EXPERT MASTERCLASS

How to Use Technology: Plan Your Lessons Like it is 1934!

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Speaker

Ramsey Musallam, Science Teacher, Sonoma Academy, USA

Summary Paragraph/Key Points

Ramsay Musallam is a fan of technology, so much so that he spent four years studying the ways in which he could learn it and use it the most effectively in his lessons. In a highly engaging, audio-visual presentation, Musallam proves how he has now reached a stage whereby he can transcend technology by placing his pedagogy first. Quoting Rushton Hurley: "Technology will not turn a bad teacher into a good one. However, a good teacher using technology well can do great things."

When teaching, Musallam favors the Google form, as it is very interactive and collates responses from his students in real time. The responses go straight into a spreadsheet (without the need to log in), thereby demonstrating a highly effective way in which to collate student feedback or host online Q&A sessions. Another tool which Musallam recommends is that of a "wordcloud" which enables him to categorize a visual hierarchy of the most popular words to come out of his Google forms. He recommends "wordsift.org" for this task – this tool works well for speeches and texts.

During his dissertation on how to use technology, as part of his teaching methodology, he created his own studio. Musallam uses highly interactive, visual and audio methods to deliver his lessons because he believes in Cognitive Load Theory. Cognitive Load refers to the impact – or load – new information has on working memory, which has a very limited capacity. This is the left side of the brain, where we actively process information, whereas the right side of the brain is our long-term memory. Information enters the left side of the brain via our eyes and ears (for example, the individual numbers that make up a mobile phone number), and then

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when it processes them again it is often one chunk (for example, the full mobile phone number).

"Your brain cognitively chunks things into workable elements so that it's more soothing", explains Musallam.

Through the use of technology and media, he decided to "flip" his own chemistry lessons, whereby what was traditionally set as homework was done in school and students were told to "do the learning" at home. Surprisingly, his average Mean AP Chemistry Score was 3.2 out of 5, and it descended regularly year upon year - in fact, he saw no evidence of improvement in understanding at all. But there was no doubt that the "flipped classroom" could work.

 "It was about finding the right 'sweet spot' at which to do the flipping," Musallam explains.

He tried lots of different technologies and platforms, but none of it seemed to work until a child in his class, Kevin, said "I don't believe you." During a demonstration of an experiment, Kevin guessed that there might have been more to the experiment, and the "imposter complex" took hold of Musallam. He told Kevin to "prove it", and Kevin was excited to do it.

"This was the most incredible day and authentic experience of my teaching career, because I saw the children create their own experience and learn from it," Musallam states.

As part of his own EdTech Mission Statement, Musallam wants tools that:

1. Spark Curiosity
2. Capture Curiosity
3. Organize Curiosity

He believes the flipped classroom movement does not do this, "because it is not a pedagogy, it is a technique".

How do we spark curiosity? Musallam identified an interesting correlation between the axes of **knowledge** and **curiosity.** When students have no knowledge, they are actually not very curious. And when they have all the knowledge, they are not that curious either. However, Musallam has proved that there is a specific spot where the "cognitive brain has opened up". So he finds movies on YouTube to spark curiosity, downloads them to his computer (by putting "ss" in front of the YouTube address, to save having to use YouTube live in the classroom) and then imports the files into Keynote so he can show what he needs to spark curiosity in the classroom.

How do we capture curiosity? Musallam says he relies totally on his phone, and constantly takes pictures and little movies, to inspire his students. He refers to Jay Silver's TED talk "Hack a banana, make a keyboard!" which shows how you can use

conductive material to make a computer, and describes how he used this to precede his lesson to develop the interest of his students.

And how do we organize curiosity? This is all about using technology cleverly and responsively to be able to receive information from his students and deliver instructions to them. The three tools that Musallam uses are Google Docs, Google Forms and Google Sites. For example, he uses Google Docs the night before an exam so that the students can interact with each other, and revise together. If he is away, he uses Google Forms so that the students can keep him updated of their progress. Nobody is required to log in, their responses feed into his website and people can attach files or photos. So if he leaves a substitute in class, it is a powerful way of staying in touch with his class and on top of his curriculum. Google Sites has been upgraded so people can make a website directly in Google, which works as a powerful medium for each of his students to share their work.

The goal for us as educators is to recognize that the pedagogical content is not enough; the technical aspects are critical.

So where does 1934 come in?

"Plan as if you have no technology," insists Musallam, "Then revise according to your EdTech Mission Statement … Good teaching is about the intersection between what we teach and how we teach it. This overlap between the two fits in really well with the idea of sparking curiosity. Engage your children!"

MAIN TAKEAWAY: Teachers should give themselves time to learn new technological methods to share highly interactive visual and audio tools with students to deliver lessons and drive interactive, engaging learning.