remotely for clients or another audience.



## HOW ABOUT TELEPRESENCE IN EDUCATION?



## THE DEFINITION OF TELEPRESENCE

You may think of telepresence as a new concept (Ulrich, Mironov & Stingu, 2016), but it first appeared in the academic literature several years ago. According to Minsky (1980), futurist Patrick Gunkel invented the term to refer to the use of remote-control tools. So, telepresence relates to **a person's ability to live and operate in a remote environment as if they were physically present in that location.**

The concept was then linked to the **feeling of presence in a virtual or mediated environment** (Lombard & Ditton, 1997). According to Westerman et al. (2012), people do not always accurately acknowledge the role of technology in explaining their psychological state in this **"third place"**. Meyer (2015) goes on to forge a link between telepresence and teaching to apply the concept to **an educational experience bringing learners together rather than to an individual psychological state.**

Telepresence in teaching is therefore about new ways of putting technology into schools, and new ways for the schools to connect with different communities. Estes et al. (2014) point out that **telepresence paves the way for collaborative teaching methods**, while guiding the use of digital technology by those who are studying remotely or online.



The prefix tele means "far away", "at a distance"



*[A] feeling of transportation into a physically visualized virtual environment.*

(Lee, 2004, p.30)

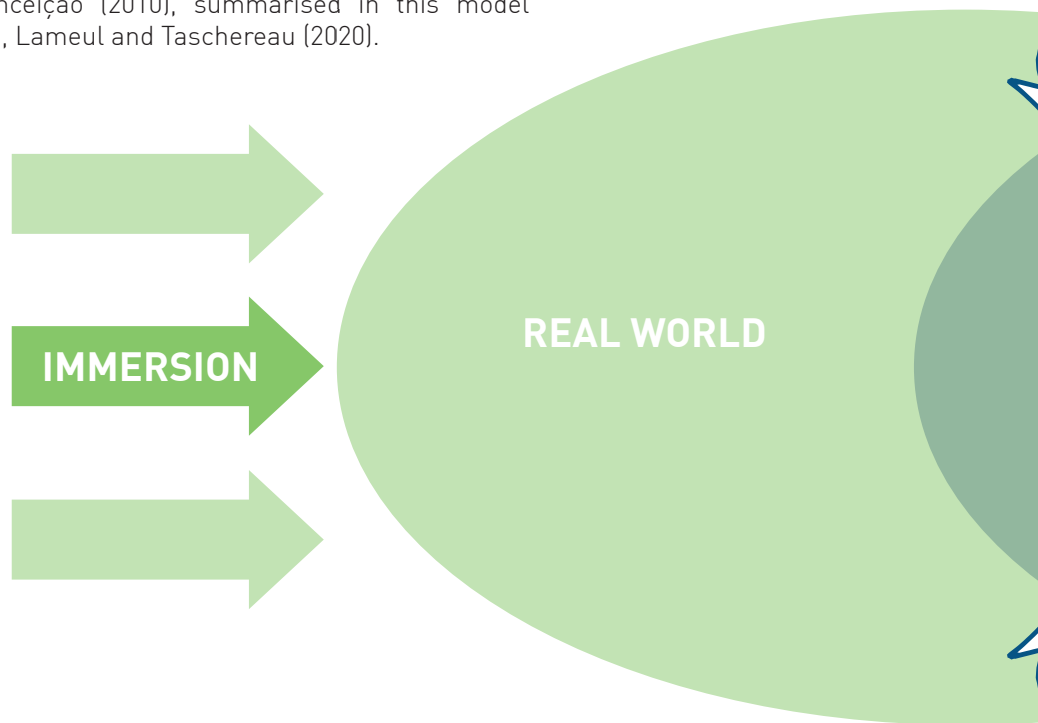


View the publication Telepresence in training,  
edited by Rinaudo (2018)



## 2.1 Telepresence in teaching

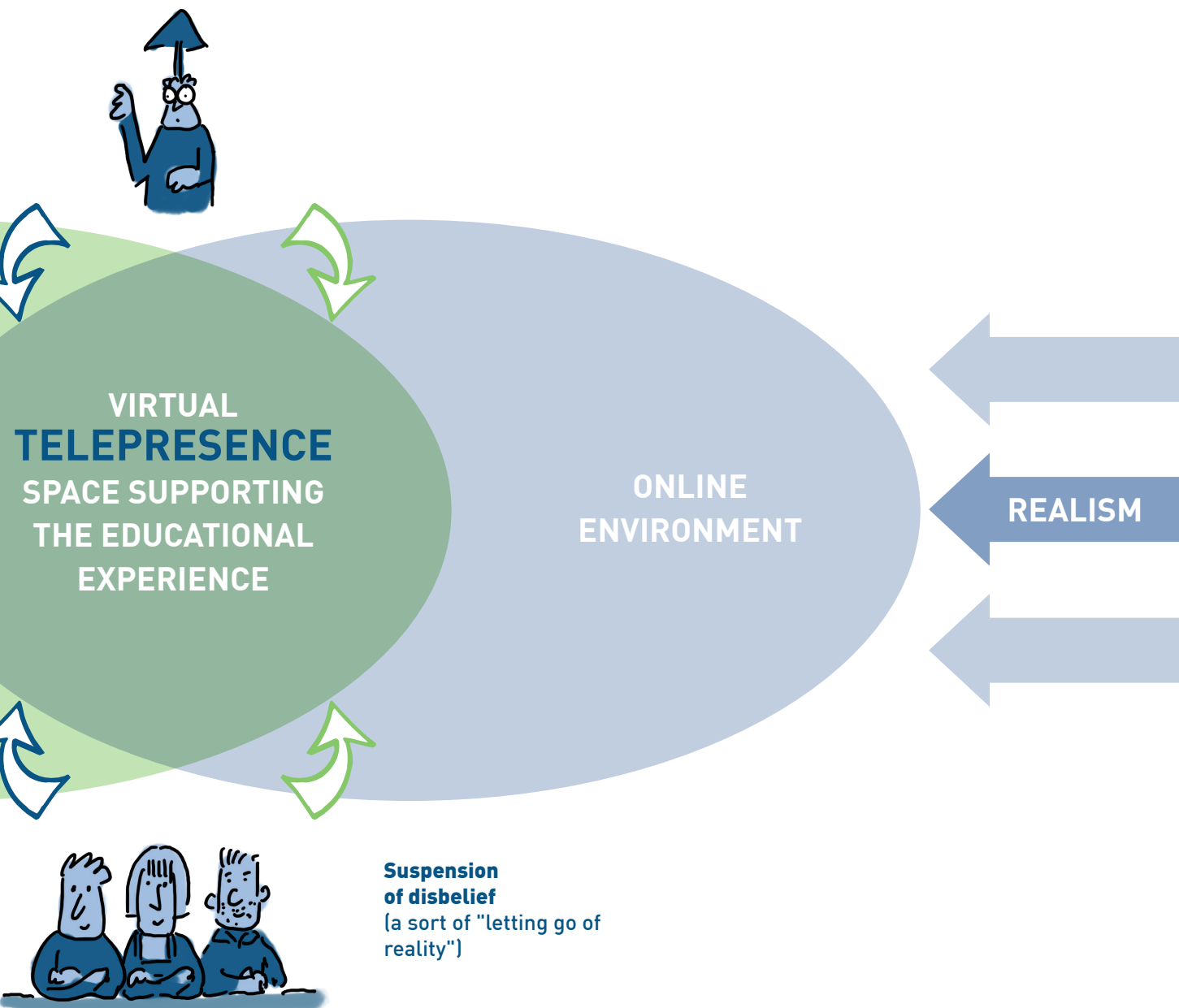
In education, we can use technology to create this psychological state (or collaborative experience), which can be associated with the feeling of "being there" or even "being together", thereby enabling teaching and learning in a virtual telepresence space that can be accessed via the different presence strategies of Lehman and Conceição (2010), summarised in this model developed by Petit, Lameul and Taschereau (2020).



Scan for a systematic review of papers on telepresence systems by  
Petit, Lameul and Taschereau (2020)



**Participation**  
(through personal and  
interactive engagement)



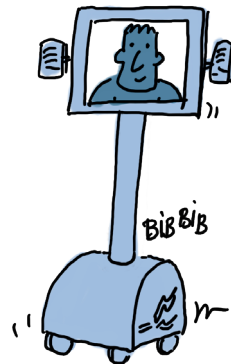
## 2.2 Telepresence teaching tools

### TELEPRESENCE ROBOT

Video conferencing system mounted on a mobile robotic base that can be controlled remotely.

