



MLC

MULTILOCATION CLASSROOM

PEDAGOGY HANDBOOK

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Introduction

The methods and conditions for teaching are changing rapidly in both local- distance- and in hybrid education. High-quality teaching that prepares students for working life must include flexible study methods and diverse opportunities to complete studies.

In teaching technology, Multi Location Classroom (MLC) enables a completely new type of distance education between two campuses and can at best be an excellent support for, among other things, the growing need for cross-learning between different universities.

The Multi Location Classroom or MLC concept is based on the experience of a shared classroom. It is a conference and presentation system that uses large-scale video to combine rooms into a single teaching or conference space via the Internet. In addition, it is possible to integrate remote meeting applications, such as Zoom, into the MLC system. In this case, distance and contact teaching are combined in the classroom. The MLC-concept also corresponds to the needs of hybrid teaching, when part of the group is present in the classroom, and some participate at distance.

In MLC, the design of common learning situations and tasks is emphasized. It is important to remember that no technology as such automatically achieves some new and innovative teaching or learning, instead it is important to consider how technology can be used pedagogically in a meaningful way. The teacher's active role and pedagogical expertise are crucial for achieving joint work and learning.

The handbook is produced as inspiration and guidance for teachers and other actors who use the MLC class. It offers pedagogical ideas, methods, and examples for the pedagogical design of your own teaching in the MLC room. This handbook gives you the opportunity to familiarize yourself with the implementation of hybrid teaching in MLC rooms and examples of the use of the concept.



What MLC?

Multilocation Classroom, or MLC, is based on the experience of a shared classroom. MLC is a new type of conference and presentation system developed by Streamplay and the University of Eastern Finland's IT services that uses large-scale video and combines spaces into a single teaching or conference space via the Internet. It is also possible to integrate remote meeting applications in the MLC system, such as Zoom. In this case, distance and contact teaching are combined in the classroom.

The MLC system contains a representation area as large as a wall or screen, to which an image of the other party's similar room is projected with 4K resolution. The presentation area can be used to present windows of material from several image sources with high-quality video projectors. Computers and, for example, a documentary camera with HDMI can be connected to the system. Audio playback takes place in the space through ceiling speakers and microphones. Roof microphones pick up sound from the whole class and play it from the speakers on the other side, which leads to a real soundscape between both spaces and gives the experience of a common classroom. The equipment of the premises varies depending on the space. For example, the acoustics may have been improved with carpets or acoustic panels, and the adaptability of the space has been considered by choosing easy-to-move furniture. The MLC classes developed in the DigiCampus project are described in more detail at the end of the manual.

The spaces built according to the MLC concept have two operating modes: local use and remote access. For local use, the space functions as a standard classroom, where you can take advantage of the extensive presentation area and windows, as well as materials from various image sources. Remote access can be used to connect two classrooms or via a connected remote access program (such as Zoom) so that participants connect to the event from their own devices.

The MLC class and its functions are controlled by the control panel located in the classroom. The control panel controls the connected devices (such as a computer or document camera), the windows on the presentation area, and the remote connection. To set up a dial-up connection, that is, call another room or launch the Zoom app, press the buttons on the control panel. The control panel also adjusts the MLC-class sound system and the visibility of the presentation surfaces to the MLC-class and remote influences. The technology of the space is easy to use, and written instructions are available in all spaces.

What can you do with MLC?

MLC opens a wide range of opportunities for diversification of teaching. The class can be flexibly transformed into a learning space that is suitable for the course in question. This makes it possible for groups that do not normally meet to participate in a perceived common space to share information and learn from each other.

The MLC concept mainly contains the experience of a shared classroom when used between two classrooms. The MLC classes on different campuses seamlessly form a single whole space that enables interaction between two rooms. The participants' expressions, gestures and sounds are authentically reflected in the other party's room, and the discussion can be conducted naturally. The role of the teacher extends to guiding a group that is both present and, on another campus, or at a distance.

Zoom, combined with MLC mode, also allows non-participants to participate in a teaching or educational situation or other events with a common cause. Zoom connects remote participants to the MLC class, no matter where they are. At its best. This can help create shared expertise, collaboration between different groups and networking.



