



Technology – It’s Here to Stay, and That’s a Good Thing!

It is not only important for teachers to instil a passion for a student’s chosen subjects – including history, of course – but also prepare them for the world they are entering.

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Let’s get one thing straight from the get go ... I am *not* a technology teacher, I am a history teacher who uses technology. I love technology – I always have – and I am convinced it can be used to leverage student learning and understanding in history. When I started teaching in the mid-1990s, I was fortunate enough to commence teaching history in a school that was rolling out its first 1:1 laptop program. I am ever grateful for that serendipity as I have never worked in a school where students were not empowered by the use of technology.

After twenty years of teaching I’ve heard just about every argument as to why technology in the classroom is bad. While all of the arguments have come and gone, the integration of technology continues to increase to the point that it is no longer considered an add-on to the classroom. It has begun to ‘disrupt’ the way we teach – including the way we teach history – and also the manner in which students expect to learn. Personally, I think that disruption is a good thing – there, I have said it – a ‘good thing.’

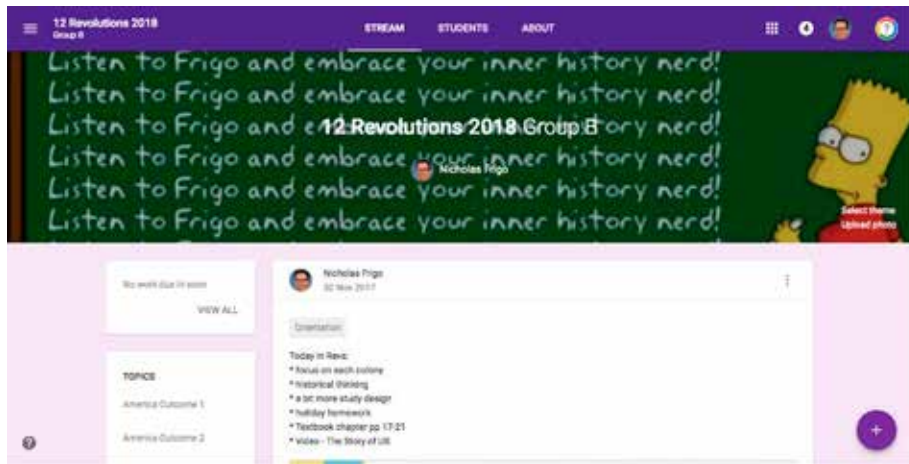
Unlike other industries, teaching has remained largely aligned with a model developed during the industrial revolution, a model that is still practised in many secondary schools – teacher at the front of the class,

desks facing the front, students putting up their hands to seek clarification and the teacher lecturing (in one way or another).¹

However, this ‘sage on the stage’ approach is now being challenged. A 2014 article titled ‘Lectures Aren’t Just Boring, They’re Ineffective, Too, Study Finds,’² by journalist Aleszu Bajak reported on a study of STEM students in the United States that found:

... undergraduate students in classes with traditional stand-and-deliver lectures are 1.5 times more likely to fail than students in classes that use more stimulating, so-called active learning methods.³

I fully recognise that active learning can take place without using digital technologies, but for this article, I want to highlight why, and how, digital tools *must* be used with students. This approach is based on wide-ranging evidence which highlights that the students we teach now are products of a new revolution – the fourth industrial revolution, the digital revolution – and as such we not only need to instil students with a passion for their chosen subjects – including history, of course – but we also need to prepare them for the world they are entering.⁴



LEFT: Screenshot from the Google Classroom app.