#### SPECIAL FEATURE:

The robot can navigate distant locations and even **manipulate objects remotely** (Tanaka, Takahashi & Morita, 2013).



Here are some technologies that offer control and an enhanced media experience, the interactive elements (Steuer, 1992) needed for telepresence.

### VIRTUAL TELEPRESENCE

Virtual reality telepresence offers a particularly convincing feeling of being in a remote digital place and not your actual location.

#### SPECIAL FEATURE:

Immersion in a mediated environment relies on what you see, hear and feel (Lee, Wong & Fung, 2010). Virtual reality provides an **enhanced sense of realism** and, through this, a greater sense of presence as compared to non-3D environments (Dalgaro and Lee, 2010).



Using a telepresence robot in a university environment –  
Université Laval (Canada) [Video]





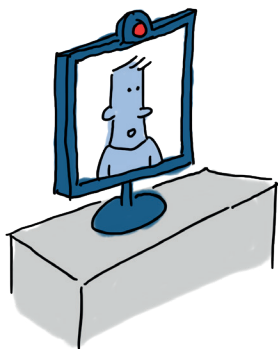


## HOLOGRAPHIC TELEPRESENCE

Projection of the hologram of a person who is not physically at the projection site.

### SPECIAL FEATURE:

Students can hear and see the image (possibly full length) of a "**virtual teacher**" who can be at a significant distance from their home or educational institution [Aman et al., 2016]



## TELEPRESENCE (OR VIRTUAL) CLASSROOM

Video conferencing or web conferencing system with audio and video that can overcome the obstacles of distance. Students can hear and see a teacher who is physically distanced from them via their computer or a screen in a classroom with the necessary audiovisual equipment.

### SPECIAL FEATURE:

The teacher **can also hear and see everyone taking the lesson** and interact with them.



In this short guide, we will talk about three types of virtual telepresence spaces that can be used for synchronous (real-time) remote teaching:

1. THE IMMERSIVE CLASSROOM
2. THE VIDEO CONFERENCING CLASSROOM
3. THE VIRTUAL CLASSROOM

Using virtual reality in teaching: a mining course in Quebec [Video]



Using holograms in teaching [Video]



1. THE IMMERSIVE CLASSROOM

There are students **physically present in the classroom and others tuning in remotely** (from other immersive classrooms). The sub-groups can hear and see the teacher on a big screen (1:1). Several types of immersive classrooms can be found on the campuses of higher education institutions.

Here are a few examples (and descriptions):



© GIP Numérique de Bretagne

EXAMPLES



Digital lecture hall	A large-capacity lecture hall equipped with big screens to show the remote sites and project content. Cameras are installed to film the person on the stage and the audience in the room.
Immersive telepresence classroom	Small room with big screens to project the people at remote locations in true-to-life dimensions (see photo); the excellent sound quality enhances the immersive experience.
Telepresence classroom	Classroom that can accommodate approximately ten people. Equipped with screens on which the people at remote locations are projected in true-to-life dimensions and can be heard clearly.
Tele-teaching classroom	Classroom that can accommodate between 15 and 30 people. Equipped with a projection panel and an interactive whiteboard. One camera is placed between the two to film the classroom and a second camera is placed on the opposite wall to film the teacher
Telemeeting room	Room that can accommodate approximately ten people, set up to facilitate collaborative meetings. Could be suitable for some types of teaching.
Tele-conferencing pods	Video conferencing alcoves providing high-quality internet access for online collaboration in small groups.



The C@mpus Numérique de Bretagne (France) website has a map of all these facilities at its different campuses: [campusnumerique.u-bretagne.fr/localisation](https://campusnumerique.u-bretagne.fr/localisation)

## 2. THE VIDEO CONFERENCING CLASSROOM

Immersive systems are not the only telepresence option for teaching in the classroom and remotely at the same time!

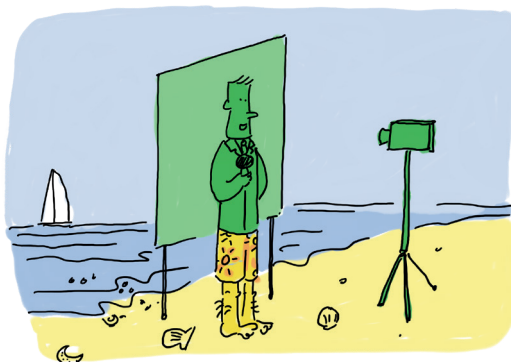
**Video conferencing** equipment can be found in **specially adapted rooms** with cameras, mics, speakers and televisions (no 1:1 option).

There are many different types of **video conferencing rooms**. Here are three of them:



© UdeS

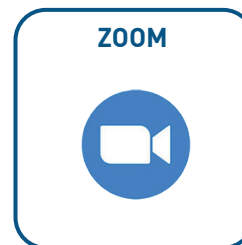
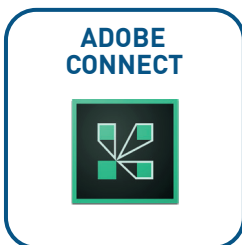
<b>Classroom</b>	Traditional classroom with desks for the students, a mic for each pairing and a desk in front (see photo).
<b>Meeting (or thesis appraisal) room</b>	Room with a central table (with a mic) that can be used for teaching in small groups or for panels (thesis appraisal, for example).
<b>Conference (or event) room</b>	Large-capacity room where the audience faces one or more large screens and a conference lectern.



➤ For a comprehensive list of the video conferencing rooms (plus photos) in the Audiovisual department at Université du Québec à Montréal (UQAM) (Canada), visit: <https://audiovisuel.uqam.ca/ressources/salles-videoconference/>

### 3. THE VIRTUAL CLASSROOM (OR WEB CONFERENCING)

Students tune in to **virtual classrooms** online using the **webcam** on their computer. It is a mediated environment that enables synchronous remote teaching. There are a number of **web conferencing** software solutions that can be used for virtual classrooms. Here are some of them:



The virtual classroom enabled me to see another side to my job as a teaching professional, and to change my perception of it. I used it as a professional development tool, which led me to revise the format of my face-to-face lessons because remote teaching made me aware of a number of things. This was a real plus for me, and I can honestly say that I didn't expect it...

*Christelle Lison – Université de Sherbrooke Professor*



The teaching innovation laboratory at Université de Genève (Switzerland) has a series of short texts by prominent people working in higher education (including Christelle Lison) about e-learning in Covid times (in French): [lip-unifr.ch/infox-sur-le-e-learning/](http://lip-unifr.ch/infox-sur-le-e-learning/)

## VIRTUAL CLASSROOM FEATURES

In addition to verbal and non-verbal discussion via web conferencing, virtual classroom software has different chat, collaboration and learning enhancement features. Here are some of them:

- ✓ Presentation and sharing of content (using PowerPoint, images, etc.)
- ✓ Chat (public or private, between peers or teachers)
- ✓ Discussion spaces where participants can work in sub-groups using web conferencing
- ✓ Screen-sharing and interactive whiteboard
- ✓ Polls and quizzes
- ✓ Emoticons (to indicate absence or approval, raise a hand, etc.)



*Pedagogical needs for the collaborative [focus] on a desire to retain a student-centered problem-based learning approach when separated geographically.*

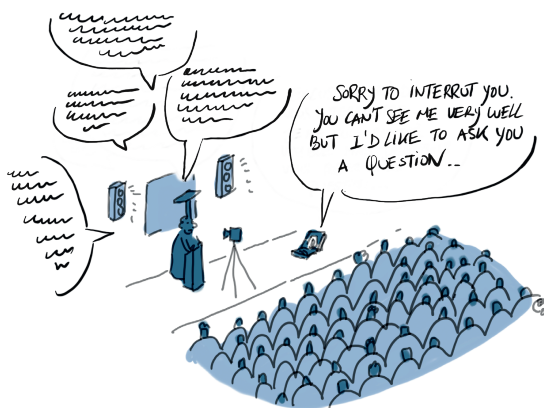
(Estes et al., 2014 p. 97)



## The virtual classroom and bimodality

Teaching in an immersive or video conferencing classroom is considered to be bimodal because a lesson can be taught synchronously to learners present in the classroom (with the teacher at the educational institution's main site) and others off-site (at one of the remote sites).

### ➡ WHAT HAPPENS IN A VIRTUAL CLASSROOM?



A virtual classroom allows people who cannot attend in person (perhaps those who are isolating in the current Covid context) to take a class in an immersive or video conferencing classroom from their own computer, using their webcam. The challenge is to incorporate the virtual classroom (and its features) in such a way that the system offers **some sort of visual point of reference** for both the students in a remote location and the teacher (Turán et al., 2012). The virtual classroom can therefore be used **in addition to** the other telepresence tools.