MLC's added value for teaching – Examples

- Experience of shared classroom space (immersiveness)
- Versatile opportunities to organize teaching situations related to interaction, communication, speech, sound, and language
- From the teacher's point of view, the opportunity to guide more than one group
- Group work between campuses
- Expand network and expand the collaboration between universities and various actors
- Interdisciplinary units, collaboration between universities and joint projects
- Centralized lectures and division of responsibilities between universities

Ways to use MLC-concept

The MLC concept has different uses that are suitable for different purposes. MLC classes can be used in conventional contact teaching in a classroom, divided between two classes or hybrids, which combine contact and distance learning.

Local use

The MLC class can be used for local use, so that it functions as a regular classroom where no connection made to other spaces. Locally it is possible to utilize the extensive presentation area and present different images sources and materials at the same time. Three presentation windows can be projected simultaneously from computers to the wall using an HDMI interface or, for example, a document camera. In other words, it is possible for teachers to use, for example, an interactive application (e.g., Flinga), presentation material (e.g., Power Point) and other content that supports teaching (e.g., videos, maps, document camera image) and this both activates students and enriches the content of their teaching. Student groups can use the MLC class to do group work when more than one group member can project material on the presentation surface. The adaptability of the class depends on the MLC class and its furniture. Tables and chairs can be moved to different formations according to different methods or teaching situations. MLC classes are technically easy to use with a simple control panel.

Tips for local use

- Enrich your teaching -> take advantage of the extensive presentation area while presenting various image sources and materials
- Group work is facilitated when more people can display material on the presentation surface

Shared Classroom

In shared class mode, two MLC classes are merged into one large space that appears uniformly. MLC classes form a pair of equivalents that can be connected with technology. For example, at the University of Eastern Finland, the MLC class is located on the Kuopio and Joensuu campuses, and it is possible to establish a link between them. When you connect computers to an MLC system and display material in a presentation window, it appears in both classrooms in the same way. The windows are displayed on top of the video, which is worth considering in the teaching situation, for example, by shrinking or removing windows from view during a conversation or interactive activity shared by the whole group. The microphones on the other side can be muted while, for example, group conversations take place and prepare for a joint discussion so that there is not too much noise.

The common classroom is particularly suitable for situations where two groups are at a distance from each other, but the content of the teaching is the same for the groups. In shared class mode, MLC technology provides a good attitude, especially for teaching situations that highlight the need for genuine group meetings and communication. The teacher can lead two classes at the same time or apply co-teaching. If the teacher is not present in the classroom, students should be instructed to start the MLC system and control its functions. Each class has system documentation.

For communication between two classes, you can take advantage of separate interactive programs (such as Fling, Socrative, Padlet, Mentimeter) that can be displayed in both classes in their own presentation window. Students can use these to ask questions and comment throughout the lesson. This can also be used when the other class is off during pair conversations, for example, and you want to reach the teacher and ask more specific questions.

Tips on using shared classroom

- It is recommended to minimize or remove presentation windows while communicating between two modes
- It is recommended to silence the other party's microphones when groups are not talking to each other.
- It is important to instruct students how to use the class when the teacher is not present
- Different applications can facilitate communication and help you build information together.

Remote access with Zoom

Using remote access via the Zoom app connected to the MLC system is suitable for situations where you need to combine contact and distance learning. Such a form of teaching, known as hybrid education, can be easily applied to the class using installed hardware and software. With this part of the group will be present in the classroom and follow and participate in the teaching on site. Some students or other participants (e.g., external lecturers) follow events in the class at a distance and see and hear everything that happens in the classroom. Remote participants are displayed on the presentation surface in a projected window and their voices are heard from the class speakers. This enables communication and interaction between people who are involved in different ways.

There can be many different needs for organizing hybrid training. Participants may face various obstacles to participating in short-term work, e.g., health reasons. There may also be a situation where some students only have one lecture that day, which may make it unnecessary to travel from another location to a contact teaching situation. Experts or other visiting teachers can attend the event from their own unit to avoid traveling. It is also possible to participate in the event outside international borders, in which case, for example, international students or experts can participate in them. The benefits of MLC concept are particularly focused on travel cost and resources, such as saving time on travel.