According to the Organisation for Economic Cooperation and Development (OECD) publication *Trends Shaping Education 2016*, new technologies that have emerged in recent times have:

... changed the way we communicate, work and even socialise. And they have the potential to do more.⁵

The OECD report also states that this digital revolution provides a range of opportunities for students (and teachers), including great connectivity, global communities, easy access to information and collaborative knowledge building.⁶

With these opportunities in mind, the remainder of this article will examine how technology can be used in the history classroom. The importance of the use of technologies to improve student learning is evidenced by a range of studies of teaching practice, including the work of John Hattie who argues that technology provides striking opportunities for teachers to be able to see learning and thinking occurring and:

... intervene in calculated and meaningful ways to alter the direction of learning to attain various shared, specific, and challenging goals.⁷

What follows then is an exploration of tested and tried tools and activities that are peculiar to the history classroom – but could easily be adapted to other learning contexts – and which focus on the use of technology as part of twenty-first-century pedagogy for creating and curating learning, rather than focusing on a discussion of commercial apps already packaged with historical content. The one constant in using these tools is that they are all managed and

disseminated to students using Google Classroom. Basically, Google Classroom is a free Google app that lets educators create classes, distribute assignments, send feedback and see everything in one place.⁸

In their first lesson with me, each of my students enrol in Google Classroom and it is there that I post work and resources and where we collaborate and communicate in the virtual space. Posting any activities or files made in Google Docs, Slides or Sheets on Google Classroom as an ‘Assignment’ allows the teacher to observe student work on the activity at any time, literally making their learning visible to the teacher.⁹ This use of technology has proved invaluable for developing historical thinking skills across all year levels.

Teaching the Past but Preparing for the Future

In planning my history teaching I ensure that while students are learning significant ‘historical thinking’ skills (which I will explore shortly), they are also learning a range of broader twenty-first-century skills, namely those popularly referred to as the ‘4 Cs’ – communication, collaboration, critical thinking and creativity. While communication seems like an obvious attribute and skill to be teaching, we can certainly think more strategically about what sort of ‘communication’ skills are best for the class and what will help prepare them for the future. If ‘communication’ means allowing students to share thoughts, ideas and solutions to different historical questions, providing verbal and assessed written responses should not be the only means we provide for them to do this. By using technology, we can provide

- 1 I would like to make a clarification here: direct, didactic teaching has its place in the classroom, but gone are the days where this is considered ‘the best’ form of teaching and learning and the experience that students should expect to have in each class they attend.
- 2 Aleszu Bajak, ‘Lectures Aren’t Just Boring, They’re Ineffective, Too, Study Finds,’ *Science*, 12 May 2014, <http://www.sciencemag.org/news/2014/05/lectures-arent-just-boring-theyre-ineffective-too-study-finds>.
- 3 Bajak, ‘Lectures Aren’t Just Boring.’
- 4 Brad Curtis, Billy Krakower and Scott Rocco, *Hacking Google For Education: 99 Ways to Leverage Google Tools in Classroom, Schools, and Districts* (Cleveland: Hack Learning, 2017); ‘21st Century Learning Design,’ <https://education.microsoft.com/GetTrained/21CLD-1>; Klaus Schwab, *The Fourth Industrial Revolution* (London: Penguin, 2017); International Society for Technology in Education, ‘Digital and Media Literacy,’ <https://www.iste.org/explore/categorylist?id=23>.
- 5 OECD, *Trends Shaping Education 2016* (Paris: OECD Publishing, 2016), 98, <http://www.oecd.org/edu/trends-shaping-education-22187049.htm>.
- 6 OECD, *Trends Shaping Education 2016*, 98.
- 7 John Hattie, *Visible Learning for Teachers: Maximizing Impact on Learning* (London, Routledge, 2012), 15.

more empowering communication opportunities. I have found two tools particularly useful for developing student communication skills: Google Classroom and spreadsheets.

Google Classroom provides the opportunity for every student to respond to a given question via a short written response or by voting for a selection of options. For example, a question posed could be ‘What do you believe was the most significant cause of the Coercive Acts (in the American Revolution)?’ Using this tool, *all* students in the class are able to share their views – providing a voice to *every* student. As a teacher, you are able to click on each of the options provided to see which students chose that option and use this information as an opportunity for further discussion. This technology tool, I have found, gives quieter students greater confidence to share their ideas, opinions and thinking, thereby working to amplify student voices.

