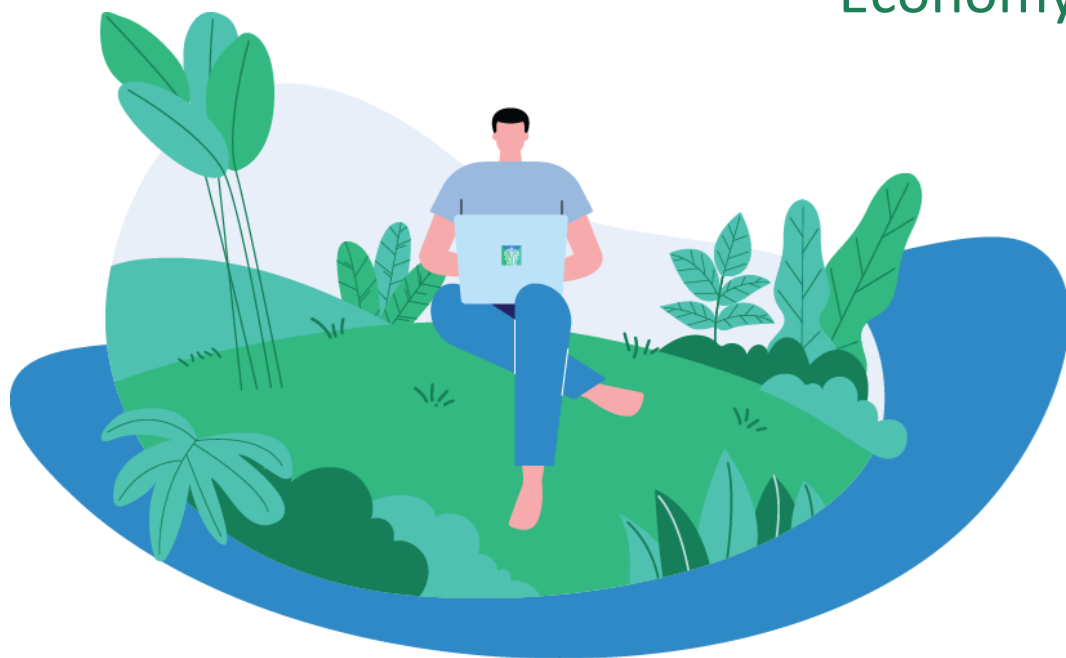




Reliable Green –

Remote work, telework and learning with innovative and accessible educational resources for businesses and labour markets in Europe's Green Economy



Module: Putting tech to teach

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1. Introduction

2. Putting tech to teach

1. Equipment requirements
 1. Sound
 2. Video general
 3. Video creation

2. Insights into teaching with technical products
 1. Streaming
 2. Live-Streaming
 3. Teaching method

3. Concrete proposal for implementation:



Introduction



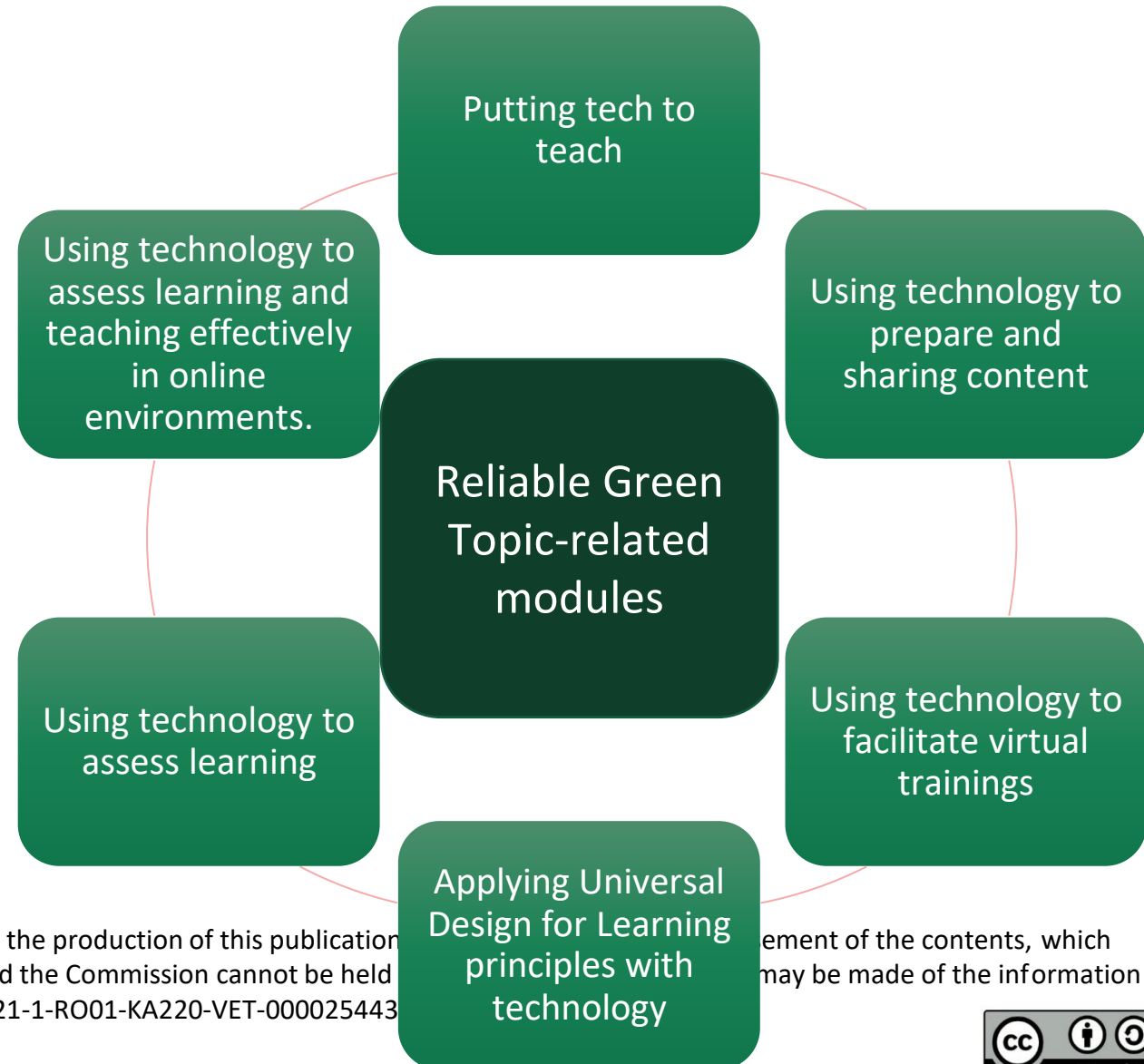
Introduction

In this module of the Reliable Green course we explore technologies for teaching and learning. Particular focus will be on equipment requirements, video design, the ability to stream video and how to use it in teaching.



The six modules of Reliable Green

The learning course consists of 6 modules



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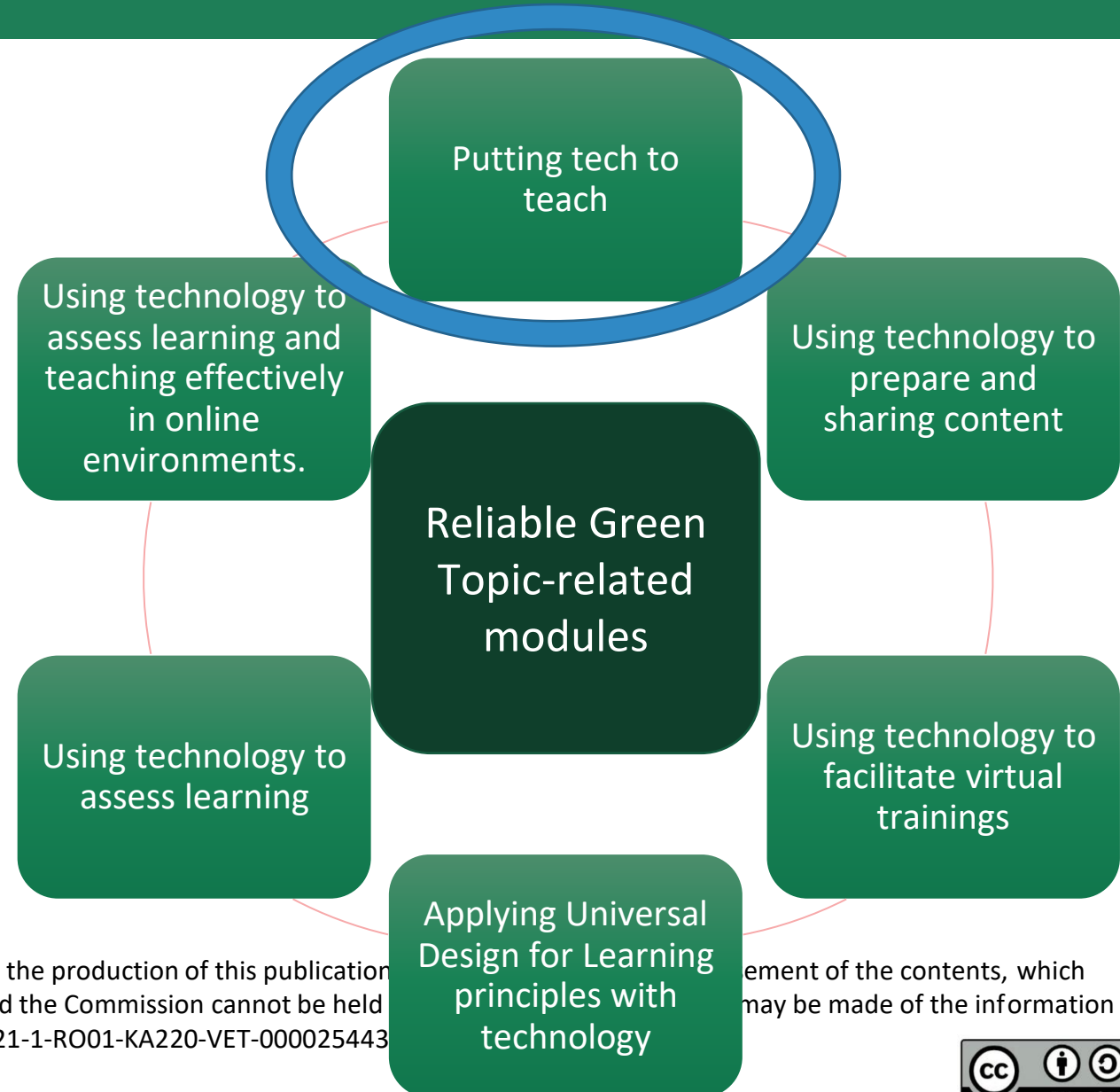


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The six modules of Reliable Green

Today, we focus on
"Putting tech to teach"



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...ement of the contents, which may be made of the information



Putting tech to teach



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Equipment Requirements



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Sound



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SOUND

What can affect your audio?

There are **multiple factors** that affect the **quality** of your audio while recording a video. These include:

1. Type of Microphone

Does your microphone sound tinny or does it sound full and rich?

2. The Type of Room

An empty room with hard floors can echo, but a room with carpet, curtains and furniture will sound more natural.