Part of the key to organizing a distance learning situation is to plan the event well and to instruct the participants about the course of the event and the necessary tools. Remote participants need a workstation or device that is connected to the internet (computer, tablet, smartphone), webcam and microphone as well as the app or a working browser to participate in the teaching situation. Participants should always be given a participation link, any passwords and instruction on how to use the app. For example, participants can be instructed to turn off microphones when they arrive at the event and always open them when they speak. It is worth creating clear rules for the teaching situations, for example, about how to request speeches and how to participate in the debate.

It is a good idea for the teacher to familiarize themselves with the functions of the MLC system and the remote access application before the teaching situation to ensure that the event is smooth. If the teacher is not in the MLC class himself, but leads the event remotely, students must be instructed to use it and select the student who programs the class for them. In MLC classes, instructions for use should always be available.

Tips for hybrid use of MLC:

- Provide necessary guidelines for remote participants:
 - Necessary tools: workstation (computer / other smart device), webcam, microphone, internet connection, app or recommended browser
 - Meeting link and password for participation
 - User guide and general guidelines
- Color-coded or numbered table groups help those who teach at a distance to handle the teaching situation. For example, the red and green groups can be instructed to discuss the topic x and the gray and blue groups discuss y.
- Different applications (Flinga, etc.) facilitate communication and help you build information together.

Read more

- [Points to consider during hybrid teaching](#) (Digital Toolkit maintained as part of the digimotor activities of Tampere Universities)

Ideas, methods, and examples for pedagogical design of teaching

The use of MLC classes can be used in various forms of teaching and study, such as flipped teaching, problem-based teaching or case teaching. Regardless of which pedagogical approach is chosen, the teaching in MLC spaces should also be designed to support learning as much as possible, so that there is enough time and space to find common learning goals and versatile common knowledge building (Järvelä, S., Häkkinen, P., & Lehtinen, E., 2006). The teacher's active role and pedagogical competence are also emphasized.

It is essential to remember that MLC technology as such does not automatically produce new and innovative teaching or learning. It is important to think about how MLC technology can be used in teaching and utilized in a pedagogically meaningful way.

The following sections will present various examples of the implementation of teaching in MLC classrooms.



1

GROUP WORK WITH ACTIVATING QUESTIONS

Practical example

Students discuss a specified theme by table groups

- Specified time (e.g., 10 min)
- Supporting questions guide the debate. It is a good idea to provide support questions throughout the work.

After the time has elapsed, the teacher asks questions that the groups answer, on their own mobile devices or computers based on their conversation.

- Various survey tools can be used to ask and answer questions
- For multiple-choice questions, the teacher receives a diagram of the distribution of the answers from the application they use, based on which the teacher can: 1) draw conclusions or make observations based on survey results if necessary and 2) guide the progress of the conversation / lesson.
- Review of results, e.g., use visualizations from the selected query tool

Surveys can be used to give rhythm and move the learning session forward. A question and a review of the results can be either at a certain point in the group work, or group work can be varied by exchanging conversations and questions.

Other considerations

- Will query programs (for example Presemo / Forms / Socrative / Kahoot / Mentimeter) be used in this lesson?
- How students can participate in surveys (short address, QR code, etc.)?
- Clock (physical clock, timer on the display, etc.)

For what is this example suitable for

- Mapping previous knowledge – prepare for today's topic
- Flipped learning at the beginning of the class
- Concretization of theoretical subject, building knowledge

In which DigiCampus MLC classrooms can this example be used in:

- The method is suitable for use in all premises

2

WORKING TOGETHER AND CREATING DIGITAL POSTERS

Practical example

- Students are placed in groups in the classrooms
- Each group produces a digital poster together
- Finally, the groups will present their own work and after the presentation the topic will be discussed.

Other considerations:

- Divide the students into as many groups as there are poster subjects
- The teacher can create a collaboration document that is suitable for making a poster, in the first place (e.g., PowerPoint, Prezi). Create one document per group. It is a good idea to name / number the documents and collect the links in a place where students have easy access (links in the learning environment, short address, QR-code, etc.)
- How will the posters be used in the future? Should we return them later in the course? Are they reused?