The use of spreadsheets (such as Google Sheets, which is discussed in more detail later) is an amazing way of using technology to allow every student to communicate their ideas, knowledge and solutions with the rest of the class. One of my history classes found this a particularly useful activity when focusing on some significant individuals being studied. The use of technology in this way has empowered *all* students with the opportunity to communicate about a given activity, not just the ones who always contribute or who possess the confidence to do so. By communicating in this way, as a teacher I get the chance to monitor the level of understanding that each student has about the given question or issue at hand.

Using Technology to Teach Historical Thinking Skills

The most recent iteration of the *VCE History Study Design* clearly articulates the importance of historical thinking skills.¹⁰ Teaching these skills using technology provides considerably broader opportunities for teachers to make student learning visible and allow them to collaborate with each other and the class.

Much of this article refers to a range of Google products to effectively support and develop student learning. This is for the very practical reason that the

school at which I currently work adopted G Suite for Education at the start of 2016.¹¹ The reality is that most of the concepts and practices that I explore here exist in Microsoft and Apple proprietary products, but with different names. So, with this in mind, let’s explore how technology should be impacting on history teaching and learning, with a particular focus on the following core history thinking skills.

USE SOURCES AS EVIDENCE

Learning how to ‘read’ sources (visual or text based) is an important skill for students to develop. In order to develop students’ skills in analysing sources, I have made extensive use of two Google apps, Slides and Sheets.

Creating a Google Slide deck to analyse a source prior to using it as evidence is a very powerful activity. I have used this presentation program and the features within it to create hyperlinks (hotspots) on an image that students can click on to view a range of annotations and information about the source on another slide in the slide deck. Once I have modelled this technique for my students a number of times, they can work in small groups, which works really well, and undertake a similar analysis with other given sources. Students can collaborate on the same slide deck in real time, which allows them to see what other group members are writing. In this instance, students are not only exercising their own historical skills, but are also creating digital content that they can share with the rest of their class.

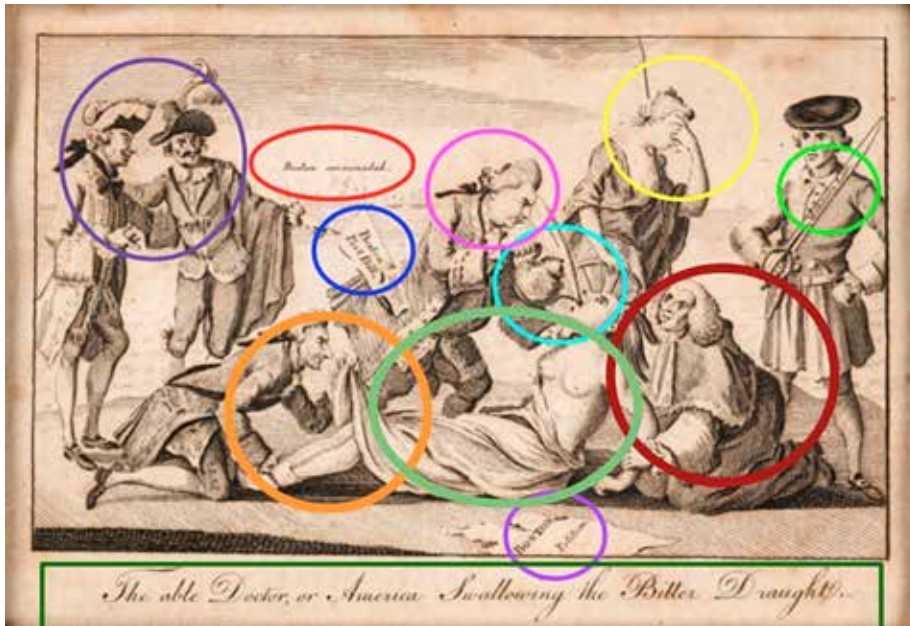
In addition to Google Slides, Google Sheets is a very effective digital tool for use in the history classroom. Students are initially very sceptical and unfamiliar with spreadsheets, but this is where technology can be used to leverage historical skills while also providing students with transferable skills that can be used for their school study or in the future. At the start of each year I speak to my students about a concept called ‘crowdsourcing knowledge,’ which is basically that twenty-five heads in a class are better than one. I set up a template in Google Sheets that provides one cell for each student (which is their digital property where only they can write) and leaves space for a focus question or topic in the middle. Students are then required to share their best piece of evidence about the given individual/event/idea

8 ‘About Classroom,’ Google: Classroom Help, https://support.google.com/edu/classroom/topic/7175444?hl=en&ref_topic=6020277.