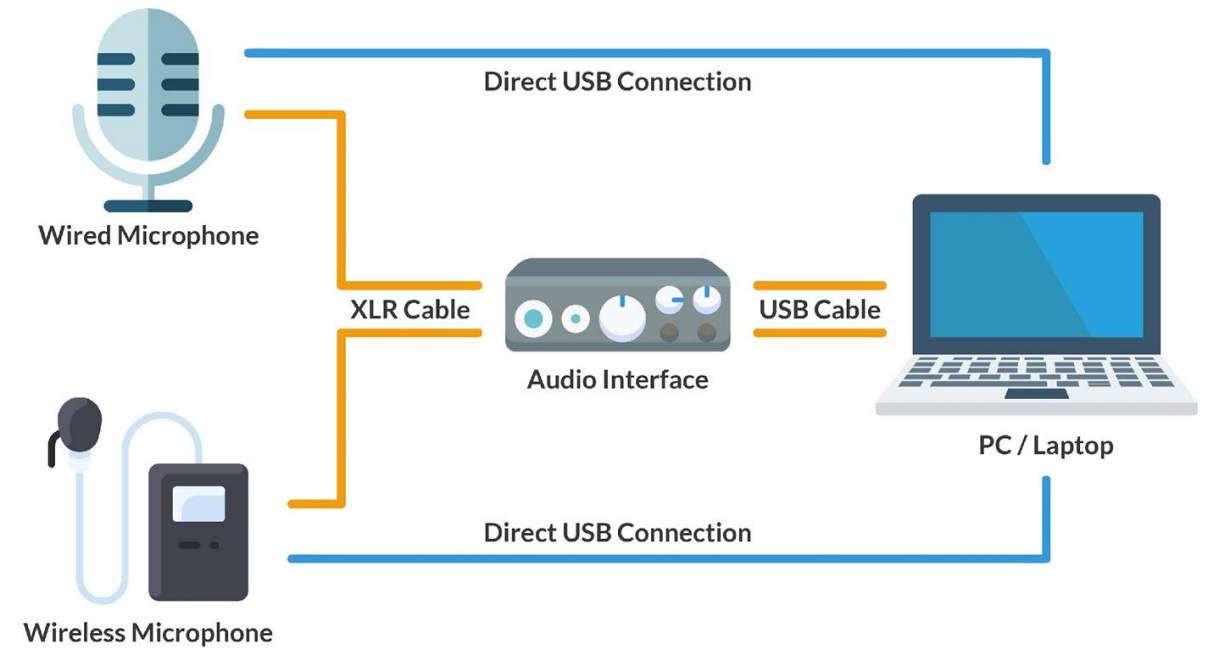
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SOUND

Microphone Types

- Dynamic Microphones
- Condenser Microphones
- Lavelier Microphones
- Ribbon Microphones



DYNAMIC MICROPHONES

The **dynamic microphone** is probably the most familiar-looking type of microphone to us these days.

They are:

- Well-known
- One of the cheapest types
- Versatile
- Robust
- One of the least sensitive to “up close” sound



CONDENSER MICROPHONES

Condenser mics are generally associated with the mics you often see in **recording studios**.

They are:

- Generally more sensitive to sound
- Audio sounds richer
- Inexpensive USB option
- Greater range in price
- They require phantom power or +48v



LAVALIER MICROPHONES

Lavalier microphones, also known as lav mics and lapel mics are small **omnidirectional** microphones that are **clipped or taped** to a piece of clothing on your upper half.

Lav mics are most **commonly** used and seen in **news** and television.



LAVALIER MICROPHONES

Modern lavalier microphones are usually part of a **radio microphone kit**.

These kits consist of the **microphone, connected to a transmitter**.

The transmitter then sends the audio signal to a receiver, which can be connected to a camera, pc, or audio interface using a patch cable or USB cable depending on the model.



RIBBON MICROPHONES

Generally, these mics are quite **old** in terms of technology, but their use is still required in special cases.

Ribbon microphones are the most **delicate** of all microphones and a **slight drop or bump** can disrupt the ribbon inside and render it **useless**.

Ribbon mics generally feature a figure-8 polar pattern. Meaning that audio can be picked up from the front and back, but **not the sides**.



USB-TO-PC MICROPHONES

Some key **differences** between a USB microphone and an XLR microphone include:

1. They are usually **heavier** - USB microphones have additional electronics inside.
2. They can cost up to **50% more** - due to the additional electronics inside them.
3. They usually come with a USB cable - whereas XLR microphones don't.



Check 1

What can affect your audio? (several answer options are correct)

Type of Lightning

Type of Room

Type of Voice

Type of Microphone

Check

 Reuse  Embed

H-P

```
<iframe src="https://h5p.org/h5p/embed/1310482" width="1090" height="349" frameborder="0" allowfullscreen="allowfullscreen" allow="geolocation *; microphone *; camera *; midi *; encrypted-media *" title="ReliableGreen-Task1.1"></iframe><script src="https://h5p.org/sites/all/modules/h5p/library/js/h5p-resizer.js" charset="UTF-8"></script>
```



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Task: What microphone do you prefer?

1. Make a list of your personal advantages and disadvantages of microphones
1. Decide on the type of microphone you want to use



Video (in general)



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What can affect your video?

Multiple factors can affect the quality of your video. These include:

- Your source of light
- Time of day
- The Type of Light
- Your Camera's Settings.



LIGHTING

Your Sources of Light includes **windows, skylights, domestic lights and lamps.**

Just like using a shallow depth-of-field on a camera to focus on a subject, lighting can also be used to **emphasise** what you want the viewer to focus on.

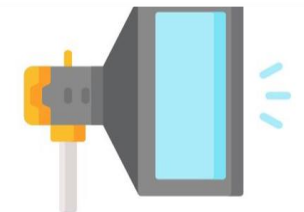
Lighting can also help give **shape** to a subject's face and make them look more **visually pleasing.**



Natural Lighting



Artificial(Domestic) Lighting



Professional Lighting



LIGHTING

One, Two & Three-Point Lighting

These are some of the most used setups in both natural (outdoor and/or daytime) and artificial (indoor and/or nighttime) lighting conditions.



LIGHTING

One-Point Lighting

The most **simple** lighting setup you could adopt is one point lighting. This will consist solely of one light, also known as a **key light**.

A key light can be anything from the **daylight** coming in your window during the day, to a **lamp**, or a more professional option when there are no natural sources of light.



LIGHTING

Two-Point Lighting

A two-point lighting system consists of using one light as a **primary/key light** and the other as a **secondary/fill light**.

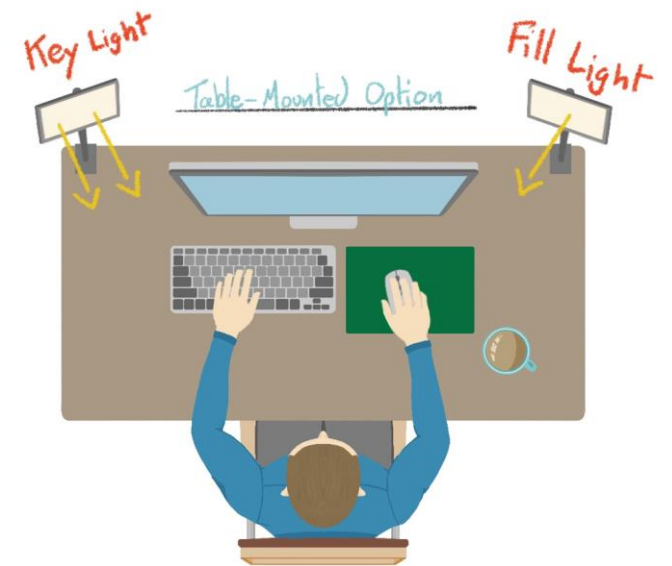
Unlike a one-point lighting system, a two-point system allows you to **fill in the shadow** that's created by your key-light with the second fill light.



LIGHTING

When trying to use a two-point lighting system:

1. Start by placing both lights at 45 degrees from where you sit.
2. Select what light you want to be your key light and fill light.
3. Set the intensity of your key light.
4. Set the intensity of your fill light to a fraction, or even to the key light's value.

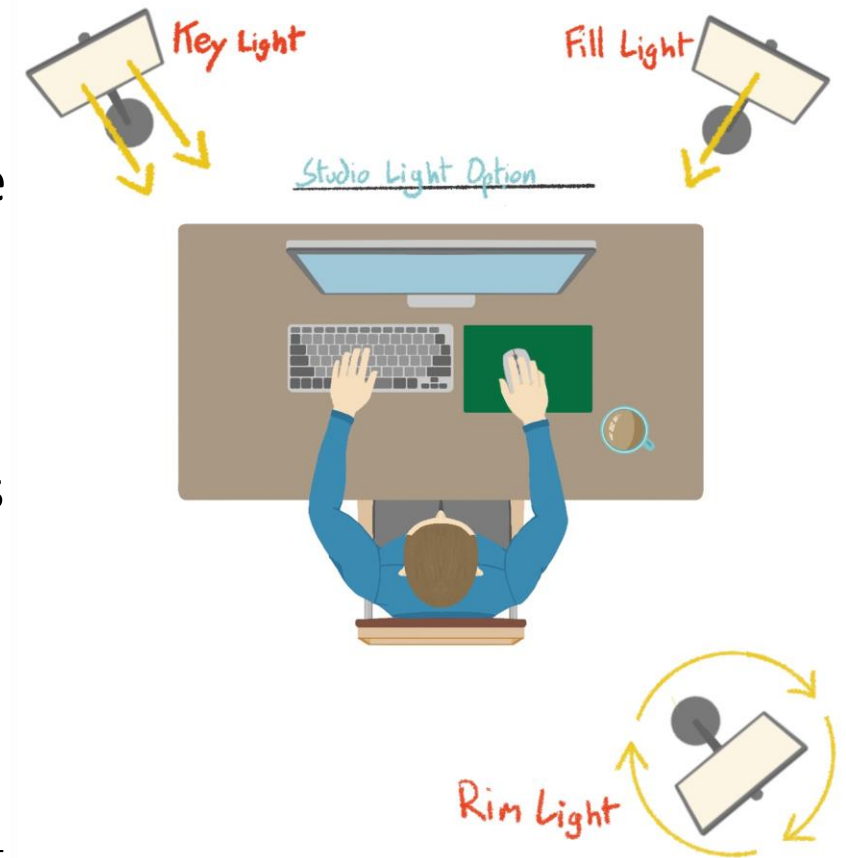


LIGHTING

Three-Point Lighting

The most sophisticated lighting setup that you could use a **three-point lighting system**.

This setup consists of the aforementioned two-point lighting setup with the **addition** of a third light known as backlight or rim light.

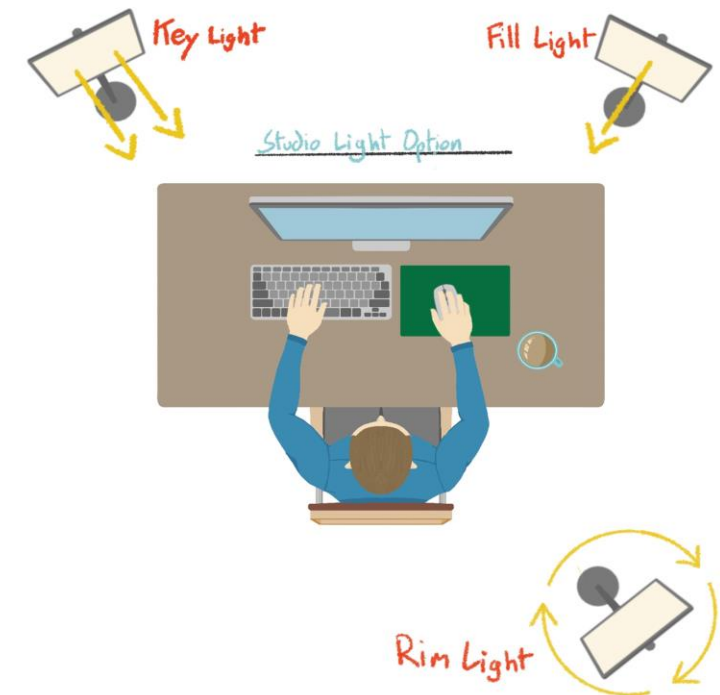


LIGHTING

Three-Point Lighting

The rim light is used to **separate** the subject/person from the background behind them.