For what is this example suitable for:

- Introduce a new topic
- Mapping of previous knowledge in the study package or course subject
- Compile or summarize course part

In which DigiCampus MLC classrooms can this example be used in:

- The method is suitable for use in all premises

3

DEPATE

Practical example

- Choose who defends / opposes a certain point of view.
- Participants are given time to prepare a short speech together from their own point of view, with a motivation.
- A first round of debates will be held where both sides will give their own speeches.
- In the second round of debates, the speeches will be given alternately by representatives of the various sides.
- When all participants have presented, participants are given time to prepare a summary from their own perspective.
- Finally, the summaries can be reviewed, and the results can be voted on or a joint debate can be held without the roles given.
-

Other considerations:

- If possible, it is a good idea to give them different perspectives in different MLC classes, so that you can easily prepare between rounds of debate by turning off the microphones.
- The teacher can also give students time to prepare for the debate by explaining the topic and perspectives in advance. Participants can also have different roles to play in a debate.

For what is this example suitable for:

- Highlight different perspectives on the subject you are studying
- Debate arguments and training in debate skills

In which DigiCampus MLC classrooms can this example be used in:

- The method is suitable for use in all premises

4

PANEL DISCUSSION

Practical example

- Select moderator for the panel discussion
- Panelists will in turn give their own prepared speech on the topic. It is advisable to make a time reservation (e.g., 5.10min).
- The rest of the group listens and prepares questions and comments.
- After the presentations, the moderator summarizes the presentations and asks more specific questions. Panelists will ask for the floor and discuss the topics chosen.
- The rest of the group participates in the discussion by asking questions or commenting on content and arguments.
- Finally, the panelists hold closing arguments.

A panel discussion can be arranged for experts, students or, for example, for organizations activities. The event can be arranged on site, between two classrooms or as a hybrid.

The panel discussion refines the students' skills to perform, argue and develop critical aspects. You give different roles to the participants that they can live in.

Other considerations

- If the event is carried out in a hybrid manner by combining local and remote implementation, it is appropriate to take this into account in the event's pre-arrangement. Zoom as a tool allows you to participate remotely instead of attending in person. For example, 30 people can participate on site and 30 remotely.
- Zoom link and Zoom instructions must be sent to participants in advance if needed.
- It is a good idea to display the timer so that it is displayed to all participants (in Zoom, in a split view, in a split category in the presentation window).
- Zoom's remote participants can request the floor in a chat room
- It is advisable to reserve plenty of time for implementation.

For what is this example suitable for:

- Debate arguments and training in debate skills
- Training in presentation and listening skills
- Manage different perspectives and opinions

In which DigiCampus MLC classrooms can this example be used in:

- The method is suitable for use in all premises

5

PRESENTATION, DISCUSSION, AND OPPOSITION TO GROUP WORK IN MLC-ZOOM

Practical example

- The teacher and students participate in the MLC class, some at a distance at their own workplaces. The occasion is implemented hybrid with the Zoom app.
- The groups will take turns showing their group work and sharing the material in MLC's Zoom app so that it can be seen both in the classroom and for distance participants.
- The group chooses from among its members who presents the material.
- Distance participants can participate in the conversation by opening their own microphone. Distance participating team members speak from their own workstation via video link and microphone.
- After and during the presentations, it will be possible to have a debate. Distance participants can request to speak via chat or by opening a microphone (this depends on the number of participants and the nature of the teaching situation), those present do so in accordance with agreed procedures (e.g., by raising their hand).
- You can also choose a group to oppose group presentations. The task if this groups is to assess the work of the presented group according to different assessment criteria (content, presentation, argumentation, cooperation, etc.).

Argumentation and performance skills are developed in teamwork presentation and joint discussion, and facilitation of the situation (MLC control and use of Zoom) develops the ability to operate in technical environments. In addition, students can take on different

roles (group leader, speaker, distance participant, debater, group member, opponent).

Other considerations

- Zoom allows you to participate remotely instead of attending. For example, 30 people can participate on site and 30 remotely.
- Zoom link and Zoom instructions must be sent to distance participants in advance if needed.
- Time must be spent on group discussions and opposition, so the size of the teaching group must be in proportion to the time planned. The presentation of too many groups in a short time is not appropriate.
- Student activation is important both at a distance and on site. Distance participants produce text in the chat or ask to speak there. The students on site follow the presentation or prepare to oppose.