9 The Google ecosystem works on the basis that any Google app can be shared with other people on a ‘can edit,’ ‘can view’ or ‘can comment’ basis. Any file posted on Google Classroom for student use as an Assignment automatically gives the teacher the ability to see current student work comment on it at any time, either inside or outside of class time. Google Classroom is also very effective in supporting differentiation as you can post work to the whole class or to individual students based on their learning needs.

10 Victorian Curriculum and Assessment Authority, *Victorian Certificate of Education History Study Design (Accreditation Period 2016–2020)* (Melbourne: VCAA, 2015), <http://www.vcaa.vic.edu.au/Documents/vce/history/HistorySD-2016.pdf>.

11 For more information, see ‘Spark Learning with G Suite for Education,’ <https://edu.google.com/k-12-solutions/g-suite>.



LEFT: Example of the use of hot spots in Google Slides.

and comment on *why* they believe it to be important.

This creation of content benefits the whole class as it sparks debate and discussion, and also allows students to see what their classmates are selecting. As a teacher, I am able to see them create their work in real time. This really shifts the teacher role from being the sole arbiter of core knowledge to facilitating and monitoring the learning exchange amongst students, intervening and directing as necessary as they create and curate their knowledge and select evidence. This has led to greater care and thought by students as to what they contribute to such a learning activity as they know that they are working to support not just their own learning but also that of the rest of the class. I would add here that as the teacher you are required to ensure that what is created is focused, relevant and reliable, and this is where your expertise comes in.

IDENTIFY CONTINUITY AND CHANGE AND ANALYSE CAUSE AND EFFECT

While students nearly always love the historical narrative that forms part of their studies, they sometimes struggle to identify 'continuity and change' and make deeper sense of 'cause and effect.' Even more importantly, they often find it hard to select the most significant changes.

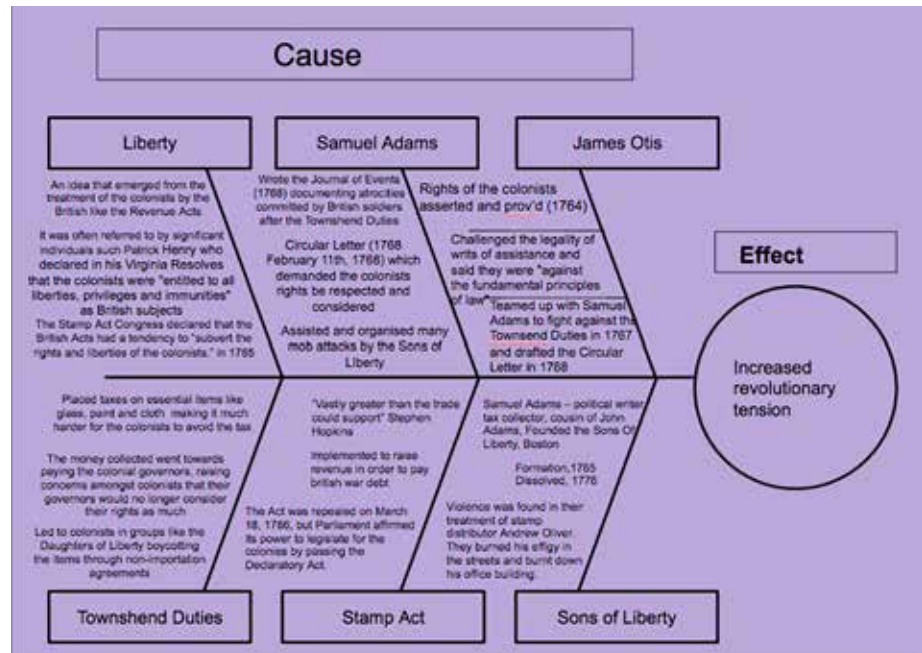
Google Drawings is an excellent technology tool that my students find helpful. For example, the use of 'fishbone' diagrams can greatly assist students to ensure that they are able

to support the central ideas that they are developing. While this is not a task that is reliant on technology for it to work, technology does provide a really important feature – the ability for us as teachers to see exactly what students are thinking, writing and doing on a task, even between classes. As John Hattie's research has found, using technology tools such as Google Drawings for this task allows teachers to see if learning is occurring and alter direction if it is not.

