Proven Techniques for Assessing Students with Technology

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When students participate in class activities, they begin to invest in and, eventually, drive their own learning. However, engaging today's students — especially during online learning — can be a struggle. Yet, as educators, it's our responsibility to teach every learner how to engage.

Students have a choice when it comes to learning. Research shows that they can either be actively engaged or actively disengaged. (Berry, 2020) The research suggests that any move toward active engagement increases the amount of student learning.

Regularly checking for understanding is an important way to keep your students invested in their academic progress. But assessing students online can be challenging, regardless of grade level. Following are some proven assessment techniques you can use to help your students become active learners and increase their chances for higher learning gains.

Technology-Enabled Assessment with Universal Response

Motivating students to participate during online instruction isn't easy. As in the physical classroom, simply asking questions during class isn't an effective way to assess student understanding, as only the same few students tend to respond. However, with universal response techniques, teachers can gather micro-assessments in the form of simultaneous replies from every student.

While these techniques aren't new, educators need to find different ways to use them in order to engage online learners and find out how they're progressing. To keep your students engaged, you should provide a universal response opportunity, inviting all students to respond, at least every 10 minutes during simultaneous instruction. These universal techniques can also improve your classroom dynamics.

The Importance of Wait Time

The average teacher waits less than one second between asking a question and calling on a student to answer. (Gambrell, 1984) But students need time to listen to the question, process what they've heard, perhaps translate to another language, build up courage to answer, and raise their hand to share. For online learning, wait times are even longer due to audio delays, unmuting microphones, or typing. While waiting in front of a computer screen may be uncomfortable, giving students a chance to process information can help propel their learning forward.

Not only is there a wait between the time you ask the question and the time the student answers, but waiting for some time after the student answers makes room for extended response. In our research, we saw significant violations of wait time in online instruction during the pandemic and had to remind teachers that when simultaneous learning is occurring, with some students "Zoom-ing" and some kids in the room, we have to give the online learners more wait time. When we violate wait time, we privilege students who already know the information, speak the language of instruction, or who think quickly.

Universal Response Techniques

1. Waterfall Chats

Early in the pandemic, we observed a lot of "Follow the Leader" behavior during instruction using chat. One, two, or three students — usually with some sort of privilege as mentioned above — would answer, and then everyone else would copy the same answer. When this happens, educators have no idea what the majority of the class thinks.

Using the waterfall technique, students are asked to type their answer in the chat without hitting the respond button. No one can see the answers until the teacher says "waterfall" or some other trigger word. At that point, all students submit their answers at the same time, and all answers are displayed simultaneously. Students can then go back, review the chat, and discuss.

Students like waterfall because they say it's much safer and gives them more confidence in responding. No one is looking at only their answer in the chat. Waterfall also cuts down on students copying each other's answers and gives teachers a better idea of what all students think and understand.

2. Hand Signals

In the classroom, students use hand signals like thumbs up when they're ready, thumbs down when not ready, crossed fingers for the restroom, or three fingers to get a drink of water. They can also be used to show agreement, disagreement, indicate that they have a question, or show their understanding. As in the physical classroom, hand signals are an effective way to assess students learning online.

Many learners — especially adolescents — don't like to have their cameras on during class. If your district can't require that cameras be on, as is our policy at San Diego Unified School District, you can ask them to face their cameras to the ceiling or turn them away from their face. Students can then just put up their fingers using a 1-5 scale, for example, to show understanding or what they're thinking. If students totally agree, they can put up a 1. If they totally disagree, they put up a 5. With hand signals, we've encouraged students to increase camera use and engage in their learning more.

3. Response Cards

Research shows that response cards are associated with higher achievement on tests and quizzes, higher levels of participation, and lower levels of disruptive behavior as compared to hand raising. (Randolph, 2007) During simultaneous classroom instruction, students are asked to hold up their responses at the same time so teachers can see their thinking.