Distance participation in group presentations works when it does not require special information technology or equipment's in addition to your own workstations.

For what is this example suitable for:

- Summarize course parts

In which DigiCampus MLC classrooms can this example be used in:

- The method is suitable for use in all premises

Non-teaching-related business situations

The classrooms built in accordance with the MLC concept are suitable not only for educational use, but also for other situations where it is necessary to use high-quality presentation equipment and remote connections. Good operating situations can include:

- Moodle training or clinics
- Education provided by libraries: e.g., information retrieval for computer scientists
- Workshops and pitching for staff groups
- Meetings and seminars

There are many ways to implement it, and different spaces offer different possibilities. It is advisable to familiarize yourself with your own available space in advance and plan the event well. An example of these is presented here and how it would be suitable for use in MLC mode.

1

WORKSHOP FOR PERSONAL GROUP

Practical example:

- The workshop can be conducted in a common class or hybrid.
- The topic and goal of the workshop and the schedule for the event will be determined.
- If the group is not familiar with each other, it is a good idea to have an introduction round.
- Going through the agenda one topic at the time
- During the work phase, we divide into separate smaller work groups over short periods of time (maximum 20 minutes) and return to gather the work groups in a joint discussion.
- Finally, we bring together and discuss what the groups have come to and agree on the follow-ups and responsibilities.
- Throughout the event, it is advisable to show a common digital work platform (e.g., Teams, Sharepoint), where processed material and notes are stored directly.
- You can also use applications that are suitable for common data construction and discussion openings.
- You can enter topics there in advance and use the workshop to work on these things. It is a good idea to project it on the presentation surface to everyone's opinion so that things can also be discussed face to face.

Other considerations:

- When using the shared mode with a large number of participants, it is a good idea to make sure that one person in each room can facilitate the meeting. These people take care of starting and controlling the system (e.g., turning off microphones, volume control, presentation of material) during the event.
- If the event is organized as a hybrid, a link to participate and Zoom instructions must be sent to the distance participants in advance.
- Even in hybrid implementation, the participants

can be divided into smaller groups. If you have less than 10 people at distance, you can just turn off the sound from the MLC class and chat with the distance participants. If you have more distance participants, it is a good idea to create more than one separate Zoom link to go to when it is time for group work and return to the zoom link that is linked to the MLC class after the agreed time for the group work. This since MLC Zoom does not support “breakout rooms”. It is a good idea to give good instructions and agree on the distance participants in advance about how it is planned to work.

For what is this example suitable for:

- Group work
- Promote well-being in the workplace

In which DigiCampus MLC classrooms can this example be used in:

The method is suitable for use in all premises



Conclusion

Teaching and ways of learning are in a constant state of change. New solutions and innovations are constantly being developed to implement high-quality, flexible, and versatile teaching. In particular, the growing need to organize distance and hybrid education challenges innovation and the design of new technologies. Globally, the changing situations in 2020 have even forced us to think differently about how the implementation of teaching takes place at all levels of education.

The idea with the Multilocation Classroom concept has been to seamlessly connect spaces through technology and internet connections to create genuine meetings and opportunities for extensive communication and cooperation between groups that normally cannot meet each other. The development of the concept for educational purposes has been carried out between universities within the framework of the DigiCampus project in collaboration with the system supplier. Different needs, resources and changed situations during the development work have shaped the MLC classes and the pedagogical handbook has been designed accordingly. To truly support cross-learning and collaboration between universities, the MLC concept must be further developed, and solutions sought for combining MLC facilities between universities. Pedagogically functional business models and tested methods, especially tailored for MLC classrooms, do not yet exist, but must be created and shared through collaboration regarding experience-generated information, observations, and ideas within and between universities.

The purpose of the educational MLC handbook is to provide support to the users of the premises for planning and conducting teaching or other events, while giving the user space to apply their own situation to suit the MLC classrooms. The pedagogical development does not end with the publication of the handbook - the future will show where the spaces will eventually be used for and further developed.