To enable some people to get together physically (a bonus for collaborative activities and to encourage interaction), another option is **bimodal teaching using only a virtual classroom** without the need for access to an immersive or video conferencing classroom. A simple room with a multimedia projector can suffice if each participant brings a laptop with a webcam. It is, however, important not to rely too much on the immersive and realistic nature of this telepresence solution!

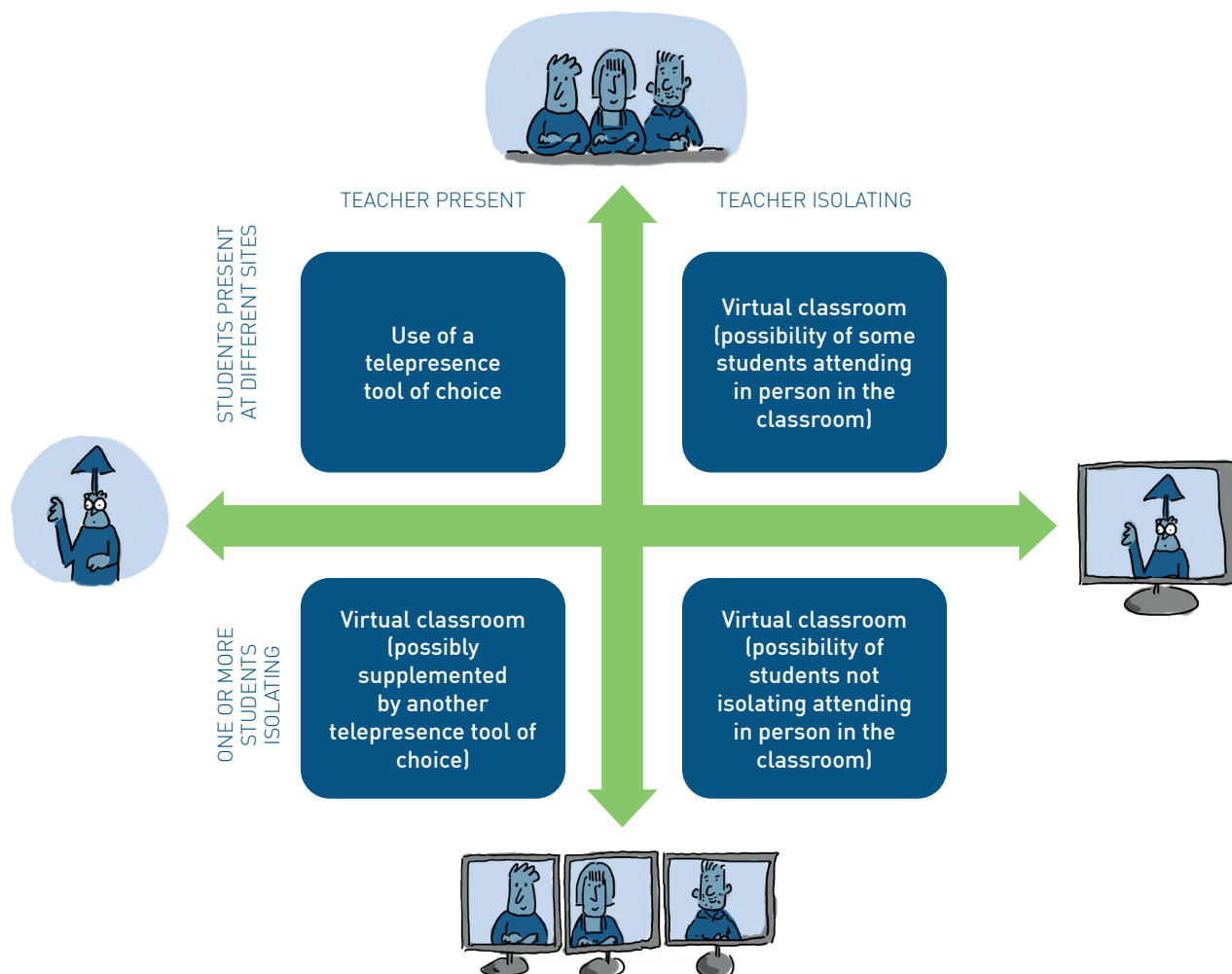


See the LLL short guide (only available in French) "Les espaces physiques d'apprentissage"; Section 1. Quels repères pour l'action?



## The virtual classroom and isolation

Of course, the virtual classroom has come into its own **for students who are isolating**, but sometimes it is the teacher who cannot enter the educational institution. Based on Coldeway's quadrants (Simonson et al., 2009), here is an illustration of some **telepresence and hybrid methods that have become necessary because of COVID-19**:



## Choosing a telepresence tool

Telepresence, video conferencing and virtual classrooms can all meet similar aims and needs, but they do not all meet the same criteria:

Tools / Criteria	Immersive telepresence classroom	Video conferencing classroom	Virtual classroom (web conference)
Cost and technical support	+++	++	+
Sense of immersion and video/audio quality	+++ 1:1 ratio	++	-
Flexibility and spontaneity when delivering a lesson	- Booking required	- Booking required	+
Ergonomics and ease of movement	+	++	-
Technical manipulations	++ For the students: -	++ For the students: -	+++ For the students: +
Bimodality (teaching simultaneously in classroom and remotely)	YES	YES	YES Perhaps used to supplement other tools
Asynchronous transmission (of recorded session)	YES	YES	YES
Work (and collaboration) among peers	YES Remotely and in person	YES Remotely and in person	YES Remotely (and possibly in person)
Student mobility and international reach	+	+	+++
Isolating and social distancing	-	-	+++
Number of students	Limited	Limited	Unlimited (almost)





The difference between unimodality, bimodality, co-modality and multimodality (p. 52 of the REFAD guide)



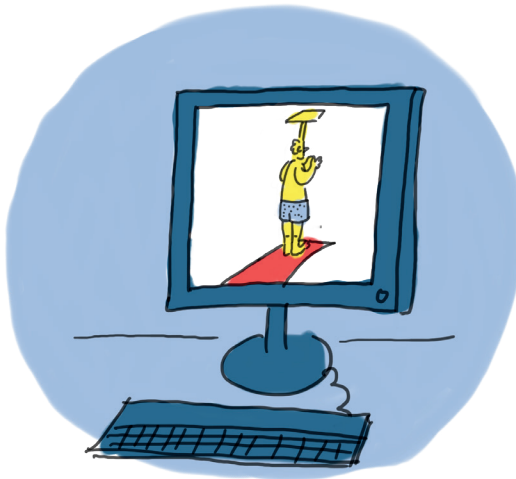
Scan for more comparisons between immersive classrooms and video conferencing classrooms



3

## How do I prepare for telepresence teaching?

Before venturing into immersive, video conferencing or virtual classroom teaching, it is important to ask yourself some questions and to analyse your situation.



### 3.1 Your pedagogical intentions

The concept of **constructive alignment** (Biggs, 2014) applies to all teaching, thus also to telepresence teaching.

- ⇒ Based on the knowledge to be acquired and the skills to be developed during your lesson, **do the intended learning outcomes lend themselves to telepresence teaching?**
- ⇒ If so, will your pedagogical intentions still be aligned with your teaching activities?

Note that some teaching activities will have to be adjusted to the telepresence system that is available because you cannot always choose which one you use. The system provided may not offer exactly the constructive alignment you need, so **sometimes you need to adapt your intended learning outcomes to meet the constraints.**



How do I prepare for telepresence teaching? Your pedagogical intentions  
See Section A4.2 of the Teacher's Handbook for a more in-depth look at constructive alignment (p.74)



## 3.2 Your students

Are they digital natives? There are no guarantees... Take the time to get to know the people who are going to share the telepresence experience with you.

### HOW WELL DO YOU KNOW YOUR AUDIENCE?

- How many people will take your course?
- Do they already know each other?
- Where will they be able to take your course from (home, a site far from yours, etc.)?
- Will this be their first telepresence experience?
- Do they have the necessary technical equipment (hardware, software, network)?
- Will they need digital skills to use the tools provided?
- What sort of problems might the students come across?

*Why not organise an informal chat with your group before the course begins?*

#### SCENARIO A (WINNING SCENARIO)

- Small group of people who know each other well and have already successfully taken a course by telepresence
- Access to an institution's telepresence system or other suitable technical equipment
- Adequate digital skills

Reality is likely to be somewhere between the two!