The same technique can be very effective in online learning. Students at home can hold up dry erase boards with their answers to the screen without showing their faces. We've found that dry erase boards are the easiest for teachers to read because the writing shows up more clearly. We've also used old CD cases with one red side and one green side for this purpose. If students are confident about their answer, they use a dry erase marker to write on the green side of the case. If not, they write on the red side. Then they show their answers to the camera.

4. Screenshots

Taking screenshots of simultaneous student responses when, learning online allows teachers to have more time to analyze later. Names of students are at the bottom their screen, so the teacher can see who answered what.

When cameras are off, this can be challenging. Encourage students to show their answers by saying, "Cameras on in 3-2-1." Students can then show their work while the teacher takes a screenshot. Even if students turn their camera off again, they still get the opportunity to participate. Alternatively, students can take a screenshot of their own work and paste it in the chat. Then teachers can call on

students to explain their thinking, justify their response, and discuss.

5. Polling for Understanding

Polling is a technique that's commonly used in middle and high school. Adolescents like polling because their answers can be anonymous. The teacher knows who answered what, but peers don't. Polling works well during technology-enabled instruction because everyone can participate and the teacher gets a better sense of what the whole class is thinking.

Many teachers are now using an effective technique called Poll Recall. The teacher conducts a poll, displays the poll results, and students talk about those results. Then the teacher clears the poll, relaunches the same poll, and students respond again. They then compare the before and after answers.

6. Teach-Back

Giving students the responsibility to teach back what they've learned is a valuable asynchronous task for students and an effective way to assess their learning. When students get a chance to teach, they get a chance to learn the material again. In our local district, we have Teach-Back Tuesdays where each week, every student has the responsibility to teach back. Students can teach their siblings, parents, extended family, the class, or the teacher. They just have to record it so we can see that they did the teach-back.

We taught students what a good teach-back looks like by providing them with the following indicators:

- *Tell your audience what concept or skill you're going to explain*
- *Reference the success criteria*
- *Provide an accurate explanation*
- *Explain your thinking, not just the factual knowledge*
- *Look at the camera*
- *Play back before submitting*
- *Name your file in this way*

Students are comfortable with video platforms and can easily record a retelling during their asynchronous time, then submit that recording to their teachers. This is a powerful way to assess students because teachers can find out what the student learned and what still needs to be taught.

7. Clarity Question Videos

Asking students to answer clarity questions in the form of a teach-back is another way to assess students with technology. Students should know the answers to the following three questions for every lesson, every day:

- *What am I learning today?*
- *Why am I learning this?*
- *How will I know that I learned it?*

For middle school and high school students, ask them to record a video for the teacher in which they answer those three questions. You can start out with twice a week, where some students answer the questions on Monday and Tuesday, others on Wednesday and Thursday. That way the teacher always get some video exit slips to assess whether or not students know what success looks like and are progressing in their learning.

Teaching Students to Self-Assess

Rather than serving as the judge of our students' learning, educators should provide tools that allow students to self-assess so they can build the habit of monitoring their own progress and take more responsibility in their own learning. This means that the heavy lifting of assessment is done by the learner, and the teacher's role is to validate or challenge that assessment.

For online learners, you can start small by asking them to rate their confidence through exit polls, or the quality of their breakout room conversations. Teachers can then review, indicating where they agree with the assessment, where they need more evidence, or where they disagree. Over time, you can move into other forms of assessment like single-point rubrics.

In the past, teachers used single-point rubrics to assess their students. Now, students can use the rubrics themselves to show where they have opportunities to grow and what they already know. The teacher then agrees with or challenges the assessment. Not only does self-assessment save the teacher time, but the responsibility lives with the student to assess their own work.

Conclusion

Accountability: The Power to Move Learners Forward
With universal response techniques, teachers can increase participation and hold students accountable. When students know how to share their thinking and ask questions of each other, they play a more active role in their learning and set the stage for increased academic growth.

Design by Lucy Clementoni.