

Flipped Classroom 2.0

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Background

Since I started teaching secondary social studies in 2004 after switching from teaching French for thirteen years, whole class lecture has been an important feature of my unit plan. While I did unsuccessful experiments with various formats such as twenty-five minute segments and varying amounts of video and whole-class questioning, by about five years ago I had settled into a routine of whole period, whole group presentations that alternate with textbook reading assignments for the beginning of a unit. This whole process would run over six to eight days and then the class would move to another series of activities. In grades six through eight, I often repeated what was in the text reading. In grades nine and ten, I augment the textbook lessons with analyses and patterns of global history that are not stated in the traditional textbook.

Students' collective opinions about "teacher presentation day" was favorable over all (around 80% consistently report that these had value for them on the annual end of year course evaluations). Many students would even show a little glee on teacher presentation day when they came in (presumably because the only thing they really had to do was to try to remain attentive for the entire time.) One or two students could not stay awake. A few students dislike these lessons because they are very inactive for them. As for myself, I enjoyed delivering these lessons and I like to think I was able to often pull off a role as a skilled public speaker.

In the 2019-2020 school year, I was first assigned grade six social studies. When I wrote the curriculum, I approached the lecture as I did in grades seven through ten. However, I soon found that this time duration was too difficult for them. A few students fell asleep, and then it became a sort of class joke that students were falling asleep during Mr. Jones' lessons. This development was new and prompted me to rethink how I do this.

Students need information delivery in auditory form. It is good to have someone just explain something to a person and not to rely solely on readings. Weaker readers often rely on this audio-visual delivery to learn the content. Students can ask questions of a person that they cannot ask of a text. Often times, these lessons are enjoyable for students and I alike. Some students tell good jokes. Sometimes our discussion runs into interesting ideas.

Flipped 1.0

A "flipped classroom" is a model is "based on the idea that traditional teaching is reversed such that what is normally done in class is done by the students out of class. Instead of students listening to a lecture in class and then going home to work on a set of assigned problems, they read course literature and assimilate lecture material through video at home and then engage in teacher-guided activities in class" (Nouri, 2016, citing Gilboy, Heinerichs, & Pazzaglia, 2015; Betihavas et al., 2015). "Adoption of this method began at the college level in the early 21st century and has spread to secondary classrooms. Supporters point out that students have short and variably sized attention spans. They are passive in traditional lectures, the pace of which is

often too rapid for effective note taking by weaker students. Lectures are not adaptable to all learners' needs. Higher order skills are not taught using lecture" (Nouri, 2016 citing Cashin, 1985; Bonwell, 1996; Huxham, 2005; Young, Robinson, & Alberts, 2009). What I term here "Flipped 1.0" is a version first tried at the college level. Many have found that this is not successful at the secondary level simply because so few students actually complete the assigned video lesson prior to coming into class. On the post-secondary level, there is probably a greater chance that students will watch a video outside class. In considering replacing my lecture with flipped classroom, I hesitated because I know few of my students will complete this assignment. Homework completion rates are not high enough to support assigning video viewing outside class. Some students do not have Internet access at home.

Research on E-Learning Experiences and Flipped Classroom

Lecturing has come under scrutiny for decades as a pedagogical method. Among the weaknesses of traditional lecture are that "students are passive in traditional lectures due to the lack of mechanisms that ensure intellectual engagement with the material, student's attention wanes quickly, the pace of the lectures is not adapted to all learners needs and traditional lectures are not suited for teaching higher order skills such such as application and analysis" (Nouri, 2016 citing Cashin, 1985; Bonwell, 1996; Huxham, 2005; Young, Robinson, & Alberts, 2009).

Despite my initial reservations, a review of research does show strong support for e-learning experiences such as the flipped classroom model. As 1:1 laptop configurations become more commonplace in secondary schools, there is a trend toward e-learning. In the state of Florida "[o]n June 2, 2011 Governor Rick Scott signed the Digital Learning Act into law, as part of

House Bill 7197. All incoming 9th grade students in Florida are now required to complete an online course as part of the 24 credits required for graduation.” (Digital Learning Act FAQs). Research is ongoing. In a report entitled *A Summary of Research on the Effectiveness of K12 Online Learning*, authors Patrick and Powell report that “There is not a single, large-scale, national study comparing students taking online courses with traditional students, using control groups in the instructional design.” In *Evidence-Based Practices in Online Learning: A Meta-Analysis and Review of Online Learning Studies*, the US Department of Education noted that “[t]he meta-analysis found that, on average, students in online learning conditions performed modestly better than those receiving face-to-face instruction.” (Means, et al.). Authors caution us, however, that “[a]n unexpected finding was the small number of rigorous published studies contrasting online and face-to-face learning conditions for K–12 students. In light of this small corpus, caution is required in generalizing to the K–12 population because the results are derived for the most part from studies in other settings [...]” (Means et al.).