The ability to comment in a more agile and timely fashion on student work while they are doing it can be very effective in improving and deepening student thought. When developing fishbone diagrams, you can leverage the collaborative power of technology by placing students into small groups once they have determined what they see as the main causes in questions such as, 'What do you believe increased revolutionary tension in America?' In their groups, students can then comment on and make suggestions about each other's work in order to help develop the most effective evidence to support their observations.

Similarly, the use of technology has also assisted in making the thinking processes of my students visible to me when they have used hexagonal thinking tools that I have developed for them in Google Drawings. I post these on Google Classroom so that I can then see how my students are travelling with any given activity. Using hexagonal thinking tasks in this form allows for more organic and dynamic thinking as the canvas

RIGHT: Example of a fishbone diagram developed using Google Drawings.



of hexagons can expand as student thinking does – they can colour code it, shift it around as their thinking deepens and it provides them with an excellent visual tool for revision and to reflect on.

Getting students to work on this as a collaborative task also means that they enter into debate (both in class and in the virtual space) about facets of the history being studied and how they see change and continuity occurring. This activity provides students with excellent assistance when they come to compose related written responses because it has helped them to clarify their thinking. It also allowed me as the teacher to comment on their thinking process and understanding even before they compose a response. In most instances, this has helped students achieve a more effective outcome.

Actionable and Timely Feedback

The use of learning technologies, be it Google, Microsoft or Apple, has dramatically changed the ways in which teachers can provide students with feedback in recent years. Current research suggests that purposeful and useful feedback for students on their work needs to be:

... goal-referenced; tangible and transparent; actionable; user-friendly (specific and personalized); timely; ongoing; and consistent.¹²

This is achievable through cloud-based products such as Google Docs, an environment that allows students to

share their work and provides teachers with the ability to assign three types of access permissions: 'Can view,' 'Can edit' or 'Can comment.' As such, literally a whole new world of possibilities has been opened to students and teachers to collaborate together to achieve more effective and deeper learning. In the first instance, it is possible to comment on student work as they are developing it. Setting a writing task for students to complete between lessons combined with the ability to comment on their work in the virtual space via Google Classroom means that students are able to enter into a feedback loop with their teacher.

Over the past two years in which my school has been working in the Google ecosystem, I have seen the quality of student work improve as I can now offer targeted and relevant feedback at a time when students can improve their work rather than just receiving substantive comment from me once their work has been submitted.

Having run professional learning for teachers about how this is done, the question relating to teacher workload in providing this feedback is often raised. As I illustrate to them, the feedback workload remains the same, it just occurs at a time when the students can actively integrate it into their learning rather than at the end of the task. My students are now accustomed to the fact that when they receive their work back at the end of the assessment cycle, they will receive the criteria sheet with very little

12 Grant Wiggins, 'Seven Keys to Effective Feedback,' *Educational Leadership* 70, no. 1 (September 2012), <http://www.ascd.org/publications/educational-leadership/sept12/vol70/num01/Seven-Keys-to-Effective-Feedback.aspx>.

Which American Civil Rights pioneer went to India to learn about passive resistance?

13 / 24 correct responses



LEFT: Example of graphical output representing student data using Google Forms.

further written comment as they have received most of the relevant feedback while developing their work. I should also add that as someone who is very comfortable with the use of technology, at the end of a unit or in response to a piece of summative assessment I will often comment using screen-recording software called Screencastify.¹³

In addition to this form of student feedback, the use of technology provides a rich opportunity to more smoothly build formative feedback into the teaching and learning process. The use of Google Forms allows teachers to create spot tests for students using a range of questioning formats.¹⁴ The power of Google Forms is three-fold.