This can be achieved by pointing a light **directly at the subject** from behind to create a **halo or rim** effect. It is also acceptable to point the light in the background to use as a backlight.



LIGHTING

Natural Lighting

It is also possible to use the **natural light** that comes through your windows during the day.

Just like using artificial points of light, one, two-point lighting can be used depending on the **number of windows** that are in the room.



LIGHTING

What to avoid

Just like some natural light conditions can be used to your advantage, other lighting conditions and arrangements can cause an opposite effect, creating unflattering images.

Things to avoid include:

- Sitting too close to windows
- Skylights and overhead lighting
- Using a window as a rim light



LIGHTING

Using Professional Lighting

Choosing to use professional lighting will give you the **most flexibility** and control over the light in your room. There are a range of lighting options available that are **compact**, and **inexpensive**.

An example of Professional Lights include: LED Panels

- Small panels
- large panels
- mounted to desk
- mounted to camera
- can be controlled by apps on your phone



LIGHTING

Reflector and diffuser panels

If you are **short a fill light** or even a rim light, a good suitable **alternative** would be to use a **reflector panel**.

Reflector panels have **three interchangeable sides** consisting of a **warm reflector(gold)**, a **cool reflector(silver)** and a **white reflector** that can be used to **bounce light** in whichever direction you point it.



Task: What lightning do you prefer?

1. Assess what lighting conditions are advantageous and what solution strategies there are for rooms that are not well lit.

1. Assess what to avoid in video conferencing



The video creation

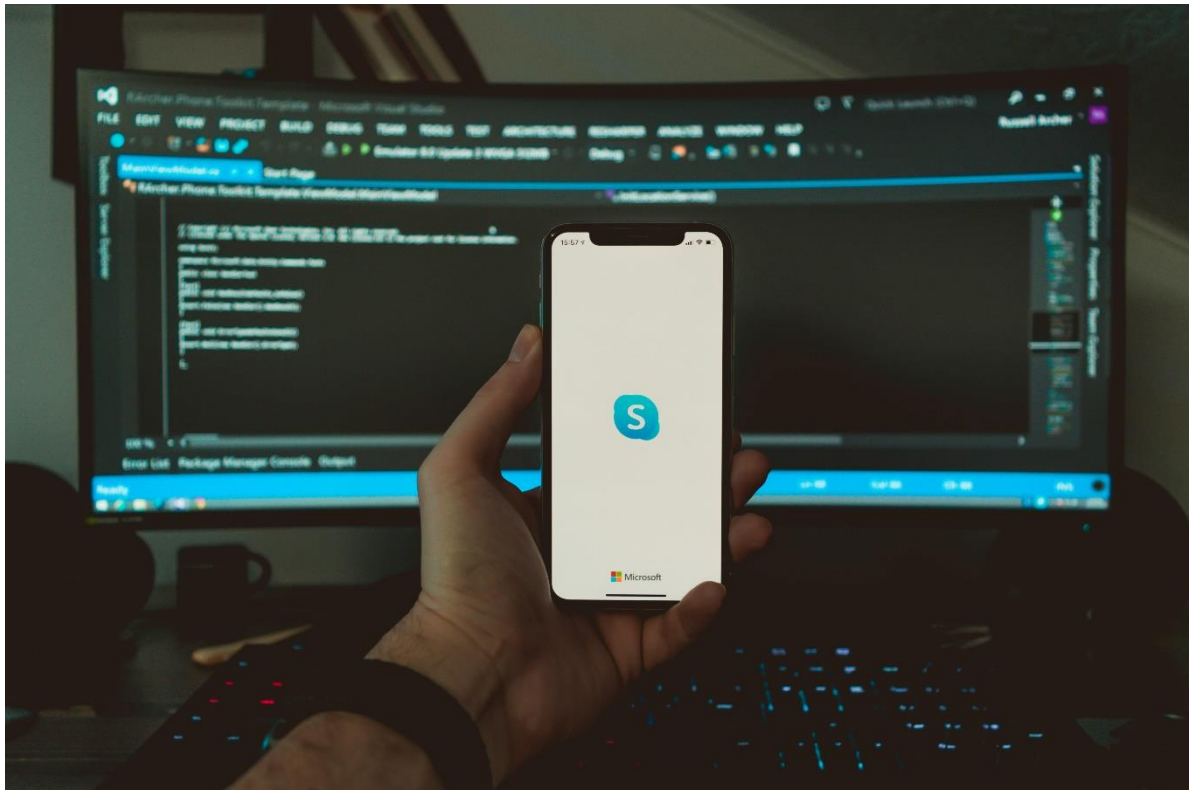


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Popular for live video calls: Skype



Skype is a live streaming platform that specializes in video calls

Advantages:

Fast registration and free use in the basic version

More information on: [Skype](#) | [Stay connected with free video calls worldwide](#)

Popular for live video calls: Zoom

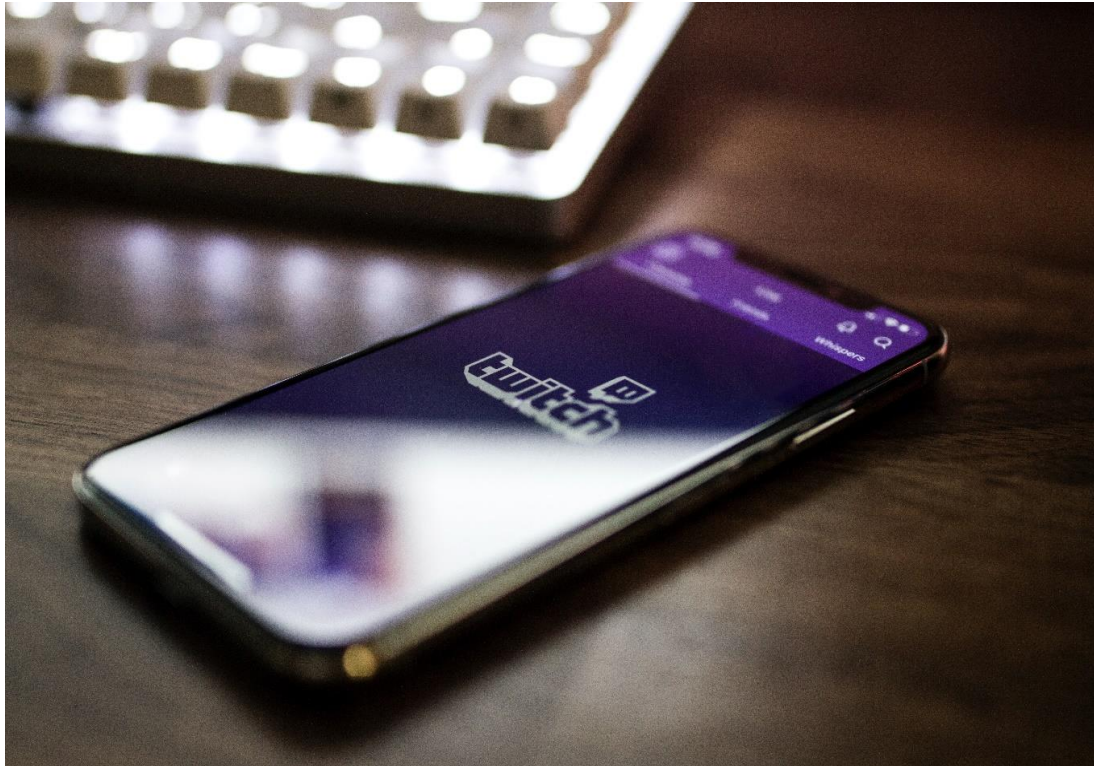


Zoom is a streaming platform for video interaction, chat and running online webinars and events. It offers many different possibilities for exchange:

Breakout rooms and screen sharing are also part of it!

Further information on:
[Video Conferencing, Cloud Phone, Webinars, Chat, Virtual Events | Zoom](#)

Especially popular by gamers



Twitch is a live streaming platform specializing in video games that has opened up for many types of event, such as concerts or live talk shows “just chatting” formats, but is still used primarily by gamers to broadcast video games.

Further information under:
<https://www.twitch.tv/>

OVERALL TIPS FOR RECORDING

- Record in a well-lit room
- Film for sound
- Keep your background simple
- Clean up the clutter
- Keep it steady
- Shoot horizontal
- Keep key players in the video space when recording
- Don't be afraid to re-shoot



Task

1. Make a list of your top 5 advices for video recording and videochats?

1. Which of the aforementioned advice was new to you?



Insights into teaching with technical products



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Streaming

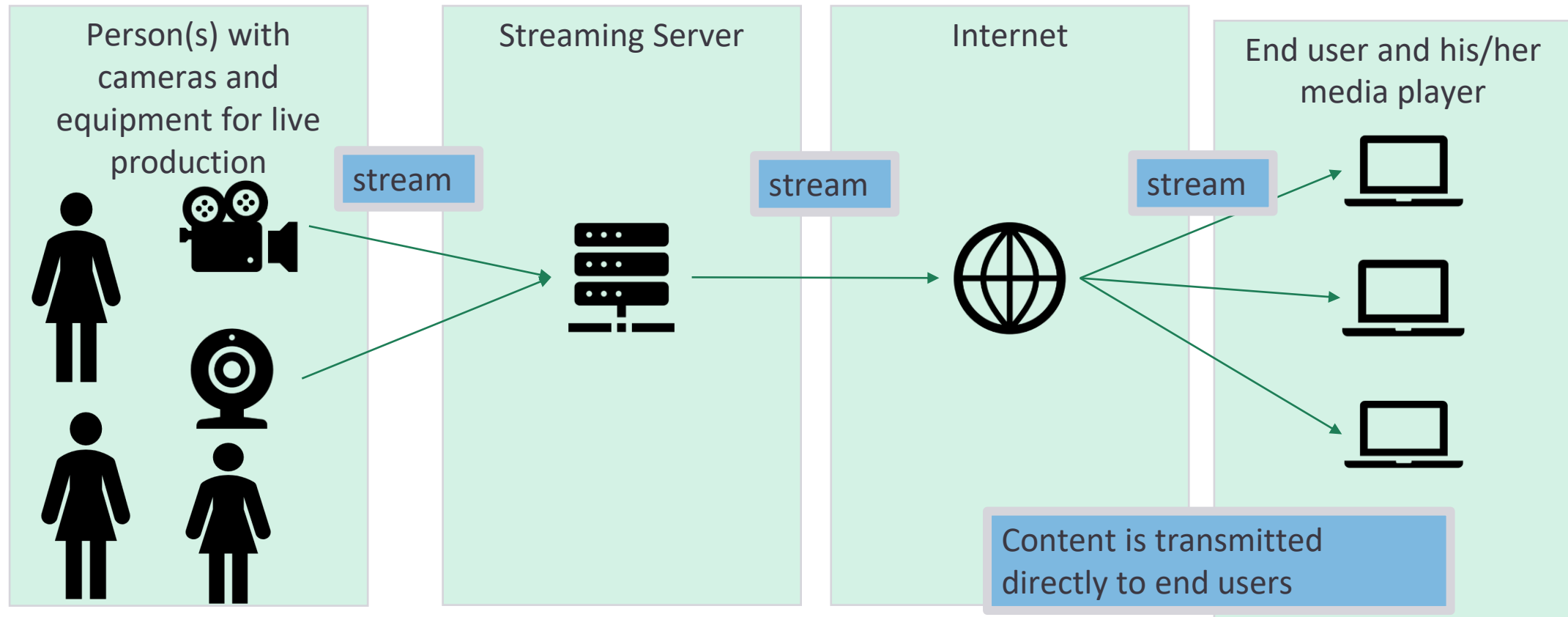


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How does live streaming work? – A model



