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Five Challenges for the Collaborative Classroom—and How to Solve Them

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Five Challenges for the Collaborative Classroom—and How to Solve Them

Education is changing rapidly. More and more schools are shifting away from the traditional lecture style of instruction and toward a more active model of learning, in which students are collaborating on projects in small groups and then sharing their work with the class.

A collaborative approach to learning has significant benefits for both students and teachers. But it also creates a number of hurdles for teachers and EdTech leaders.

This white paper explores these challenges in more detail—and it describes a new EdTech product that can solve them.

Why Create a Collaborative Classroom?

The ability to work well with others to collaborate on ideas and solve problems is an important skill for students to develop.

> *"Collaboration is becoming a measurable skill that teachers are seeking to nurture and provide feedback on."*

"It doesn't matter what career path you take; you're going to have to work with other people for the rest of your life," says Ed Holmwood, regional sales manager for ELMO USA. "Learning how to do this effectively is critical."

Today's college and career readiness standards reflect the importance of collaboration skills, and both colleges and employers are looking for individuals with these skills. Therefore, having students work in teams to research a topic or solve a problem and then present their findings within their group or to the class as a whole "is becoming part of what we do inside the classroom to prepare our kids for the world after high school," says Henry Thiele, superintendent of Community High School District 99 in Illinois.

He adds: "Collaboration is becoming a measurable skill that teachers are seeking to nurture and provide feedback on."

Collaborative learning doesn't just benefit students. Teachers benefit as well. For instance, collaborative learning makes classroom management easier. When teachers assign tasks to students in groups, they can monitor progress by checking in on five or six different groups instead of 25 individual students. "This gives teachers more time to be available to all of the students in their classroom," Holmwood notes.

A collaborative classroom also allows teachers to cover more ground in the curriculum, because each group

might be assigned a different portion of a topic. If students are studying the Great Depression, the teacher might have one group research the first two years, another group research the next two years, and so on.

"This breaks that large, monolithic subject matter into easily digestible bites," Holmwood says. "Then, all the groups present their findings to the class at the end, and the teacher helps students connect the dots between what each of the groups was doing."

Key Challenges to Digital Collaboration

As more schools supply digital devices for students, this opens up powerful new possibilities for student collaboration.

Students can research a portion of a topic individually using their own devices, then present what they learned to the group as a whole by sharing their screens. Students can look at the same screen together as it's projected onto a large display, and can co-create or edit a document or presentation.

But facilitating this kind of technology-enabled collaboration isn't easy. Following are five common stumbling blocks that schools encounter when trying to support digital collaboration.

Connecting various devices simultaneously to a shared display requires a collaboration solution that can accommodate any type of device or platform, whether it's a Mac, a PC, an iPad, an Android tablet, or a Chromebook.

1 Accommodating multiple devices and platforms

For schools that have purchased a single, uniform device for all students, supporting multiple device types and platforms might not be an issue. But that's not the case in a majority of schools.

Some schools have added new devices while continuing to leverage their investments in older technologies, creating a situation where students in the same classroom might be using different devices. Other schools have strategically purchased a mix of tablets, laptops, and Chromebooks, because they recognize that each device has unique strengths that make it more appropriate for certain tasks than others—and teachers and students in these schools can choose the best tool for the job as they work on various activities. Still others support "bring your own device" programs in which students bring their own personal devices from home to use at school.

Connecting various devices simultaneously to a shared display requires a collaboration solution that can accommodate any type of device or platform, whether it's a Mac, a PC, an iPad, an Android tablet, or a Chromebook.

2 Switching seamlessly from one device to another

When you have multiple students presenting to a group or the class as a whole, switching from one device to another and getting their images up on the screen takes time, Thiele says. "We often find ourselves doing the 'cable Olympics' as each student comes up to the front of the classroom to present, or as students switch between devices during a small-group presentation."

That loss of time can make a big difference during a 40-minute class period. It also disrupts the flow of a lesson, making it more likely that students will tune out even when the presentation finally continues.

"To disconnect one device from a projector or an Apple TV and connect the next student's device, you might be looking at about a five-minute process from start to finish—which means you've lost all that momentum in the classroom," Holmwood says. Students need a way to move from sharing one screen to another seamlessly without losing valuable class time.

3 Managing network resources

There are a number of EdTech products on the market that aim to address these two challenges—but in the process, they have created new ones.

For example, some companies have tried making it easy to connect multiple devices to a single, shared screen through a piece of hardware that sits on a school's network and acts as a mobile hot spot. Students download an app to their devices that lets them connect to this hot spot, and then software on the hot spot allows them to stream what is on their device wirelessly to a shared display.

But there are a few problems with this approach. For one thing, it requires a lot of bandwidth. "Many school leaders haven't properly anticipated the amount of Wi-Fi traffic those solutions generate, or the logjam that creates on their networks," Holmwood says.

What's more, adding another device to a school's network raises important security concerns. "Most IT folks are extremely wary of adding third-party hardware to their network, and with good reason," Holmwood says. Are these solutions secure enough to prevent a cyber intruder from using them to gain access to the school's network?

Other solutions take a cloud-based approach to supporting student collaboration. For an annual per-user fee, students can log into a web page that will stream the content on their devices to a shared display. But again, this results in more traffic on the school's network. It also requires school leaders to keep track of yet another software license.