#### SCENARIO B (DIFFICULT SCENARIO)

- For several people in the group, this is their first course of this type
- People are spread out over a vast area without easy access to an institution's or their own technical equipment
- Limited digital skills



How do I prepare for telepresence teaching? Your students  
See Section C.1 of the Teacher's Handbook on how to improve digital skills (p.140)



### 3.3 Your own digital skills

We've looked at your students' digital skills, but how are yours? Telepresence teaching/ learning scenarios have an impact on teachers insofar as they develop multimodal interactional skills to help them engage their students.

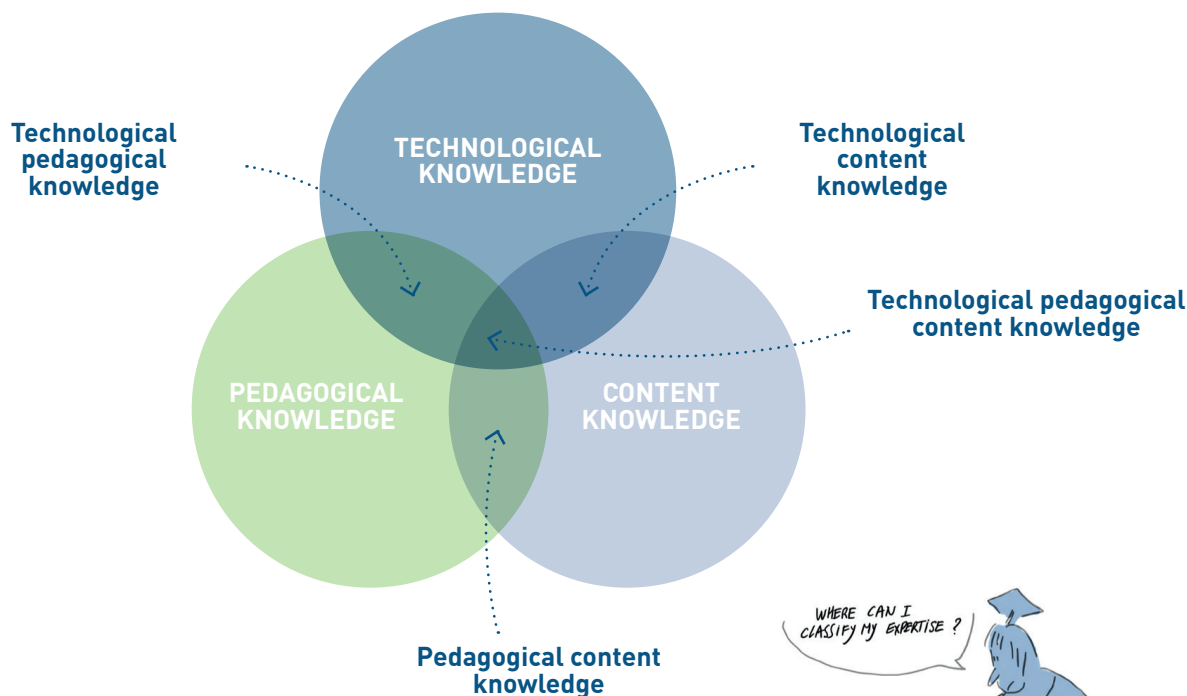
Guichon (2009) identifies **three skills for teaching using telepresence tools**:

<b>Techno-semio-pedagogical skills</b>	The ability to make appropriate use of the communication tools available and their associated methods, i.e. text, sound, image, time.
<b>Socio-affective regulation skills</b>	The ability, despite the distance, to establish and maintain an atmosphere that encourages all participants to contribute, even take risks, with ease in the virtual telepresence space.
<b>Pedagogical mediation skills</b>	The ability to devise activities that optimise the cognitive and emotional engagement of learners, and to stimulate online interaction that helps them develop their skills.



To create an environment for the students that is conducive to learning, content knowledge (concepts, theories, models, etc.) and pedagogical knowledge (class management, assessment, etc.) are not enough. Teachers will also have to improve **their own technological knowledge in order to adapt their teaching to a telepresence setting.**

The TPACK model (Koehler, Mishra & Cain, 2013) identifies these three categories of knowledge and the areas where they overlap.



Scan for an updated version of TPACK (Bachy, 2014)



## 3.4 Your teaching methods

Telepresence teaching usually requires you to review your teaching methods. Depending on the intended learning outcomes, you sometimes need to move from a teaching model (and mainly transmissive methods) to a learning model, using methods that are considered to be more active and interactive.

**This transition is especially relevant for telepresence teaching to:**

- ✓ better capture the attention of your audience, whether present in person or remotely
- ✓ place students closer to the centre of the action
- ✓ encourage interaction between the sites (and people)
- ✓ foster a sense of belonging to the class group
- ✓ avoid isolating the remote students

**To prepare to introduce more active teaching methods, you need to**

- ✓ create sub-groups according to the different sites (if applicable), including the remote students
- ✓ adopt a strategy to manage contributions and encourage participation by as many people as possible
- ✓ plan activities that foster interaction, such as problem-solving, quizzes, discussions, oral presentations, case studies, role play and projects
- ✓ use digital tools to facilitate collaboration

⇒ **SO, IF YOU HAVE NOT ALREADY DONE SO, ARE YOU READY TO MOVE AWAY (AT LEAST A LITTLE) FROM LECTURE-BASED TEACHING?**

➤ Section 3. How do I prepare for telepresence teaching? Your teaching methods  
See Section A5 (How do I involve my students?) of the Teachers' Handbook for a more in-depth look at active learning (p.81)



Here is a selected list of types of digital tools that facilitate collaboration and interaction, which you can familiarise yourself with in preparation for your telepresence teaching:

## EXAMPLES

### COLLABORATIVE WALL

example: Padlet ([padlet.com](https://padlet.com))

**NOT FREE**

Collaboration tool that enables you to create and share virtual collaborative walls to make knowledge-sharing more active or for brainstorming.

### MIND MAPPING

example: Mindmeister ([mindmeister.com](https://mindmeister.com))

**NOT FREE**

Online tool you can use to organise concepts (possibly synchronously), co-build, visualise, share, present organised ideas, individually or collectively.

### DISCUSSION FORUM

example : Slack ([slack.com](https://slack.com))

**NOT FREE**

Another online collaboration tool, which, like Slack, enables you to keep track of all the exchanges and split the conversations into sub-files to help you manage a project (or a class).

### VIDEO ANNOTATION

example : VideoAnt ([ant.umn.edu](https://ant.umn.edu))

**FREE**

Online tool you can use to invite members of a group (possibly the teacher and students) to add annotations, or comments, to an online video accurately and easily.

What digital tools are provided by your educational institution?  
Do you have access to training to help you use these tools?

Some basic functions of some digital tools are free.

## WATCH OUT FOR COGNITIVE OVERLOAD!

There are many digital tools that lend themselves to telepresence teaching but nothing is gained from moving too fast. It is also not recommended **that you switch over to too many of these tools for teaching purposes**. Students (with or without learning difficulties) have a limited capacity for processing information!

Furthermore, using digital technology must not widen the gap between those with means and those without. Do not take it for granted that everyone will have easy access to the technical equipment needed or a fast enough internet connection for a web conference.

Furthermore, using digital technology must not widen the gap between those with means and those without. Do not take it for granted that everyone will have easy access to the technical equipment needed or a fast enough internet connection for a web conference.





## 3.5 Your ability to handle the unexpected

When using a telepresence system, the images can freeze, voices can break up or even become inaudible, the content might not be shared as planned, etc. Are you someone who **always has a good plan B?**

PLAN B: you have an emergency number on hand and can contact technical support if needed!

PLAN C: you step up your role as facilitator and try to calmly handle the unexpected to keep everything going smoothly!

To pre-empt any technical issues, make sure you arrive at least 15 minutes before each of your lessons and most importantly, run some tests!