Live-Streaming

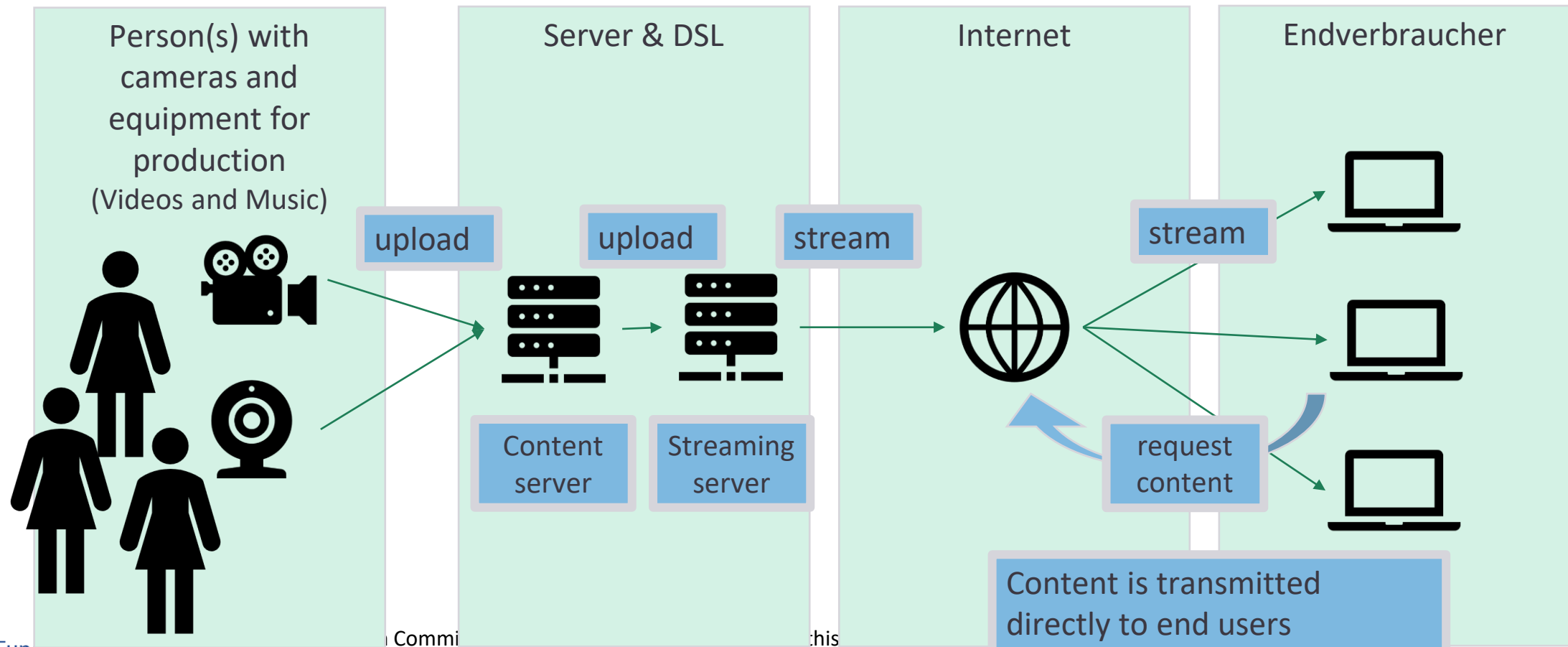


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How does live streaming work? – A model



Task

1. Compare the differences between streaming and live-streaming?
1. What do you think is more attractive for users?



Teaching method



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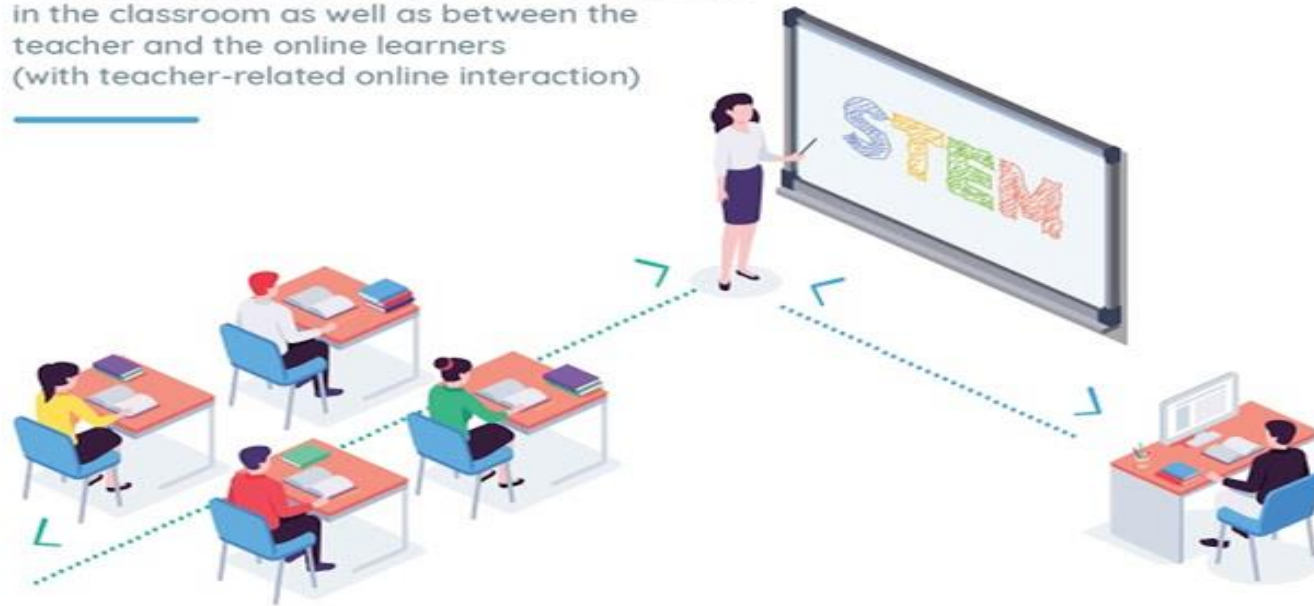


The four DISK implementation levels

Beutner / Pechuel 2020

DISK2

Communication between teacher and students in the classroom as well as between the teacher and the online learners (with teacher-related online interaction)



D2

Beutner / Pechuel 2020



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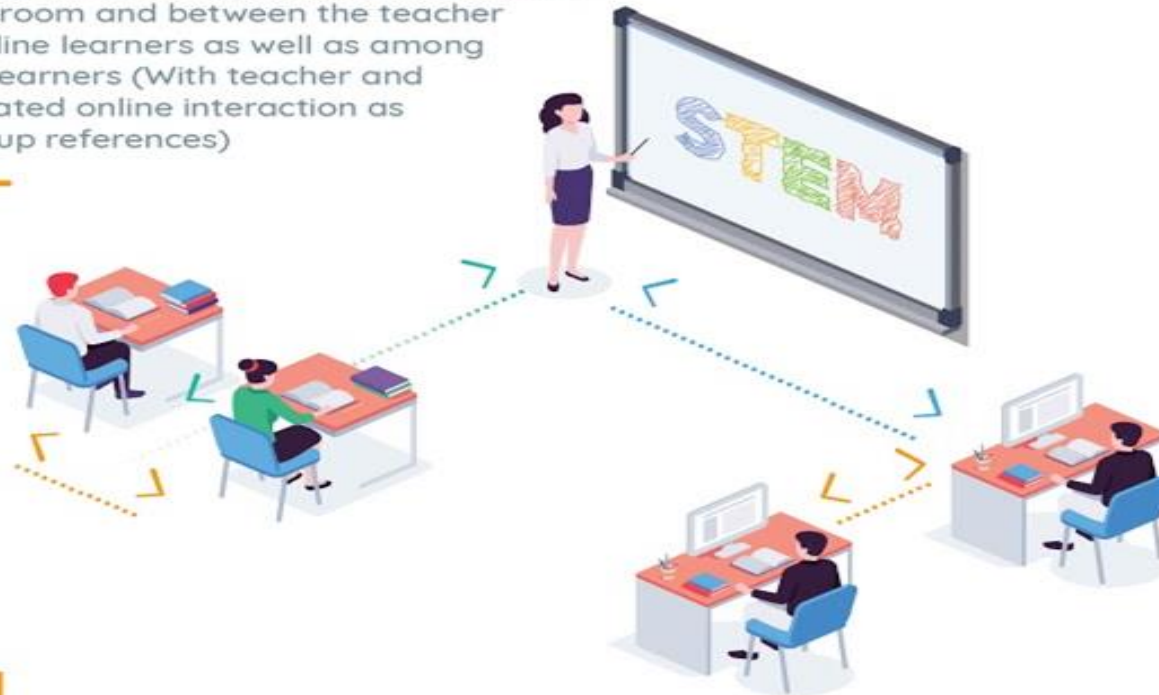
The four DISK implementation levels

Beutner / Pechuel 2020

DISK3

Communication between teacher and students in the classroom and between the teacher and the online learners as well as among the online learners (With teacher and learner-related online interaction as well as group references)