Reading and more information

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Attachment 1. National Defence University

MLC-classroom Väinämöinen

WHAT THE ROOM IS USED FOR:

The classroom is intended for normal teaching use as well as hybrid teaching. A remote conferencing application, Zoom, is integrated into the class, which allows teaching situations to be organized in a hybrid way so that some students participate in the event remotely and part is present in the class. It is therefore possible to include participants or lecturers from outside the organization. The teacher and the students in the classroom can chat with remote participants easily with the help of the integrated hardware and the remote meeting application Zoom. The class is well suited for organizing flexible teaching situations, doing group work, for stakeholder workshops, seminars, expert panels, workshops, or meetings. Furniture and hardware solutions support teamwork. The room supports the emergence of good interaction, learning together, sharing knowledge.

VÄINÄMÖINEN:



The MLC class can be used **for one student group of maximum 30 people** while taking advantage of the extensive presentation area and equipment. It is also **suitable for hybrid teaching using the Zoom connection**, where part of the students are in the classroom and some remotely involved. The class has integrated ceiling speakers and microphones, two video projectors and a wall-mounted camera. The control panel is easy to use.

The space is intended for student groups, teachers and staff using public online connections.

Attachment 2. University of Oulu

MLC-classrooms Linnanmaa L107 and Kontinkangas L101A

WHAT THE ROOMS ARE USED FOR:

With the use of the room a remote connection can be made to the other MLC room and include that group in a more interactive teaching opportunity. In both rooms, “normal teaching” can also be organized, and high-quality (audio and video) presentation techniques can be utilized. The use of normal Zoom / Teams remote connections to the full potential of the hardware is still in the testing phase.



Linnanmaan L107: The room is a **normal teaching room for 24 students**. The room **allows an MLC connection to the corresponding MLC room in Kontikankaa**, which provides a large incoming image on the wall with two high-quality video projectors as well as classroom-wide two-way sound with ceiling speakers and microphone. A camera imbedded into the wall captures the whole classroom. The room is intended for use by student groups, teachers and staff.

Kontinkankaan L101A: The room is a **normal teaching room for about 20 students**. The room **allows an MLC connection to the corresponding MLC room in Linnanmaa**, which provides a large incoming image on the wall with two high-quality video projectors as well as classroom-wide two-way sound with ceiling speakers and microphone. A camera imbedded into the wall captures the whole classroom. The room is intended for use by student groups, teachers and staff..

Attachment 3. Åbo Akademi

MLC-classrooms Mary P Follett and E0610



WHAT THE ROOMS ARE USED FOR:

In the MLC classes, it is possible to organize teaching situations or other events where it is necessary to combine the two classes. For example, seminars and graduate seminars, where students take turns presenting material and having a discussion collectively fit well into the MLC classes. Different presentations of group or individual work or, for example, dissertations are also suitable to be held in these premises. In dissertations, MLC classes have the advantage of people participating in either rooms or remotely.

MARY P FOLLETT (TURKU) E0610 (VAASA)

The basic idea of the two rooms is **to combine the boundaries between Turku and Vaasa classrooms into one shared space**, which is implemented with the integrated equipment (ceiling speakers and microphones, wall-mounted camera, video projectors). In addition, **remote access application Zoom is used**. The classrooms can also be used for “regular teaching”.

The rooms are intended for use by teachers, students and for trainings that spans two campuses. They are especially suitable for subject teachers teaching or political science and environmental engineering studies where teaching is organized between the two campuses.



Attachment 4. University of Eastern Finland

MLC-classrooms Joensuu AU112 and Kuopio CA305

WHAT THE ROOMS ARE USED FOR:

The rooms between the two campuses in the University of Eastern Finland can be combined to create a more interactive teaching session between the two groups. Both rooms can also be used for teaching without connecting to the other room while still utilizing the high quality (sound and image) presentation technology.



KUOPION CA305

The room is a **normal teaching space for 30 students** as well as a meeting space between UEF campuses. **The room can contact the equivalent MLC-classroom in Joensuu campus**, creating a large incoming wall picture with two-way sound throughout the classroom with ceiling speakers and microphones. A wall-mounted camera captures the whole classroom.

JOENSUUN AU112

The room is a **normal teaching space for 28 students** as well as a meeting space between UEF campuses. **The room can contact the equivalent MLC-classroom in Kuopio campus**, creating a large incoming wall picture with two-way sound throughout the classroom with ceiling speakers and microphones. A wall-mounted camera captures the whole classroom.



DigiCampus