Here are a few examples of things that can happen out of the blue (and tips on how to handle them):

**You experience image quality problems**

*"Use non-verbal communication strategies and let your sense of humour show. This can help maintain a friendly atmosphere within your class group. If this happens, mention that the course is being recorded and will be available, if required."*

**Someone at a remote location cannot be heard so cannot contribute**

*"Offer them a more active role in the chat or in the discussion forum. Ask them questions to make them feel less isolated. You can also ask them to try to connect again. If possible, communicate with them after the session."*

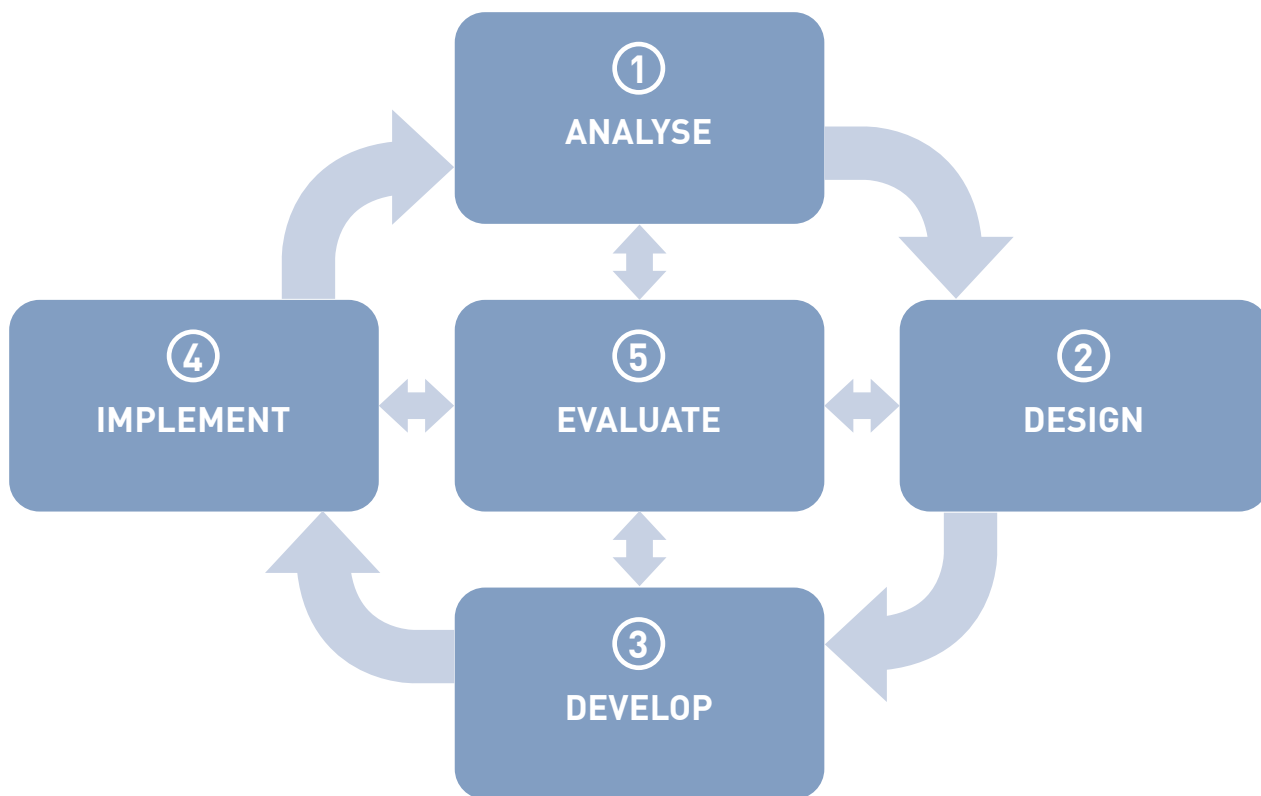
**The internet is just not working!**

*"As soon as internet access is restored, write to your class group to resume the course. If it is too late, offer an asynchronous version of the learning situations you had planned, perhaps in flipped classroom format."*



## How do I create a telepresence course?

**The instructional design model ADDIE** (Analyse-Design-Develop-Implement-Evaluate) [Gustafson & Branch, 2002] can help you create or adapt a course for a telepresence, video conferencing or virtual classroom.



➤ See Section A4 of the Teachers' Handbook about achieving learning outcomes (p.71)



①

**The analysis phase** involves collecting all the relevant information to ensure the constructive alignment of your course (the questions on the previous pages are particularly useful for this)

②

**The design phase** is where you design your course based on your pedagogical intentions, audience, skills, teaching methods, etc.

- What are the learning outcomes (knowledge to be gained, skills to be developed, etc.)?
- What methods and activities do you intend to use?
- What is the schedule for each of these activities?
- What digital tools will be used? Which specific features?
- What are your preferred feedback mechanisms?
- How do you plan to assess what has been learned?

③

**Development** is when you put into practice what has been previously designed

- When does the course begin?
- What stages do I need to go through prior to implementation?
- Do I need technical or teaching support?
- What are the technical department's requirements?
- Is all the material ready?

④

**Implementation** begins when your instructional activities go online (or your course begins)

- Does everything seem clear?
- What is new for the audience?
- Am I sufficiently available?
- What support measures are to be put in place?

⑤

**Evaluation of your course or instructional activities** is central to this iterative and dynamic process

- What worked well (and not so well)?
- What do I need to look at more closely?
- What information collection strategies will I use?
- For whom must I evaluate this course (or instructional activity) and what is the best way to present the evaluation?

5

## How can I be “present remotely” in a telepresence setting?

### 5.1 Community of inquiry model

A sense of community is important for the **learning, satisfaction and engagement** of students undertaking distance learning and, thereby, for their perception of remote presence.

The community of inquiry model developed by Garrison, Anderson and Archer (2000) is used to reflect on digital learning spaces. It distinguishes between different types of presence (and components) that offer **a more global and comprehensive view of the educational experience** within a communication medium.

#### TRANSACTIONAL PRESENCE

This aims to describe the learning support available for distance learning.

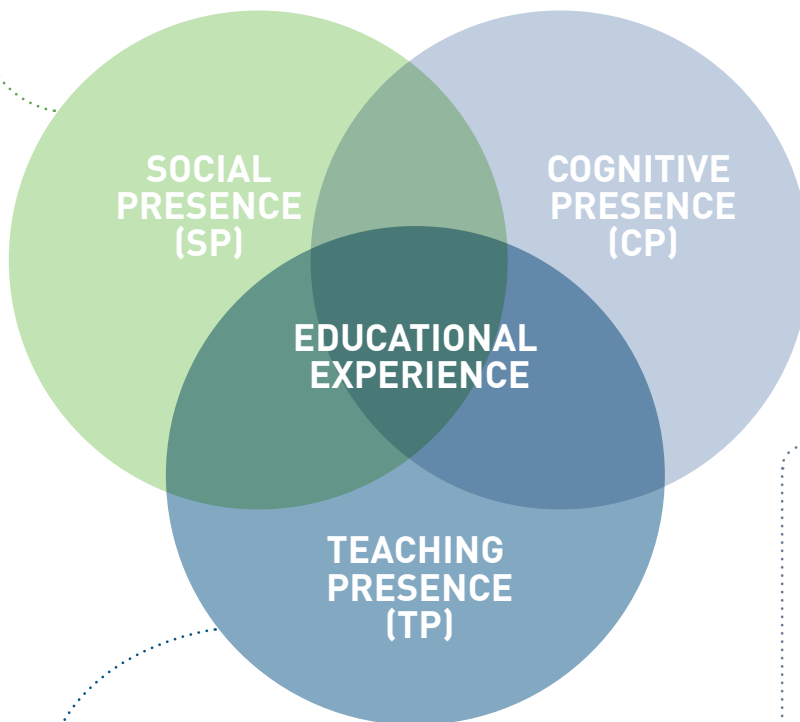
It is the extent to which students **perceive the availability of their teachers, peers and educational institution**, and how supported they feel (Shin, 2001).

Amongst other things, it is linked to the environment conveyed by the institution, including its academic reputation (Kawachi, 2011).



The ability of each participant to project their individual personality in the online community and present themselves to the others (and be perceived by the others) as a "real" physical person

- Emotional expression
- Open communication
- Group cohesion



The extent to which individuals are able to construct meaning through sustained communication and critical thinking in problem-solving situations

- Triggering events
- Exploration
- Integration
- Resolution

Visibility through engagement. Regardless of the digital space, each person (particularly the teacher) initiates communication, gives feedback, suggests material, encourages, stimulates interaction, etc.