D3



Beutner / Pechuel 2020



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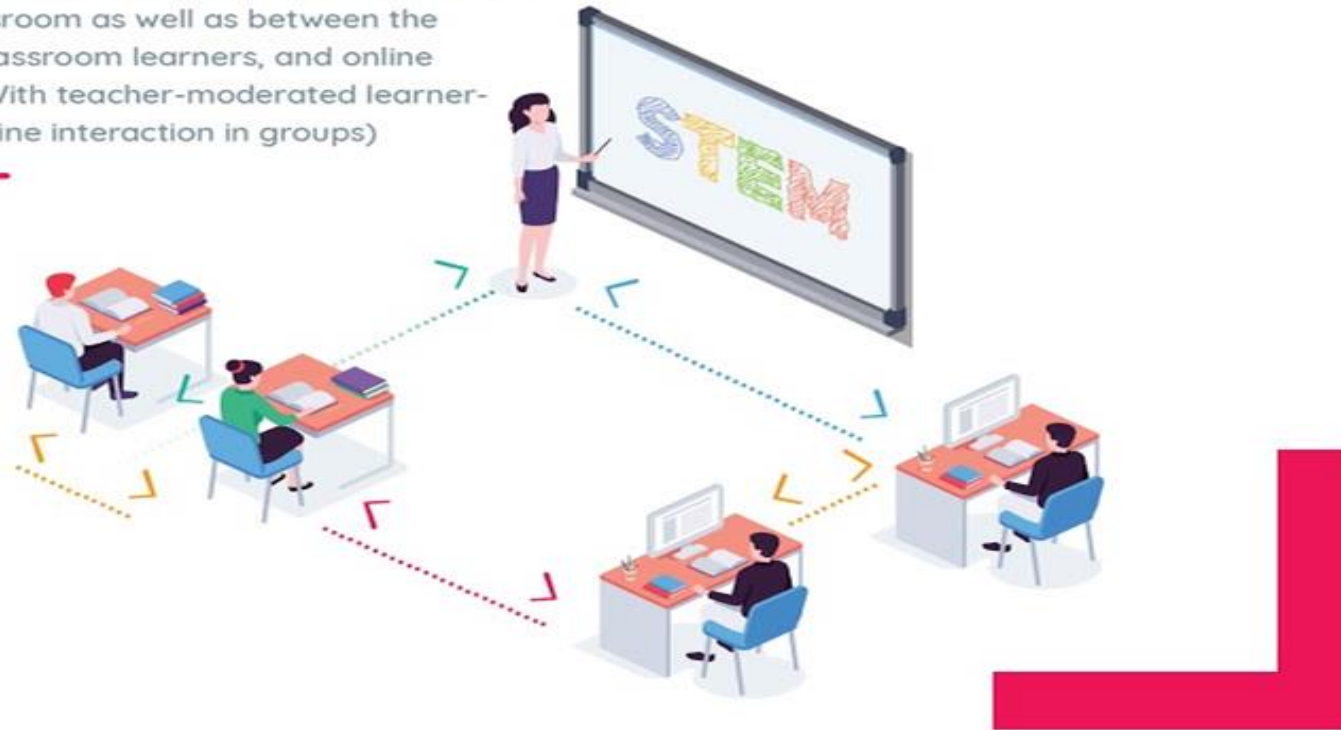
The four DISK implementation levels

Beutner / Pechuel 2020

D4

DISK4

Communication between teacher and students in the classroom as well as between the teacher, classroom learners, and online learners (With teacher-moderated learner-related online interaction in groups)



Beutner / Pechuel 2020



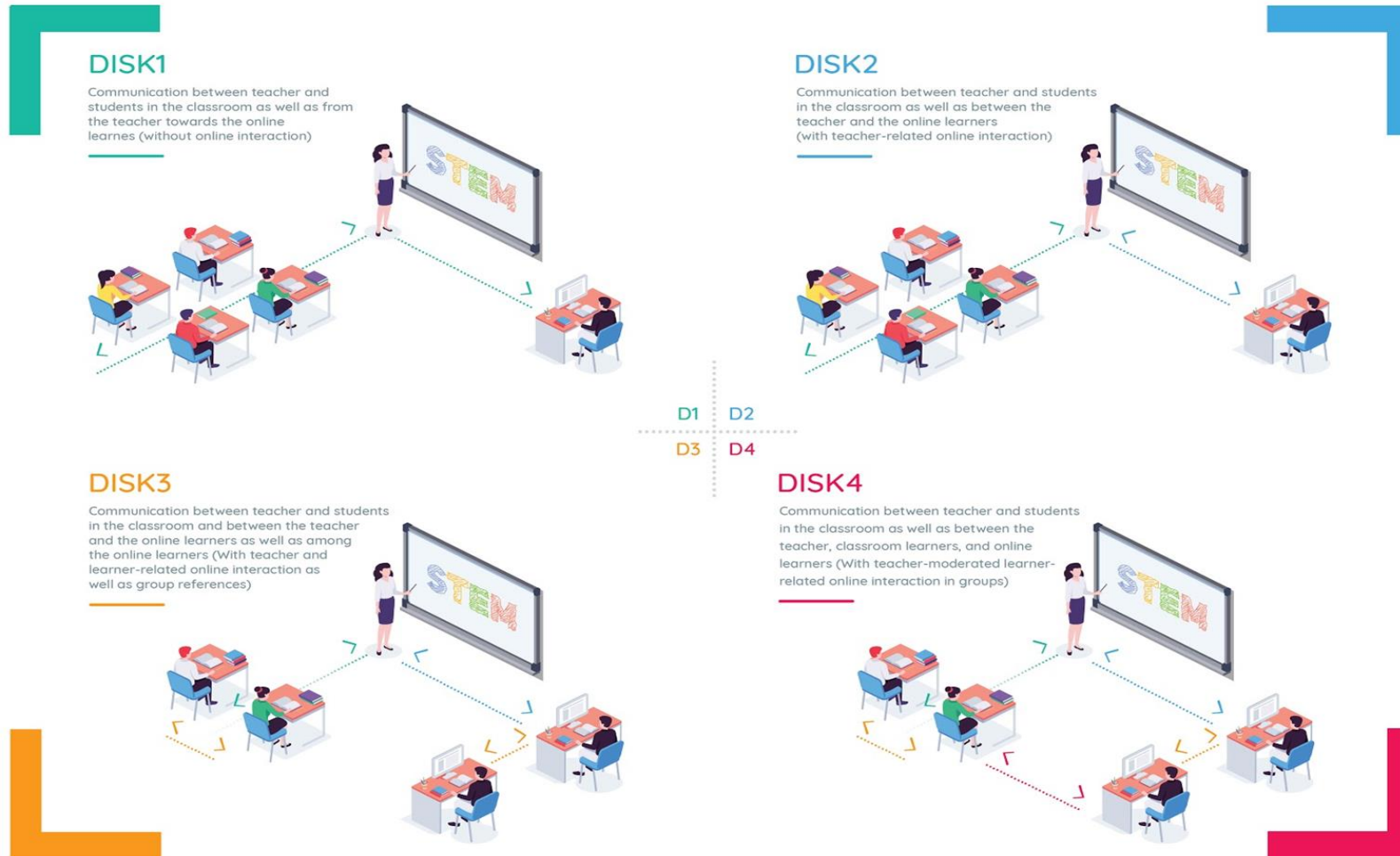
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The four DISK implementation levels

Beutner / Pechuel 2020



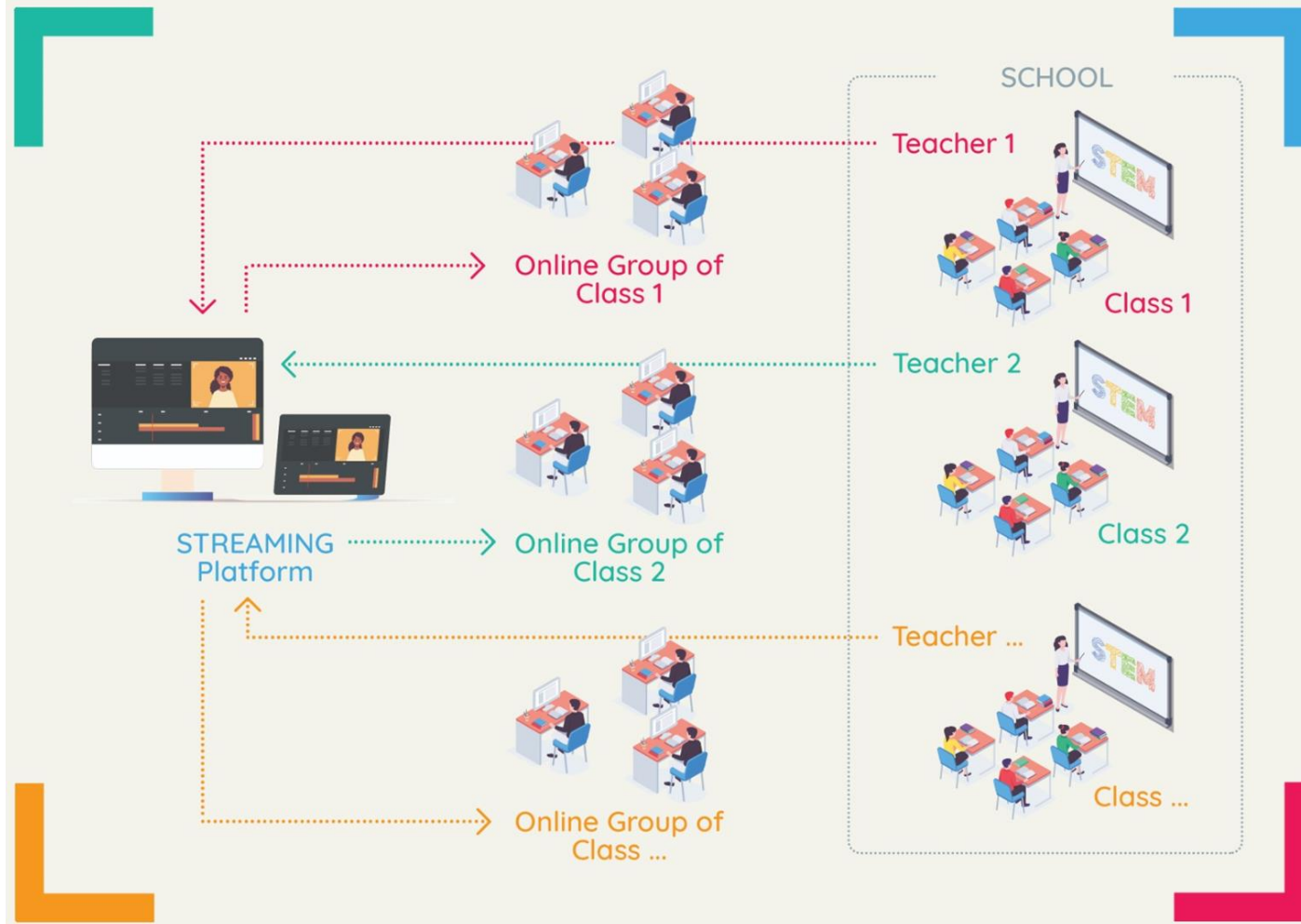
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DISK Streaming in class