4 Keeping costs low

The recurring licensing fees for a cloud-based solution can add up quickly. Other solutions allow students to connect their devices to a piece of hardware, called a "puck," that enables them to switch the content on a shared display from one device to another with the push of a button—but these solutions generally are expensive (costing upwards of $2,500) and can only accommodate four student devices at a time.

Cost-conscious schools need a better solution that won't stretch their EdTech budget.

5 Assessing the quality of student collaboration

Another problem with most existing solutions is that they don't provide an easy way for teachers to assess the quality of the small-group interaction that is occurring.

"When kids are working in small groups, it can be very difficult for the teacher to get around to all of the groups and listen to enough of the conversation to see how students are working together and provide feedback," Thiel says. Plus, when the teacher is standing over someone's shoulder and listening to the conversation, it changes the group dynamics and the nature of the interaction among students.

"It would be nice if we could peer into those dynamics of the group unobtrusively, without actually standing next to them, and get more of an authentic view of how they're working together," he says.

How Huddle Space Solves These Challenges

ELMO USA has developed a new collaboration solution that addresses all five of these concerns. Called Huddle Space, it's a hardware-based product that is inexpensive, easy to use, and works with any device.

Essentially, Huddle Space is an eight-input HDMI switcher. Up to eight students at a time can plug their devices into the Huddle Space using an HDMI cable, and the signal is transmitted over an HDMI output cable to a projector or a flat-panel display.

What makes the product truly unique is that it can record not only what is being shown on the main display, but also the conversation that is happening around it. This creates a digital record of the collaboration that teachers can refer back to later for assessment.

Here's how the Huddle Space solves each of the five key challenges associated with digital collaboration in the classroom.

Compatible with any device: The Huddle Space can accommodate any type of device—iPad, Chromebook, Windows, Mac, or Android.

"For all of those devices, there is only one way to access content that is ubiquitous, and that is an HDMI cable," Holmwood says. "If you have an iPad, you can get a Lightning-to-HDMI dongle, and you can plug it into the Huddle Space. Chromebooks all have HDMI connectors. Most PC laptops three years old or newer have HDMI connectors, and everything new moving forward has HDMI. With MacBooks, you can get a DisplayPort-to-HDMI dongle, which is very common."

What makes the product truly unique is that it can record not only what is being shown on the main display, but also the conversation that is happening around it.

Seamless switching from one device to another: Switching from one presentation to another is as simple as pressing a button; each input has a corresponding button, and when a button is pressed, that student's screen is broadcast to the shared display.

No drain on network resources: The Huddle Space doesn't require any additional hardware on a school's network, and broadcasting content from a student's device happens over an HDMI cable instead of using Wi-Fi bandwidth. "We don't add more traffic or put something on the network that the IT department now has to manage," Holmwood says.

Cost-effective: The basic unit sells for under $600. And there are no updates, subscriptions, or recurring fees required.

Built-in assessment: A conferencing microphone array on the top of the unit captures the conversation happening as students are presenting and collaborating, giving the teacher additional insight into how students are working together. "When people design a presentation, the bullet points are there to prompt further discussion," Holmwood says. "It's not a full description; it's an outline. I could email you that content, but without my talking about it, there's no *context*. That's what the Huddle Space provides."

There are three versions of the Huddle Space. The basic unit, the HS-G1, is intended for K-12 schools. The more-advanced units include a wireless remote control for switching from one presentation to another, along with a separate audio input that can bypass the conferencing microphone. The teacher can plug in a wireless lavalier microphone into this audio jack, in order to achieve a higher-quality recording for lecture capturing capability.

The Huddle Space also includes an optional battery pack, so it doesn't have to be tethered to an AC outlet. Buying a separate wireless HMDI connector would allow schools to cut all cords and place the unit anywhere inside a classroom.

Endless Possibilities

Community High School District 99 provides Chromebooks for each of its 5,000 students. Every classroom has a projector, and teachers incorporate student collaboration as much as possible.

The challenges described in this white paper were all too common in District 99 as well, which is why Thiele worked with ELMO to help design the Huddle Space. "Before, there was really no way to gather both the video and audio seamlessly from the collaboration occurring in student groups," he says. Now, he is excited about the potential for assessing collaboration that the Huddle Space will bring.

"We can record the student interaction as a digital file that teachers can review later, or they could share it with students who were out of class that day," he says. "Teachers could assess that interaction formally, or they could sit down with students and assess the quality of their work together. Students can record dry runs of their presentation and receive feedback on it. The possibilities are endless."

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Perhaps the strongest aspect of the Huddle Space is simply how easy it is to use, Thiele says.

"You just click a button to switch between different devices, and you click a separate button to record," he says. "The challenge with a lot of technology is the amount of learning curve there is for teachers to put it into use in their classrooms. That's not the case with this product. It's something I could see being adopted very quickly in classrooms."

About ELMO

ELMO has been a global leader in education technology for over 96 years. We have combined years of knowledge and research in order to manufacture only the best education technology products suitable for classroom needs. It has been our pleasure to provide our award-winning technology to thousands of students and educators throughout the world. In recent years, ELMO has expanded its product line, bringing other technologies to the market such as soundfield generators, collaborative devices and other wireless solutions. One thing that has always remained prominent is our dedication to quality, innovation and service. As education continues to shift, it is ELMO's promise to continue to strive and exceed consumer needs by bringing you only the most innovative products with our quality standards at an affordable price. **Learn more at www.elmousa.com or call 800-947-3566.**

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