



INTRODUCING DELCOM GROUP'S **WEB-BASED UC CLASSROOM**

AUDIO

Audio is critical to the success of remote teaching and learning.

- **Teacher audio needs to be intelligible.** This will be more important than video in most cases.
 - **Webinars** - Think about the webinars you have been on in the last couple of months. Is it more distracting to have video that is not perfect or to have poor quality audio

- **Voice Uplift** - In addition to the audio that the far end must hear there is also a need for voice uplift in the classroom because if one half of the class is sitting in the same room there will also be a teachers voice being muffled by a mask. All of the above to say that this gets complex quickly. It is easy to do well but there is a cost associated with that.
- **Wireless audio spectrum** - Selecting the right wireless technology is key to success in high density wireless deployments.
- **Analog vs. USB audio inputs** - USB audio requires less teacher intervention in any soft codec.
- <https://www.uctoday.com/collaboration/video-conferencing/audio-can-make-break-meeting/>

VIDEO

VideoA needs assessment and discussion with curriculum for video will be necessary to determine the right solution.

CAMERA SELECTION SUMMARY

If primary video is a screen share from a computer, interactive display or IFP to the PC then the need for a video camera is reduced because the important content is being broadcast as a screen share and not camera feed. As soon as you want to include some other form of content-traditional marker board, science lab, art teacher, band/choir teacher, etc the need for a high-quality camera is very important.

DECISION POINTS

- **Shared desktop** - If the teacher has a good way to share their desktop and stay engaged with the students in the classroom via an interactive flat panel or projector this would be the primary video the video conference. I think for these districts they will need to push teachers that are not using their interactive devices to begin using them almost exclusively.
- **Screen sharing** - without an IFP becomes more difficult because the teacher is now tied to their laptop (we might want to offer clickers or something) which is not engaging for the students in the classroom.
- **Traditional marker board and non-interactive display** - these rooms are going to be far more dependent on an in room camera with the ability to focus on the proper frame. Think about a teacher using a video from their laptop on a projector screen and then writing on the marker board next to the screen
- **Specialty rooms** - science, art, choir, band-these rooms will be more dependent on actual video of the teacher and not just screen sharing

OTHER CONSIDERATIONS

- **Recording** - if the instructors intend to record some or all lessons the camera quality becomes even more important as this quality will always come through in the recording. When using a soft codec there is a chance that the video is downgraded to 720P or even 360P when being sent via the web.
- **Video in Education Retention policies** - Making sure the camera does not pick up students faces is important because it will most like be the determining factor if there is a need to retain video and privacy rights for the students as well.

SOFTWARE

Web conference solutions: Google Meet, Zoom, Microsoft Teams, Webex, Zoho...

CLASSROOM BASED HARDWARE OPTIONS

Different solutions are available, but most will use onboard or USB cameras and microphones. More traditional AV based HDMI cameras and microphones are available and work well but come at a higher cost and complexity. The challenge of the classroom environment is to provide remote students with the feel of a typical classroom.

ON BOARD CAMERA AND MICROPHONE

- **Video** - on board cameras are lower resolution and designed for a presenter sitting directly in front of the laptop.
- **Audio** - audio quality is almost entirely based on the distance of the presenter from the microphone. The closer the presenter can be to the microphone the better. Laptop microphones are designed for the presenter to be sitting directly at the laptop.
- **Options** - very few options are available for using this solution.

TEMPORARY / MOBILE CAMERA AND MICROPHONE

- **Video** - Typically better resolution and camera quality available. More flexibility to place the camera in a desired location to get the right angle depending on the content of the lesson.
- **Audio** - Generally higher quality microphones. Ability to place the microphone closer to or on the presenter.
- **Options** - Auto tracking to allow for freedom of movement and tighter video shots.

INSTALLED

- **Video** - Very high resolution(4k) and camera quality available. Ultimate flexibility to place the camera in a desired location to get the right angle depending on the content of the lesson.
- **Audio** - Very high quality microphones including AEC and other technologies for better clarity and two way communication. Ability to place the microphone closer to or on the presenter.
- **Options** - Auto tracking or smart framing to allow for freedom of movement and tighter video shots. Better camera angles by moving the camera further from the presenter and using an optical zoom lens.

HOME BASED HARDWARE OPTIONS

There are many home-based options available. Camera and microphone quality will have a significant impact on the quality of the content to the students.

Ceiling Mounted PTZ camera with both physical presets as well as AI based smart framing facing the front of the classroom. Simple USB 3.1 connection to teacher PC or Mac device.

USB 3.1 extension from camera to teacher device. Connectivity at the wall will need to be determined at the room level.

Teacher device can be Windows or Mac, laptop or desktop. Ideally USB 3.1 connectivity but we can use USB 2.0 if we need to.

Wireless USB clip on microphone for affordable high quality teacher pickup.



AVER CAM520 PRO
VID-001

COMPUTER
DATA CABLES



GENERIC OFE DESKTOP PC
UNA-002



REVOLABS D2-DSKSYS-D
UNA-001