Beutner / Pechuel 2020



Beutner / Pechuel 2020



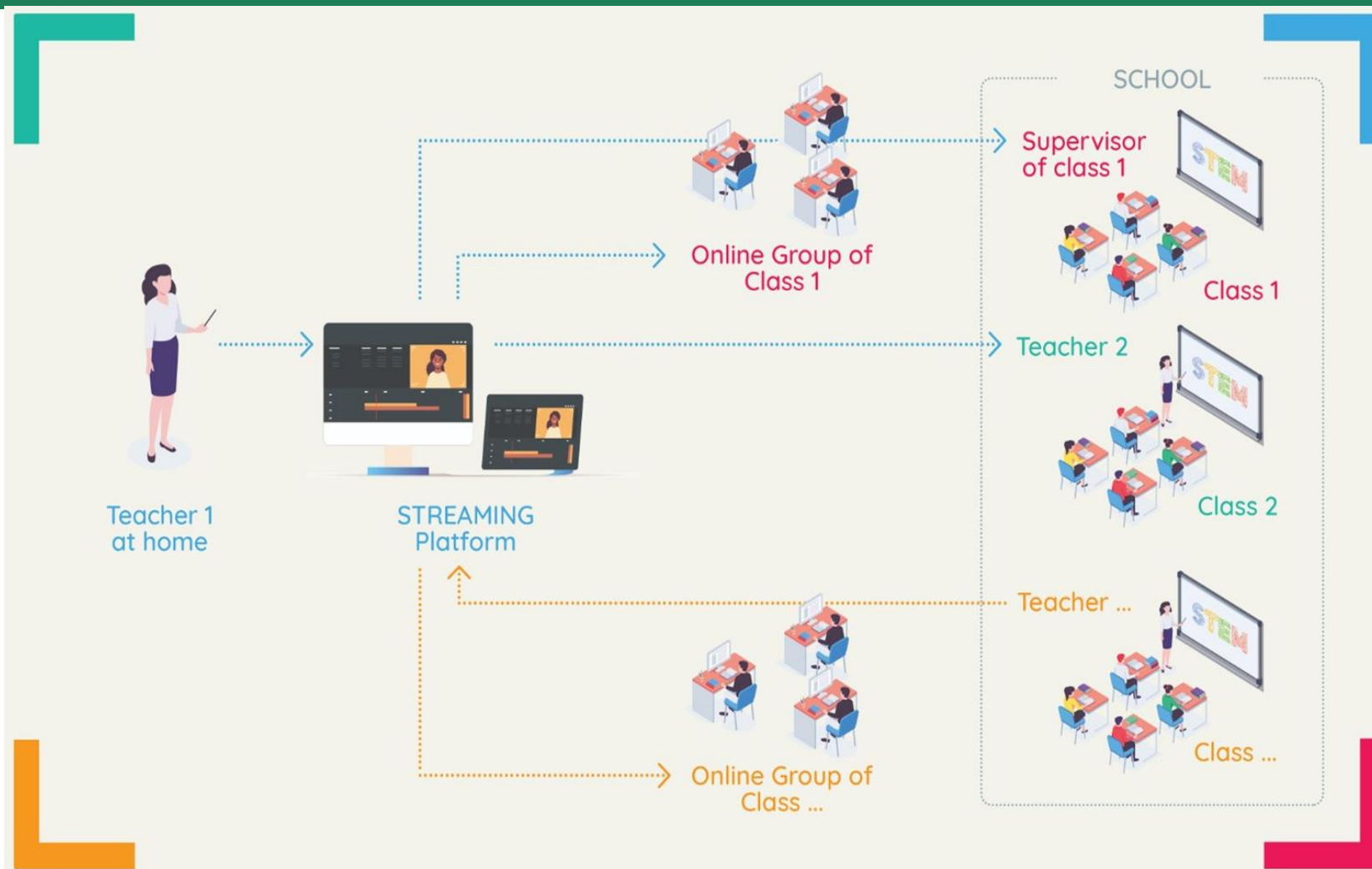
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DISK Streaming from home

Beutner / Pechuel 2020



Beutner / Pechuel 2020



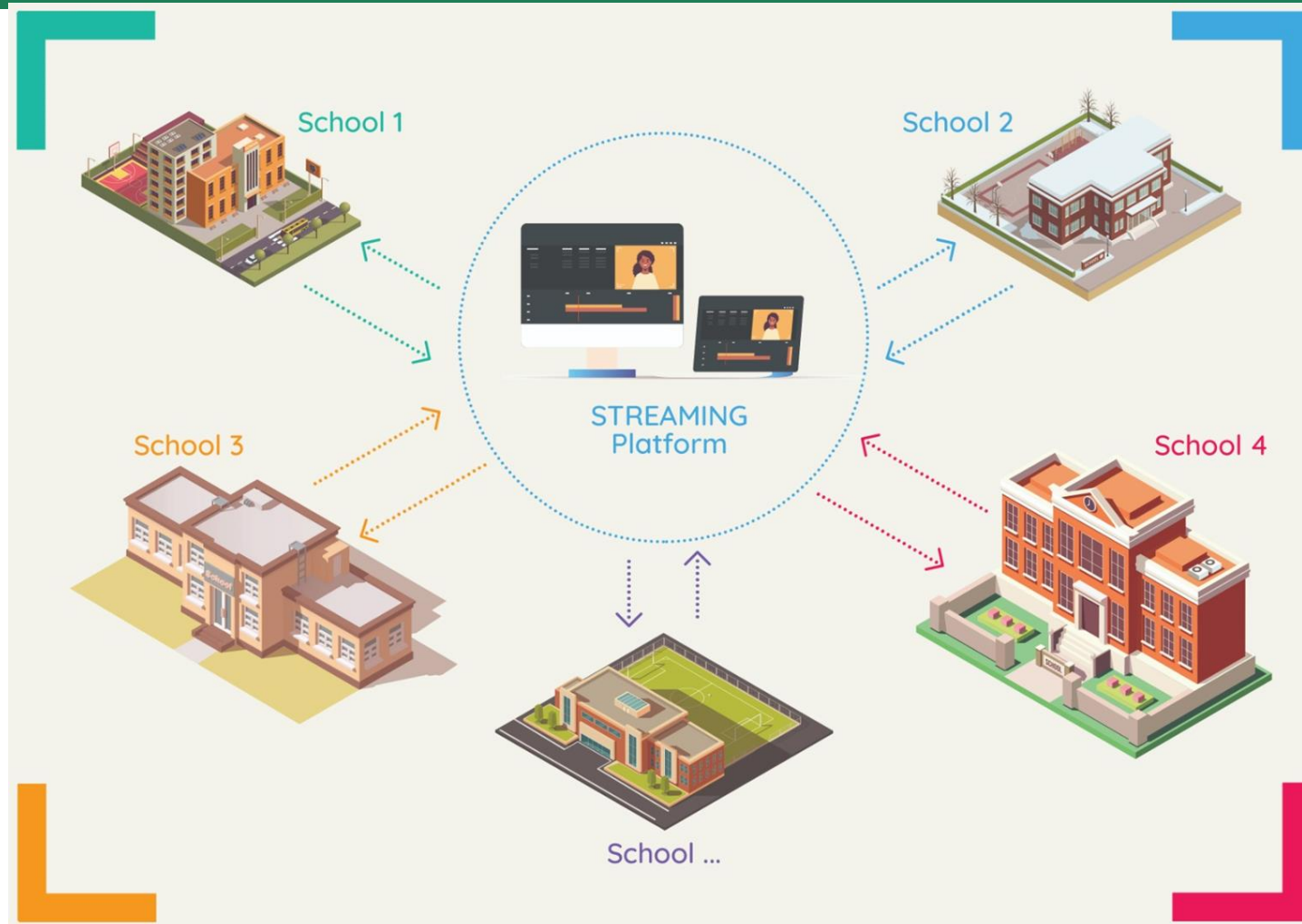
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DISK with several schools

Beutner / Pechuel 2020



Beutner / Pechuel 2020



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Concrete proposal for implementation:

Using Streamlabs OBS in relation to the DISK approach



The question to be answered in the following is:
Why do we need a programme like Streamlabs OBS?



What is Streamlabs OBS?

“Streamlabs OBS is a free, open-source, all-in-one streaming software for new streamers and power users alike. Everything you need to live stream is available in one solution: built-in widgets & chat, game-optimized settings, selective recording, 50 unique apps, and thousands of overlays and themes.”





Here is the link to download the streaming software Streamlabs OBS:
<https://streamlabs.com/downloads>

Twitch (2021): Retrieved from the Internet:
<https://dashboard.twitch.tv/u/jenniferupb/broadcast>, access date: 04.11.2021.

Streamlabs OBS (2021): Retrieved from the Internet:
<https://streamlabs.com/streamlabs-obs/>, access date: 20.10.2022.







Selection of possible – Streaming Software

 <p>Twitch Studio Beta https://www.twitch.tv/broadcast/studio</p> <p>Our free streaming software is built from the ground up for new streamers looking for a simple setup process and high quality stream. With guided setup, built-in integration to Twitch, and plenty of customization options, Twitch Studio makes it easier than ever to get started and manage your Twitch channel.</p> <p>Download</p> <p>Setup Guide</p>	 <p>Open Broadcaster Software https://obsproject.com/</p> <p>Free and open source software for recording and live streaming. Source code is available to everyone to contribute and improve.</p> <p>Download</p> <p>Setup Guide</p>	 <p>Streamlabs OBS https://streamlabs.com/streamlabs-obs/</p> <p>Streamlabs OBS is a free, open-source, all-in-one streaming software for new streamers and power users alike. Everything you need to live stream is available in one solution: built-in widgets & chat, game-optimized settings, selective recording, 50 unique apps, and thousands of overlays and themes.</p> <p>Download</p> <p>Setup Guide</p>	 <p>Lightstream Studio https://app.golightstream.com/twitchmusic</p> <p>Professional live streaming from your browser. Build your ideal layout. Bring on guests remotely. Advanced creative possibilities made easy for anyone.</p> <p>Download</p> <p>Setup Guide</p>
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Twitch (2021):
 Retrieved from the Internet:
<https://dashboard.twitch.tv/u/jenniferupb/broadcast>,
 access date:
 04.11.2021

Selection of possible – Streaming Software

 <p>Melon https://melonapp.com</p> <p>Create professional live streams from your browser in seconds. Invite guests, customize your broadcast, add your branding, and grow your viewership. Intuitive and bundled with powerful features. No downloads required.</p> <p>Download</p> <p>Setup Guide</p>	 <p>OBS.Live https://streamelements.com/obslive</p> <p>OBS.Live is StreamElements' OBS Studio free add-on for streaming (supports V23). OBS.Live makes stream management easy, integrating Twitch chat, your Activity Feed, and Media Request directly into OBS. Other features include Custom Bot name, HotKeys and Leaderboards.</p> <p>Download</p> <p>Setup Guide</p>	 <p>XSplit Broadcaster https://www.xsplit.com/partners/twitch</p> <p>XSplit is a free, highly customizable, and powerful suite of applications to broadcast to Twitch. Whether creating a live stream or editing/uploading clips, it is easy to get started.</p> <p>Download</p> <p>Setup Guide</p>	 <p>Gamecaster https://gamecaster.com/?pp=partners_twitch_recommended</p> <p>Gamecaster is a free live streaming and recording software built with gamers in mind. The onboarding tutorial will set you up with professional scenes and the best settings in just a couple of clicks. Its intuitive interface and features such as the In-Game Overlay make it the perfect solution for gamers looking to start streaming with minimal setup and equipment.</p> <p>Download</p> <p>Setup Guide</p>
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Twitch (2021):
 Retrieved from the Internet:
<https://dashboard.twitch.tv/u/jenniferupb/broadcast>,
 access date:
 04.11.2021