- Design and organisation
- Facilitation of discourse
- Direct instruction

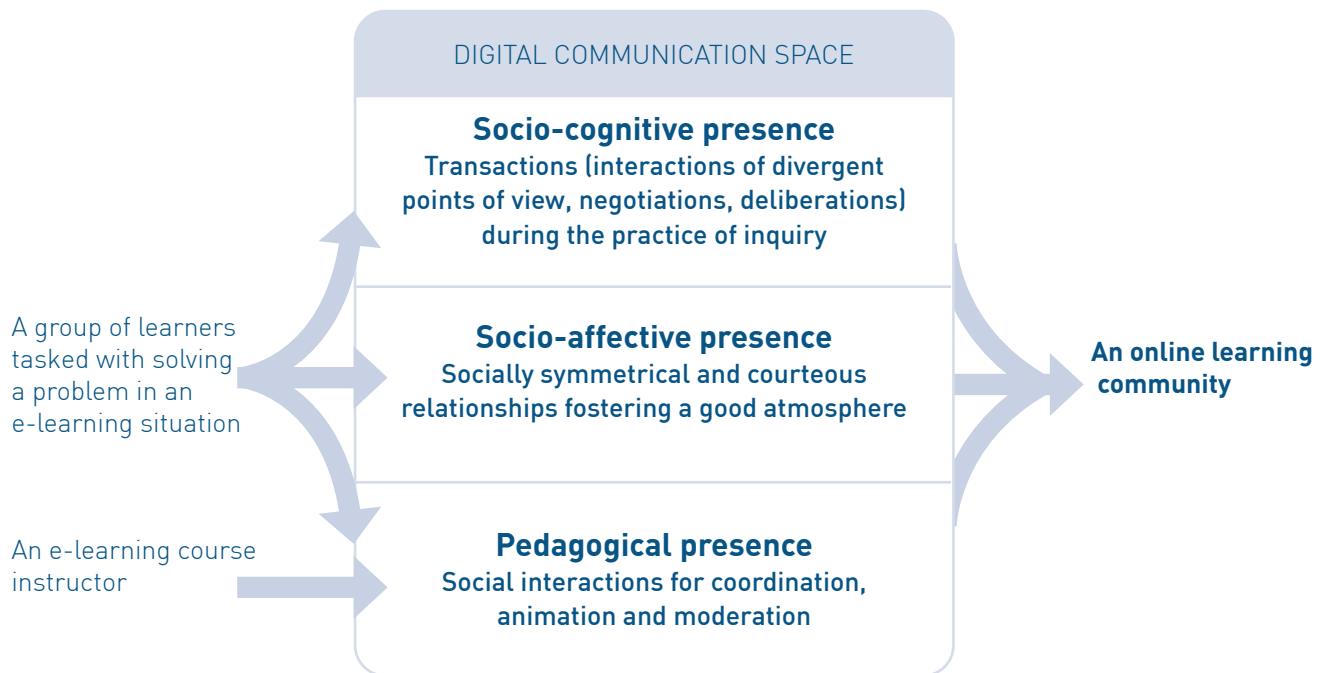


See a more detailed version of Garrison, Anderson and Archer's (2000) community of inquiry model



## 5.2 Presence in the e-learning model

Jézégou's (2010, 2012) model has three types of presence, which echo those of the previous model but are based on a different (more European) approach to social constructivism.



## QUESTIONNAIRE TO CHECK YOUR REMOTE PRESENCE



### Teaching presence/Do you give:

- ☒ clear instructions about peer interaction, submission dates, the length and content of the assignments set?
- ☒ activities that encourage shared understanding among peers?
- ☒ strategies to structure discussions with at a higher cognitive level?

### Cognitive presence/Do your lessons include:

- ☒ opportunities for discussion?
- ☒ problems or issues that require critical thinking?
- ☒ the use of a deductive approach?

### Social presence/Within your group of learners, do you try to encourage:

- ☒ team spirit?
- ☒ personal interaction?
- ☒ respect for the contributions/opinions of all?

### Socio-cognitive, socio-affective and pedagogical presences/

#### When you set situational problems, do you:

- ☒ give learners the opportunity to work with each other?
- ☒ encourage respectful social interaction?
- ☒ coordinate, facilitate and moderate the interactions?

### Transactional presence/From the instructional design and the discussions held, are students aware of:

- ☒ your availability?
- ☒ the availability of their peers?
- ☒ the educational institution?

## 5.3 Physical presence of the teacher

How should you act in an immersive or video conferencing classroom or in front of your computer's webcam?

Telepresence teaching is done through verbal interaction but your physical presence, such as glances, facial expressions and gestures, also plays a part. **Non-verbal behaviour is important and can help motivate and engage learners.**



*Because there is always an element of risk attached to online communications and remote learners may experience a sense of anxiety, it is important that the teacher pays particular attention to the psycho-emotional aspects of the online teaching relationship.*

(Guichon, 2017, p.56)





It is not a matter of becoming an actor with undue concern for their screen presence, but of being able to adjust the pedagogical regulations to the **affordances** (Jézégou, 2019) of the telepresence system. Here are some recommendations based on the work of Parra Garzon (2018):

- ⇒ Develop a close online relationship by sharing routines, emotions and even a few laughs;
- ⇒ Establish a communication protocol that requires, for example, that students ask to speak (without interrupting the person who is currently speaking);
- ⇒ Use verbal regulators ("Yes, OK, what you're saying is very interesting") AND visual regulators (a nod of the head) to express an interest in the contributions;
- ⇒ Make it clear to students that you have the time and patience to listen to what they say, encouraging them to contribute with confidence:
  - "Those of you at [name of site], what are your thoughts on this?"*
  - "If I understand correctly, you're suggesting..."*
  - "Do you think this is the most plausible hypothesis?"*
  - "And you at home? What have you learned from this activity?>>"*

## PHYSICAL PRESENCE OF YOUR AUDIENCE

As far as possible, pay particular attention to the non-verbal behaviour of your students (attending in person and remotely) because it reflects their cognitive and emotional mindset: not understanding, not paying attention, bored, hesitant, concerned, etc.

If you can identify the non-verbal behaviour of your audience, you will be able to:

- ✓ clarify the content
- ✓ make sure it has been properly understood
- ✓ better direct (or encourage) discussions
- ✓ offer your help



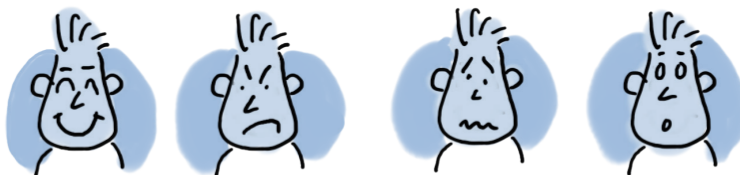
Read Sonia Proust-Androwkha's interview with Annie Jézégou to find out more about the concept of affordance



## RECOMMENDATIONS

### Physical presence in an immersive or video conferencing classroom

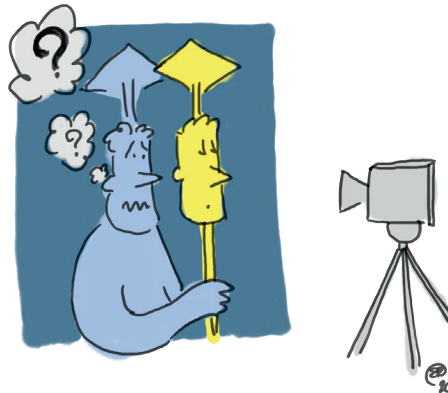
- ✓ From the start of the lesson, adopt a posture that says that you are addressing ALL the learners, those physically present AND those at a distance;
- ✓ Moving about is a good strategy in a normal classroom, but not necessarily in a telepresence classroom (even a standing position is not always recommended);
- ✓ Stay within the camera's range (as much as possible) and check from time to time with those at the remote sites that you are not off-camera (i.e. outside their framing limits);
- ✓ Alternate your gaze between the sites (your classroom and the remote sites) so that all the learners feel involved, regardless of where they are located;
- ✓ When students make a contribution, ensure that they are not off-camera and that all their peers can see and hear them. If necessary, ask them to repeat what they said.



## RECOMMENDATIONS

### Physical presence in a virtual classroom

- ✓ When speaking, sit up straight, look right at your webcam and place the images of your students immediately underneath to give the impression that you are looking at them "straight in the eye" (or almost);
- ✓ Lighting can make or break the quality of your image. To ensure the group can see you properly, adjust your lighting before you begin;
- ✓ Also adjust your webcam so that you fill most of the screen (and take a look behind you to see what the participants will see);
- ✓ For optimum sound, choose a quiet space and turn off your smartphone. Encourage your students to do likewise;
- ✓ If possible, don't wear large headphones that make you look like you are in a control tower. Use earplugs, possibly wireless;
- ✓ ...and most importantly, smile!