First, teachers are able to set the test up as a quiz so that when students complete the task, they get immediate feedback. This is very useful for getting a sense of student factual understanding.

Second, Forms provides a range of output data of student performance that can be presented in both spreadsheet and graphical formats to give the teacher an indication of what content students appear to have grasped and what may need to be revisited to ensure that they better understand the key knowledge.

Third, Google Forms allows teachers to incorporate adaptive testing. Within Google Forms there is a feature which allows for branching (where an answer that a student selects for a question will determine the next question that they will be asked). This is quite a complex activity to develop but the rewards are amazing as students are able to complete some genuine adaptive testing in a way that would not be possible without technology; and equally, students and teachers are able to get timely feedback

on their work.

One further way in which I have used Google Forms is as a means for students to tell me how they see themselves as a history student. I can then use this feedback as part of their learning profile and as a part of the discussion at family (parent-teacher) interviews as appropriate. The ability of Forms to collate student data means that I am able to very efficiently create a unique sheet for each student in a class spreadsheet in order to create learner profiles for the history students in my class.

Allowing Students to Learn Real-World Skills When Studying History

One of my biggest achievements in the history classroom is when students have appreciated that the activities or tasks I have asked them to complete have not only deepened their historical knowledge or skills but have also allowed them to develop a skill that has real-world applications. Take, for example, the use of maps in establishing location and proximity for the area of history being studied. Providing students with a photocopy of a blank map to label, shade and then stick into their notes or folder is employing a skill that most students will not use later in life. However, redefining this activity into something that can allow for student collaboration and sharing of work, as well as transferring it into a format that can be showcased as part of an online learning portfolio, is of much greater benefit. The use of Google Maps allows this to occur. With my Year 10 History class this is exactly what I did, requiring them to use a 'blank' Google Map to locate key cities or states in the United States that were to be a focus of our study.

¹³ Screencastify is a Chrome browser add-on. It works with the browser to allow you to record what is displayed on your desktop (i.e. an item of student work) and your comments (in both audio and video formats).

¹⁴ Google Forms is an app that allows you to create tests with a range of questions that students can compete online. Questioning formats include multiple choice, checkboxes, drop-down menus, short answer and paragraph.

Students were able to drop ‘pins’ on each of these locations and then add written annotations, images and/or short videos explaining what event took place at the location and, later in the unit of study, comment on why the place and/or event was significant. The use of this tool allowed a static task to be transformed into one that became more dynamic and could be revisited later in the unit to add deeper and more analytical detail. The other significant issue for me was that students took much more pride and care in what they were doing, and a number of them made positive comments, such as ‘This is the best activity, I’m going to use it to plan the travel that I want to undertake when I am older.’ Students could see that while Google Maps was a vehicle for them to develop, display and deepen their learning, it was also a useful skill for future use.

In addition to this, the use of Google Drawing allowed students to create an infographic about the civil rights movement in the United States. This task required students to synthesise their understanding of key events of the civil rights campaign and collaborate with a partner to create an infographic using historical understanding and appropriate visual evidence while being very selective and concise in what they provided for each event. This activity was really well received and the quality of the work produced was astounding. Let’s face it, infographics are big right now, and students loved being able to

bring some of their skills from other subjects, such as design and art, into their history class.

While I could bang on endlessly about why I think the effective use of technology is crucial in teaching history, I’ll conclude with the comments from a few of my students on how technology has helped them in their learning:

‘The teachers giving us feedback and being able to comment on our work has really helped my learning. Mainly because I can see the comment and change the mistake/comment instantly.’ (Year 7 student)

‘This has helped in my learning because I get to read my peer’s work and learn off them while they read my work and learn from me.’ (Year 8 student)

‘You can do work with friends at the same time and you can get feedback from your teachers.’ (Year 9 student)

‘I think using the G Suite has helped my learning because I have been able to get feedback and help from my teachers, communicate with them and collaborate with other students. It has also allowed me to easily get organised and manage my files using the G Suite and other added apps like Google Keep.’ (Year 10 student)