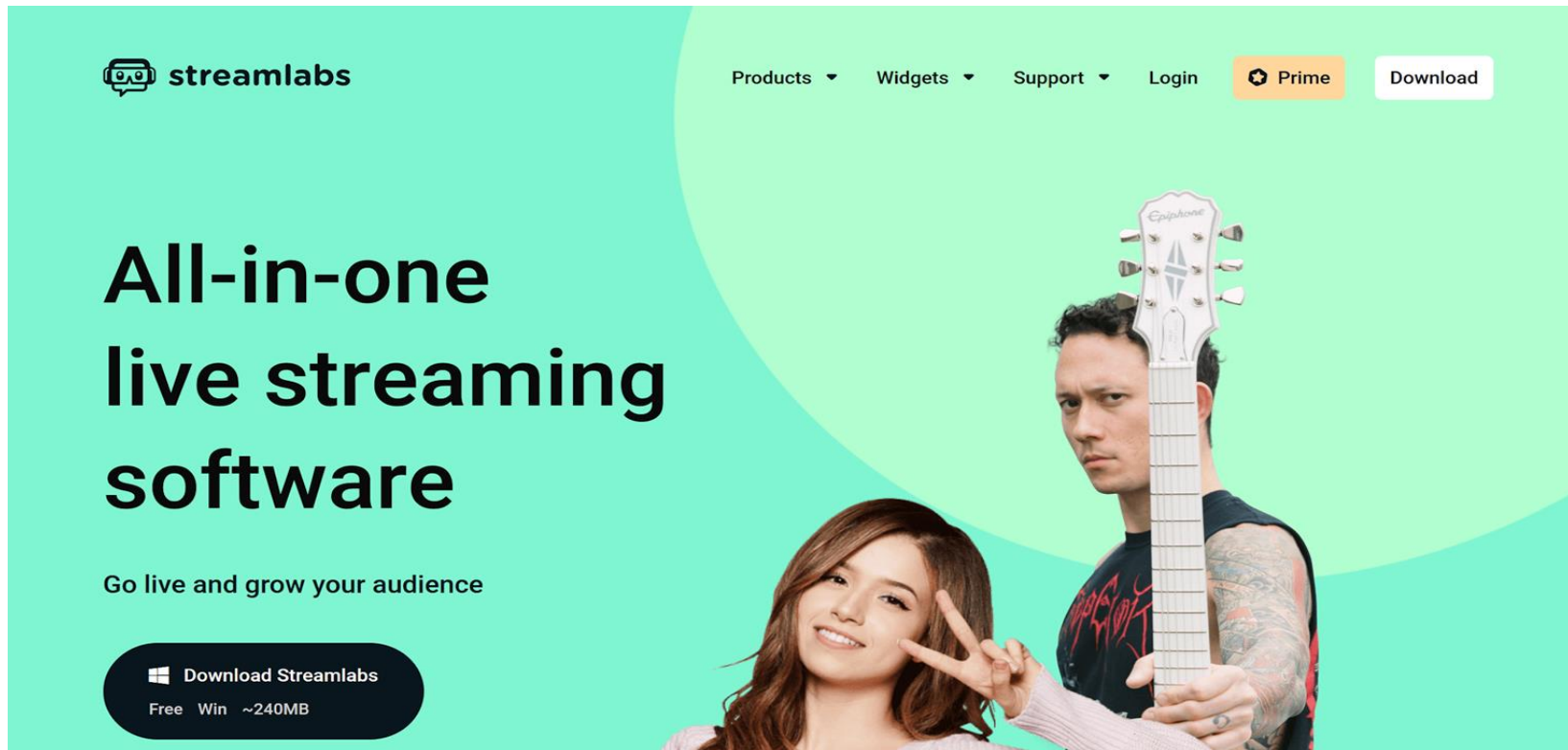


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Streamlabs OBS

A screenshot of the Streamlabs OBS website. The page has a teal and light green background. At the top left is the Streamlabs logo. To the right are navigation links: "Products", "Widgets", "Support", "Login", "Prime" (with a star icon), and "Download". The main heading reads "All-in-one live streaming software". Below it is the tagline "Go live and grow your audience". A dark blue button says "Download Streamlabs" with "Free Win ~240MB" underneath. The background image shows a woman making a peace sign and a man holding a guitar.

Streamlabs OBS (2021):
Retrieved from the
Internet:
[https://streamlabs.com/
streamlabs-obs/](https://streamlabs.com/streamlabs-obs/) , access
date: 04.11.2021.

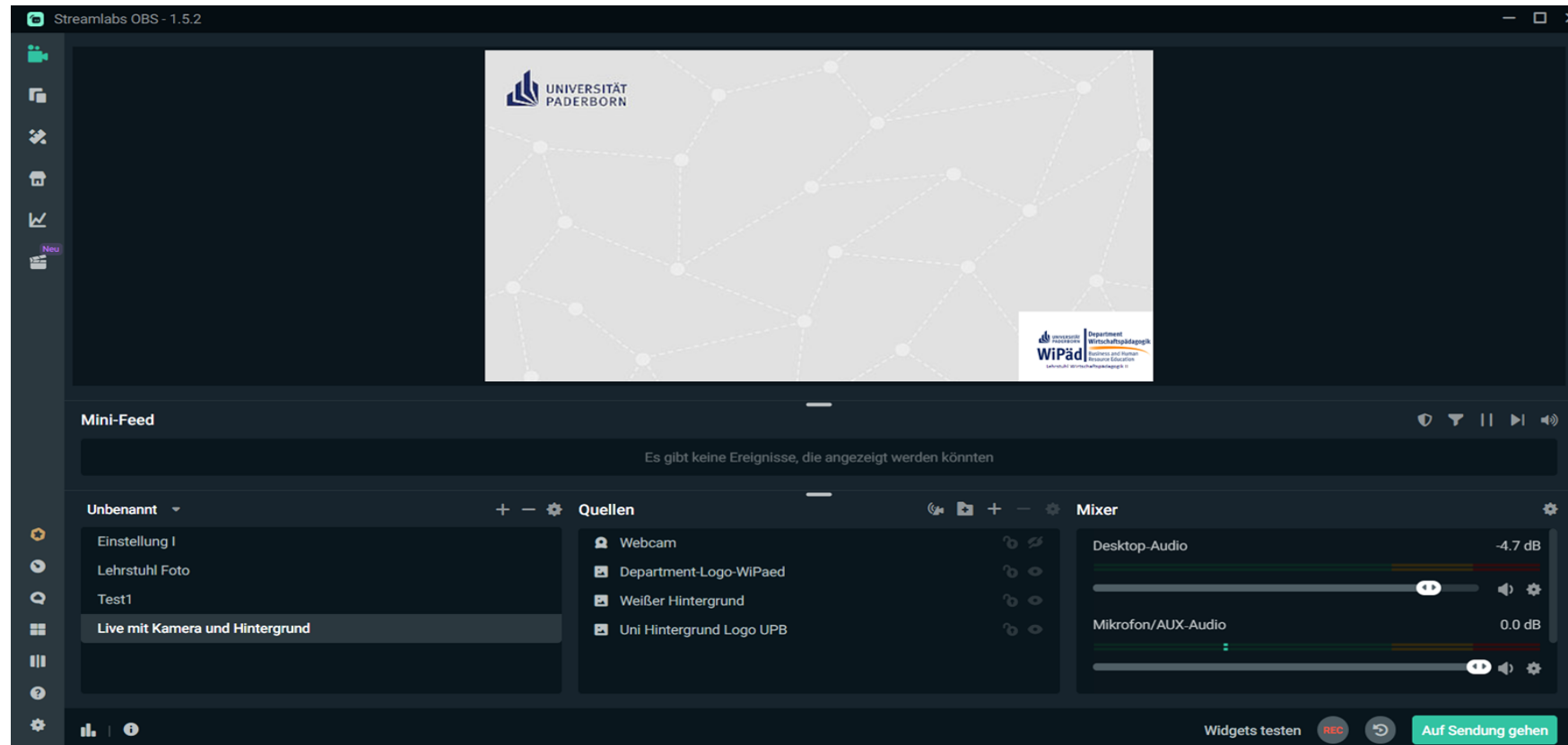


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How to stream on Streamlabs OBS



Streamlabs OBS (2021):
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Internet:
<https://streamlabs.com/streamlabs-obs/>, access
date: 04.11.2021.