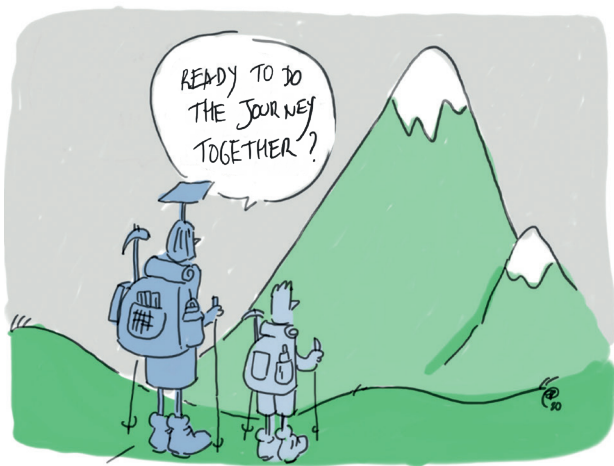


## 6

# How do students learn in a telepresence setting?

## 6.1 The learning presence

There are certain individual traits (**personality, learning style, motivation, etc.**) (Lafortune, 2018) that are conducive to telepresence learning, but one element is vital: the "presence of the learner" (Traver et al., 2014). Known as the regulatory presence (Kilis & Yildirim, 2018) or autonomy presence (Lam, 2015), it is one of the new roles that students have to adopt in such an environment, including the need to better self-regulate their learning.



### SELF-REGULATED LEARNING

Effort made by learners to manage the learning process and thereby achieve personal objectives (Cho, Kim et Choi, 2017). A proactive attitude (behaviour, strategies, emotions, etc.) is needed to develop their skills and ultimately succeed (Shea et al., 2006).



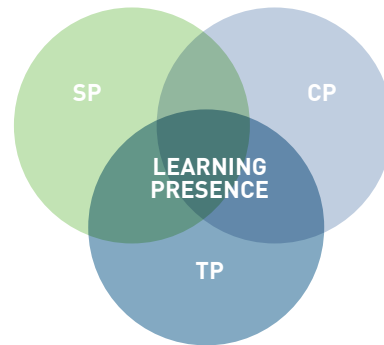
*Self-regulated learning refers to all processes by which subjects activate and maintain cognitions, affects and behaviours systematically oriented towards attaining a goal.*

(Schunk, 1994, in Cosnefroy, 2010, p. 13)





For Shea and Bidjerano (2012), this new category of presence relates to students evolving within the online learning community (Garrison et al., 2000). Furthermore, self-regulated learning is identified as a **moderating variable of the relationships between the teaching, cognitive and social presences.**



Cosnefroy (2010) believes that self-regulation of learning is possible if the students have:

- 1- sufficient motivation at the outset,
- 2- a goal to achieve,
- 3- access to self-regulation strategies (see below), and
- 4- self-observation skills.

### ATTENTION, MOTIVATION AND EMOTION CONTROL STRATEGIES

**Set an end goal:** identify why it is worthwhile pursuing, reinforce the performance goals, reward yourself

**Set an avoidance goal:** identify the consequences of giving up or failing

**Sustain a feeling of self-worth:** motivate yourself, break down the activities

**Control emotions:** do activities to relieve tension, seek support

### LEARNING ENVIRONMENT CONTROL STRATEGIES

**Create a structured environment:** the right layout and environment for the task

**Increase the number of available resources:** obtain additional information, review the task set to make it easier to tackle

**Plan your time:** anticipate and organise what you need to do



#### IMMERSIVE CLASSROOM

I found the immersive experience interesting. It's a novel but effective means of communication. The fact that we had integrated mics was a considerable bonus. It enabled me to contribute to the course. And when any problems cropped up, help was readily available.

*Education and Training Psychology (PEF) Master's student, Rennes 2 University*

#### VIDEO CONFERENCING CLASSROOM

Thanks to the video conferencing software, I didn't need to go to the other campus to attend in person. I could take the course remotely and the lecturer saw me when I raised my hand to ask a question. In fact, I pressed a button, which activated a camera so I could be seen on the screen.

*Education Master's student, Université de Sherbrooke*



#### VIRTUAL CLASSROOM

During lockdown, the virtual classroom was a lifesaver. It enabled me to keep in touch with my courses and my lecturers, and it played a vital role in keeping me motivated. I could also use it as a tool to track my progress and chat with my peers.

*Education and Training Technology (TEF) Master's student, Rennes 2 University*

## 6.2 Online cooperation and collaboration

Estes et al. (2014) point out that telepresence paves the way for **collaborative teaching methods** that can be incorporated into the community, thereby guiding the learning of students who are studying remotely or online.



*Telepresence or tele-immersion is typically described as any technology that enables cooperative interaction between users at geographically distributed sites.*

(White, in Tsang, Cheung, Lee & Huang, 2010, p. 51)



HENRI & LUNDGREN-CAYROL (2003) DRAW THE FOLLOWING DISTINCTION BETWEEN COOPERATIVE LEARNING AND COLLABORATIVE LEARNING:

COOPERATIVE LEARNING	COLLABORATIVE LEARNING
<p><b>Positive interdependence between the learners</b>  <b>AIMS: to achieve the objectives of each discipline, work in groups and become more autonomous</b></p>	
Structured, supportive approach enabling a certain level of control of the lessons. <b>For a group with low cognitive maturity.</b>	Freer, more flexible approach relying on less control and more autonomy. <b>For a group that masters a range of strategies.</b>
Task broken down to be assigned to the different members, each with their own specific responsibility. <b>A set of sub-tasks performed as a team.</b>	Task not broken down so that each member completes the whole task individually while being supported and inspired by the group. <b>The same task is carried out by each individual.</b>
The whole group works towards the goal, with each member making a specific contribution.	Each member works towards a goal that has been agreed on by all group members.



For more information about working in a group, see the relevant LLL guide



See how Cornell University (USA) experiments with different types of video conferencing for cooperative and collaborative learning



## 6.3 Setting up online learning spaces

*Do you (or your institution) offer to help students self-regulate their learning and set up their online learning spaces?*

In addition to students' physical (and material) environment, **there are three digital spaces that add to the experience, fostering cooperation and collaboration online** (Henri & Lundgren-Cayrol, 2003), and thereby enhancing the learning presence in an online learning community.

### PRIVATE SPACE

Somewhere students can prepare for the group work, organise their thoughts (in writing, orally or visually) according to their needs and preferences

### COMMUNICATION SPACE

Somewhere the group members can chat and establish the group dynamics, communicating synchronously (web conference) or asynchronously (discussion forums, social media)

### COMMUNAL SPACE

A place for sharing resources (materials, software, sources of information, etc.) that can be accessed by the whole group and for discussing collaborative projects that require contribution from all.



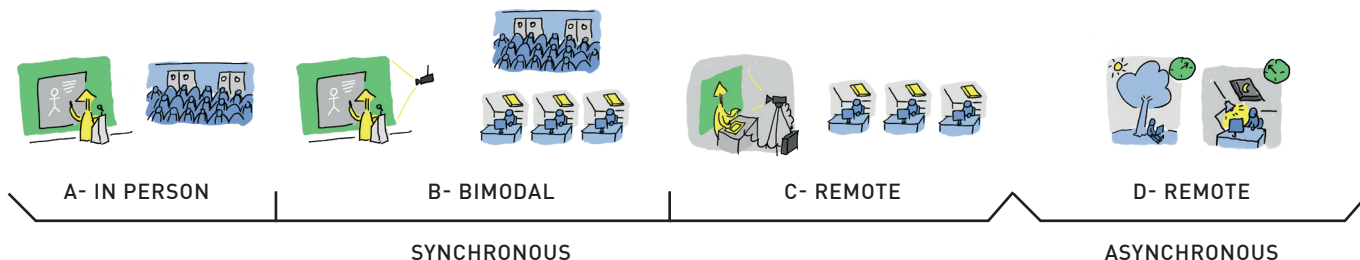


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## How do I conduct a telepresence assessment?

Assessing what your students have learned is integral to constructive alignment (Biggs, 2014). When considering your approach, ascertain how and where you will potentially conduct the telepresence assessment, which may be done synchronously or asynchronously.

### 1. Which of these four methods will you choose?



### 2. What learning outcomes are you assessing?

A- Knowledge B- Know-how C- Interpersonal skills D- Strategies E- Skills Etc.

**Identify your students' zone of proximal development.** If you are assessing a skill, first ensure that your students are using the right internal and external resources to be able to demonstrate it to you.