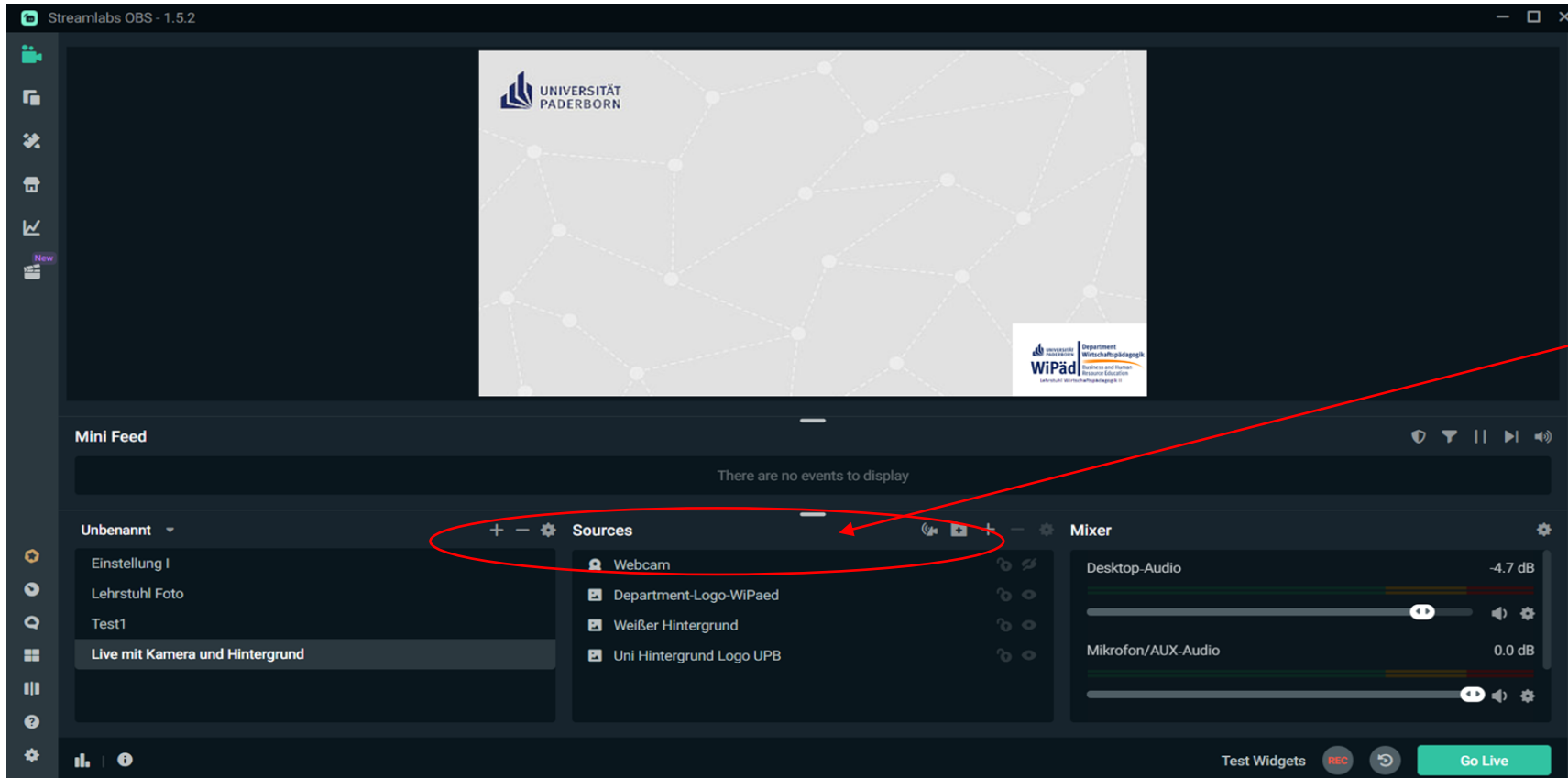


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Insight into Streamlabs OBS



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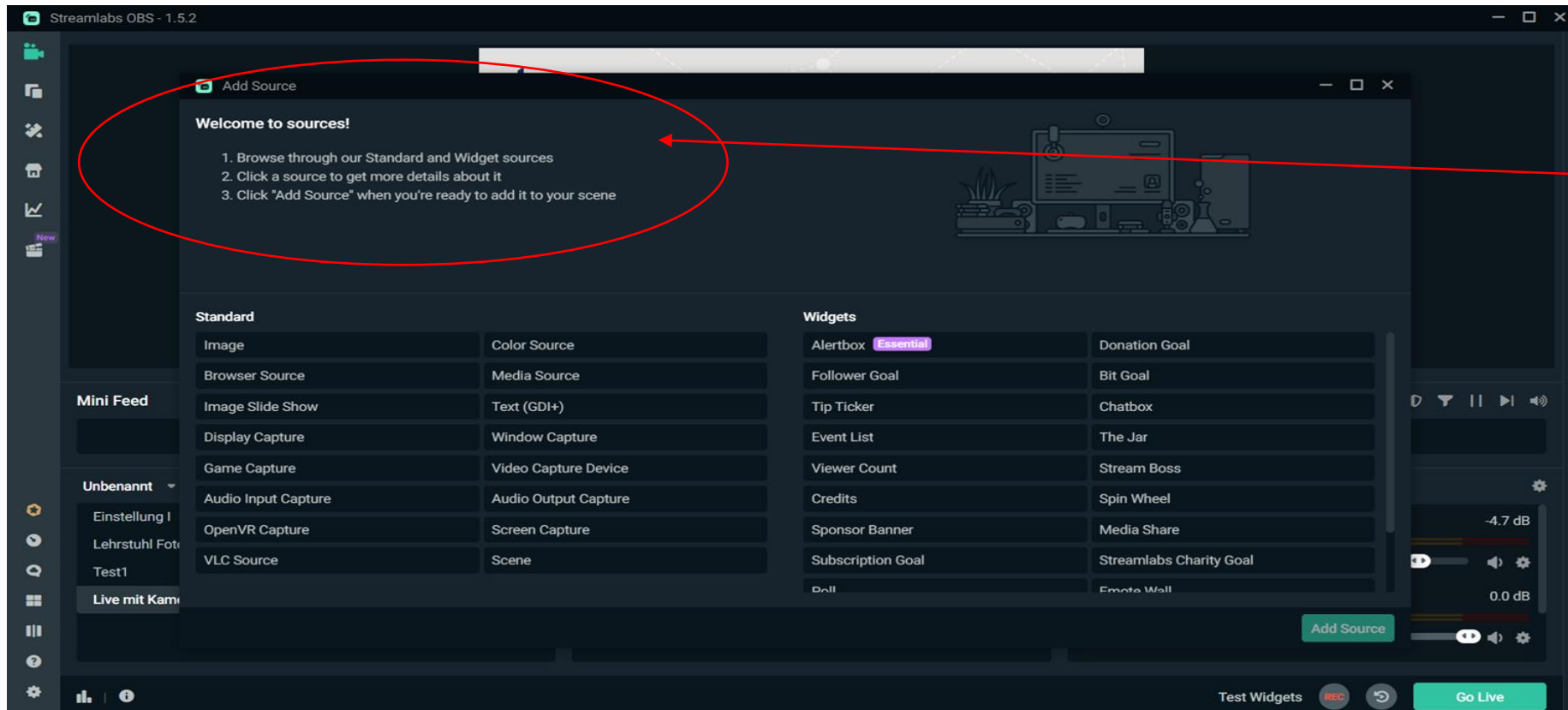


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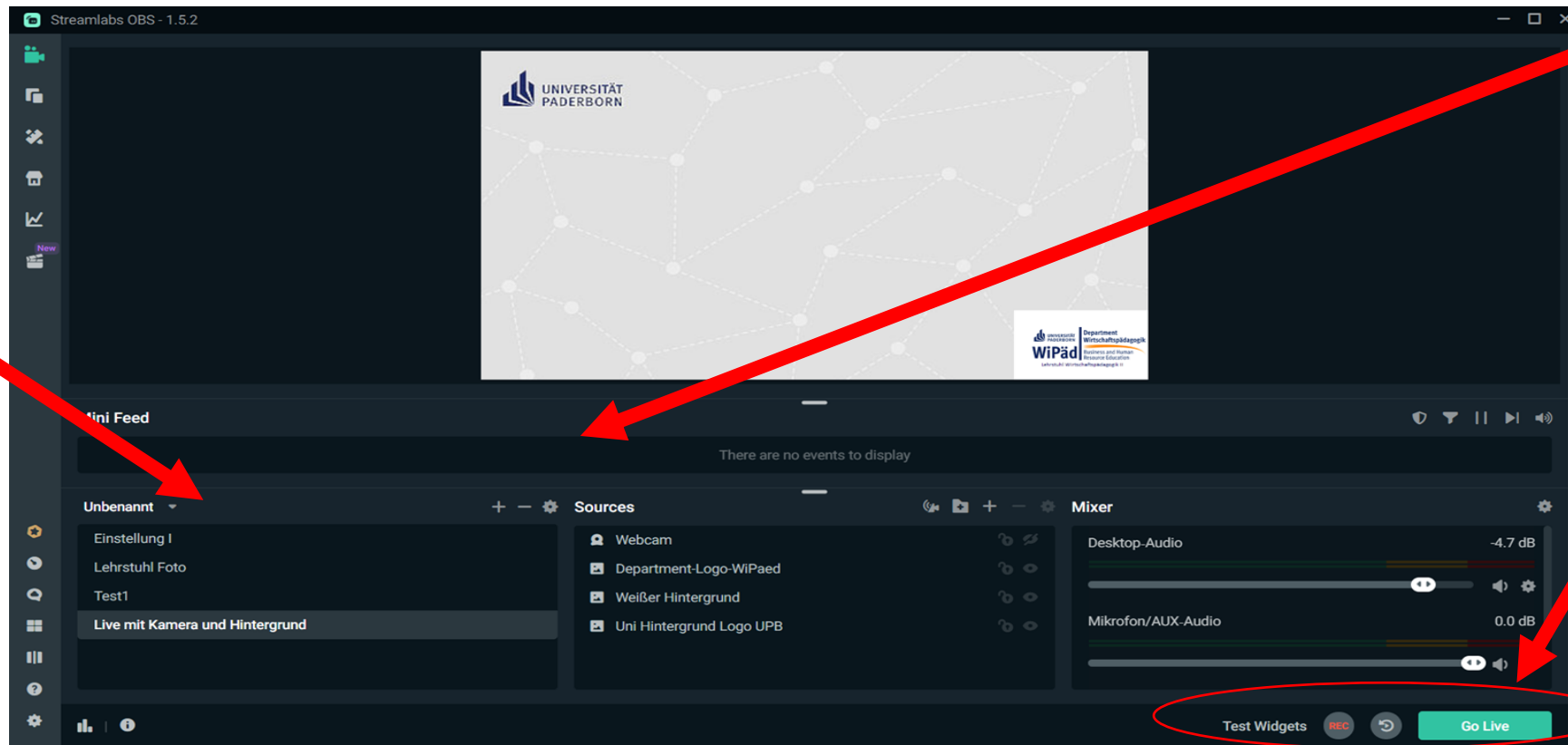
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Cut, add something

Edit the videos

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Additional hints

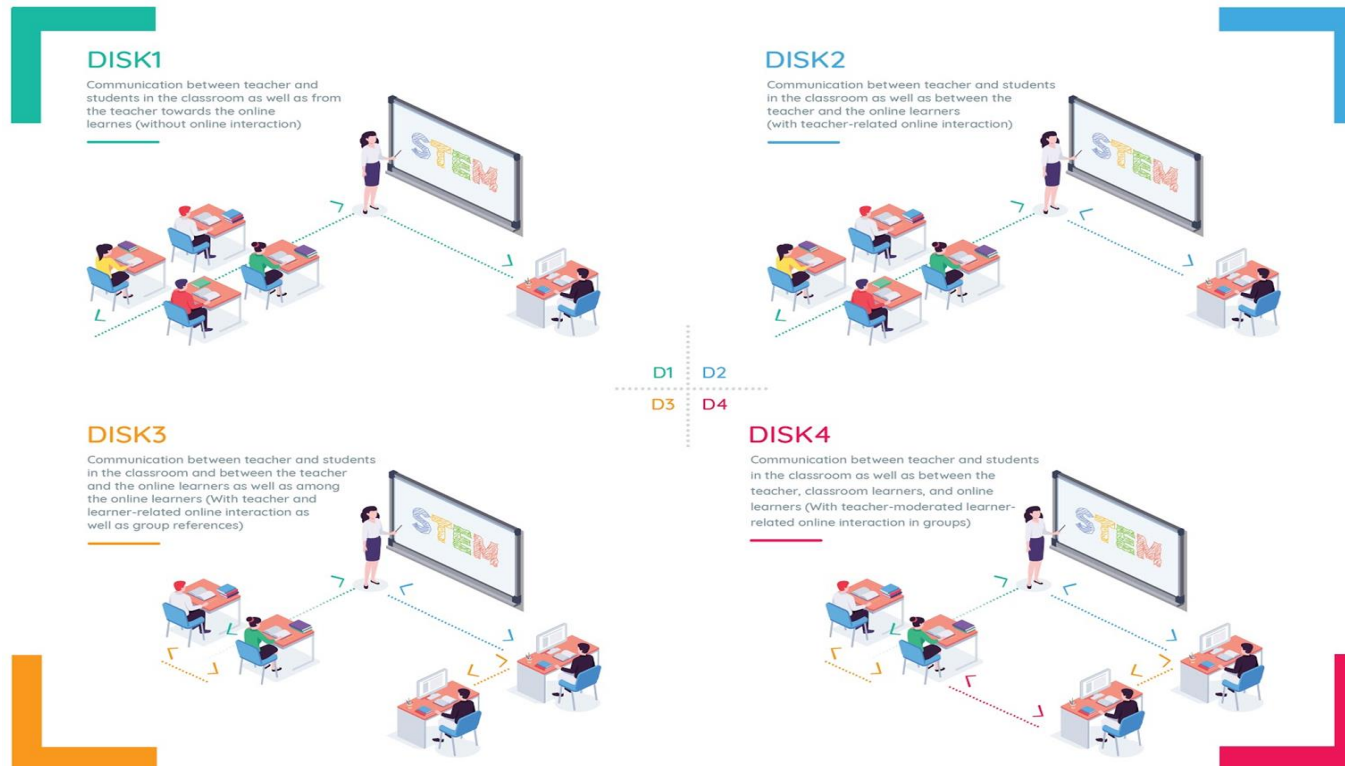


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Additional hints



- The DISK1 to DISK 4 approach increases not only in the interaction between teacher and student, but also in the degree of difficulty of implementation for the teacher.
- If they are beginners in teaching and with technical applications, they start at DISK 1 and increase with DISK 2 ...

Thank you for participating!



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Universität Paderborn
Department Wirtschaftspädagogik
Lehrstuhl Wirtschaftspädagogik II
Warburger Str. 100
33098 Paderborn

<https://wiwi.uni-paderborn.de/dep5/wirtschaftspaedagogik-prof-beutner/forschung/aktuelle-drittmittelprojekte/reliablegreen>

Prof. Dr. Marc Beutner
Tel: +49 (0) 5251 / 60 – 23 67
Fax: +49 (0) 52 51 / 60 – 35 63
E-Mail: marc.beutner@uni-paderborn.de



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