### 3. Where are they in the learning process?

#### My students are at...

- A- the acquisition or understanding stage
- B- the application or transfer stage
- C- the performance or mobilisation stage



### 4. What is the pedagogical intention of your assessment?

#### My intention is...

- A- learning orientation
- B- learning regulation
- C- learning certification

Next choose your

**5. assessment method** and

**6. assessment tool,**

NB : **make sure both are properly aligned!**

ASSESSMENT  
METHOD



ASSESSMENT  
TOOL

There are **several useful assessment methods** for telepresence learning:

- Unsupervised exams with questions that require a personalised response or complex output  
→ A situation to analyse, a problem to solve, an excerpt from a work to critique, etc.
- Individual or team assignments to be submitted in accordance with appropriate, clear instructions  
→ Digital portfolio, reflective blog, etc.  
    > Involving periodic monitoring (formal or informal)  
→ Project, mock-up, report, mind map, produced for a fictitious client, etc.
- Assessments with a focus on oral communication (synchronous or asynchronous)  
→ video clip, podcast, role play, etc.

As formative assessments are possible in a telepresence context, there are tools that can **add a dynamic dimension to your teaching** by setting questions, with answers displayed in real time, interactive images, collaborative word clouds, etc.

EXAMPLES



Mentimeter.com

AnswerGarden.ch

PollEverywhere.com

Sli.do

Plickers.com

Quizlet.com

VoxVote.com

Hypersay.com

Wordclouds.com

➤ See the LLL short guide  
(only available in French)  
"Évaluer les compétences  
avec un (e)portfolio"



➤ See the LLL short guide  
(only available in French)  
"QCM or not QCM"



Once you have made your choice, think about what could go wrong:

7. Depending on the telepresence context, **what are the risks inherent in your assessment method and tool?** If the risk is too high, you might have to start again (back to stage 1).

For example, if you opt for bimodal assessment, is there a risk of inequality or even plagiarism at the remote sites?



### ONLINE PLAGIARISM 101

When students are spread over a number of sites (including their home), individual assessments requiring written answers present a high risk of plagiarism: copying and sharing questions or answers (especially in the case of multiple choice or short answers).

Because of this issue, some institutions choose a classroom setting for exams. This means they do not have to use remote surveillance equipment (a webcam or mic, voice recognition, etc.), which can be complex and not very reliable.



Read an article about online plagiarism in Quebec's CÉGEPs (colleges providing the first level of post-secondary education) in spring 2020 (during the COVID-19 pandemic)



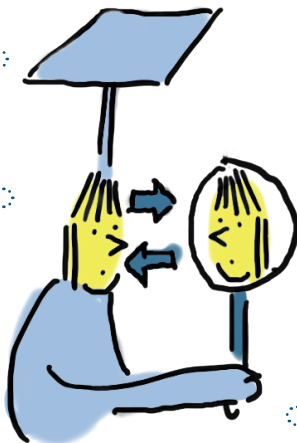
8

## In conclusion

*As a teacher, am I prepared to learn to use new teaching technologies? What can I do to master the technical aspects while continuing to reflect on other matters?*

*What is the stance of the management of my educational institution on the transition to teaching technologies? What decisions have been taken on the matter?*

*Over and above the techniques involved, are there educational advisors (or engineers) who can help me deal with the transformation of my teaching environment? Am I willing to accept their support?*



*Are my students ready for this change of direction? What must I put in place to offer them support and help them adapt?*



To supplement the definitions, recommendations, testimonials, questions, links, examples and models you will find in this guide, here are a few general tips you might also like to take into consideration.



### **Teaching before technology**

- You should not have to adapt to a system. You should choose one that meets your pedagogical intentions (the intended learning outcomes).
- Having said that, telepresence teaching requires new knowledge and skills that redefine the teacher's roles and approaches.



### **Do not underestimate the time factor**

- For teachers, preparing and delivering telepresence lessons is likely to be time-consuming, as is the corresponding professional development required.
- For students, "learning to learn in a telepresence setting" will inevitably require effort and a real commitment.



### **Interaction with a human touch**

- Digital technology can enhance, but cannot replace, the empathetic support, personalised feedback or reassuring non-verbal gestures you offer struggling students.
- Really knowing your audience is the key to becoming a better telepresence teacher.



### **Strength in numbers**

- Many staff members in educational institutions are concerned about telepresence, so don't be afraid to reach out for support!
- Really involve your students so that the telepresence experience is more about "being together" than just "being there".

## TOPIC : WHO ARE WE?

This short guide was put together by an international team between 2015 and 2020 as part of the project entitled Telepresence as an Opportunity for Pedagogical Innovation and Conception. TOPIC came about from meetings between researchers and teachers at Université de Sherbrooke (UdeS) and the Université Européenne de Bretagne (UEB) [subsequently renamed Université Bretagne-Loire (UBL)] on the possibility of using classrooms equipped with technology such as video conferencing equipment for teaching and learning.

Run by Geneviève Lameul and Florian Meyer, the TOPIC project came about as a result of the observation that:

- the three UdeS campuses already had a large number of multimedia, video conferencing-type classrooms with different configurations where various teaching or academic activities took place;
- UEB had just acquired a digital campus comprising telepresence classrooms (primarily immersive), digital lecture halls and tele-teaching classrooms.

And yet, the equipment in these different areas had not necessarily been designed for teaching purposes. There appeared to be a vast number of opportunities on offer, but the technologies, constraints and ergonomic and digital features varied widely.

The TOPIC team therefore set about acquiring the necessary information and tools to develop the teaching systems in these infrastructures. TOPIC also created a repository of key reliable information about the new teaching approaches, how they affect student learning, how they could facilitate and enhance the work of teachers, and the emerging pedagogical innovations.

## LLL: WHO ARE WE?

The Louvain Learning Lab, a pioneer in its field, already has a long history behind it. In 1995, UCL set up the Institute for Higher Education and Technology (IPM) to work with lecturers and teaching assistants who wanted to progress in their career and promote the quality of teaching. Today, with greater student numbers and a more diverse student body, and in a world that is being shaken by successive crises, teachers are forced to constantly invent new teaching methods and approaches. It was to meet these new challenges that the IPM became the Louvain Learning Lab (LLL) in 2015.

As an innovator, LLL sees itself as an incubator for new teaching practices linked to both new learning methods and digital technologies (use of ICTE, flipped classrooms, MOOCs, e-learning, open education, etc.). As such, it has been able to rethink classroom learning and introduce more active and collaborative learning processes that ensure students play a decisive role in their own education. These developments focus on adding value, enhancing the quality of learning and supporting a more collaborative approach to programs.

LLL works closely with all those actively involved in teaching: lecturers, teaching assistants and doctoral students, program teams, departments and faculties at all UCLouvain campuses.

Innovation is only meaningful if it is shared. One of the ways LLL promotes and disseminates innovation, showcases teaching practices and acknowledges the contribution made by education professionals is through its series of short guides.

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3. How do I prepare for telepresence teaching? / Matthieu Petit, Vincent Barré, Simon Bolduc, Rana Challah, Florian Meyer and Jose Parra Garzon
4. How do I create a telepresence course? / Florian Meyer, Simon Bolduc and Matthieu Petit
5. How can I be “present remotely” in a telepresence setting? / Matthieu Petit and Jose Parra Garzon
6. How do students learn in a telepresence setting? / Matthieu Petit and Annette Gourvil
7. How do I conduct a telepresence assessment? / Matthieu Petit and Marie-Ève Desrochers
8. Conclusion / Matthieu Petit and Annette Gourvil

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Hybrid or fully online? Synchronous or asynchronous? Unimodal, bimodal, co-modal or multimodal? The all-out development of distance learning has led to the creation of appropriate digital systems, either by using what was already in place (such as video conferencing classrooms and web conferencing software supporting virtual classrooms) or introducing innovative environments (such as immersive telepresence classrooms).

To use these versatile, multi-functional technologies, teachers need to take a step back to enable them to adapt their teaching methods and offer learners a suitable environment that overcomes physical and geographical distances.

As for students, the need to “be there” and “be together” while learning remotely has to be taken into account to maintain their commitment and ensure they continue to contribute, despite the fact they are apart. The COVID-19 pandemic has shown us the importance of the professional, collegial and friendship connections we have with those we usually meet face-to-face in a traditional classroom.

Telepresence systems enable all these people to come together remotely (and synchronously) and make it possible to use active teaching methods, driven by the self-regulation of the learners.

But what is telepresence? Do teachers need any special training? How do you attend lessons remotely? How do participants learn in a telepresence setting? What type of student assessment can be used in such an environment?

The result of international collaboration, this short guide looks at these questions from both a research and a practical perspective, inviting you to explore telepresence teaching and learning.