"An effective flipped classroom is one that, the time normally spent lecturing, is used for in-class activities, discussions, problems, and group projects. The most meaningful learning in a flipped classroom occurs as a result of efficient use of the extra class time." (Tucker 2012) I would like to term this "Flipped 1.0" as the original concept as it was adopted from post-secondary education. In the flipped classroom "Flipped 1.0", "[... w]ith teacher-created videos and interactive lessons, instruction that used to occur in class is now accessed at home, in advance of class. Class becomes the place to work through problems, advance concepts, and engage in collaborative learning." (Tucker 2012) "The flipped classroom also involves a

transformation of the teacher's role." writes Bergmann et. al. in *The Flipped Class: What it is and What it is Not*. "In a traditional class, the teacher can be described as the 'sage on the stage' that presents information in engaging ways in hopes that students will pay attention and absorb the information." The authors continue "The flipped classroom moves away from this idea, placing the teacher in the role of the "guide on the side" who works with the students to guide them through their individual learning experiences." (Bergmann, Overmyer, & Wilie, 2012). Of course, enjoying the fruits of this method depends on students completing the task in the spirit intended.

A number of studies report that students enjoy being able to learn at their own pace, reporting that they prefer the flipped classroom (Nouri, 2016, citing Butt, 2014; Larson & Yamamoto, 2013; Roach, 2014). My groups would not entirely agree. Some were particularly unhappy with the change.

Flipped 2.0

The flipped classroom concept held promise for me. It needed adjusting. I concluded that the traditional lecture, while often enjoyable for me to deliver and for some students to experience, is fairly flawed. I can do better with the help of modern technology. Our school district has moved to 1:1 laptop configuration using the now ubiquitous Chromebooks. I have on and off experimented with the "flipped classroom" model and I have a collection of many short video lessons in social studies that I have made since 2011. I propose "Flipped 2.0" as a better version of the flipped classroom concept that is more suitable to secondary schools. In Flipped 2.0,

students complete the video lesson in class with a questionnaire, followed by whole-class discussion guided by a set of significant questions that both review the video content and expand upon it.

I replaced my lectures with video lessons that are attached to multiple-choice questions. I call this a "stimulus-based multiple-choice" activity and it is completed online. The procedure runs thus: on what would have been teacher presentation day, students now don their headphones and complete the multiple-choice questionnaire while watching the video. The questions are embedded right with the video and the software monitors student activity and records their scores. The videos range from ten to twenty minutes in length and there may be more than one assigned viewing so as to use a twenty minute time block. My district's daily schedule has traditional periods of a little over forty minutes. I have a large timer that attaches to the whiteboard at the front of the room and I set it to five minutes more than the video (s) duration to allow for any connectivity delays such as logging on or streaming internet delay. Students get a score right away upon submitting their responses. The software allows saving answers. They may do the task again (even outside class time) within twenty-four hours. The highest score of two tries counts.

Interacting personally with my students is important. Teaching is also about building personal relationships that foster young peoples' growth and learning. Losing a whole group presentation risks losing an important opportunity to just talk with my students. So I implemented another piece to this new process that I call the "debriefing" and it is for the second half of the period.

The debriefing consists of a set of important questions projected on the board. I pose them and recognize hands to reply.

The screenshot shows a web-based assessment interface. At the top left is the 'Innovation assessments' logo. Below it are buttons for 'Back to Create' and 'Save without Scoring'. A note states: 'NOTE: You can only save if teacher has turned it on AND if you have closed the questions by confirming individual answers.' The main content area is titled 'Stimulus-based Multiple-choice "Competing Ideologies of the 20th Century part A"'. It includes instructions: 'Answer the questions based on the stimulus provided. Questions may or may not be in order as presented in the stimulus and there may be more than one answer for each question. If your teacher has turned on the saving feature, you can save your work and return here later. Just checking a box does not save your answer. Click the save button for each answer. Once all your answers have been saved, you can submit for score. The maximum score you can earn on this test is 100. In the case of questions requiring more than one answer, you get partial credit for the correct responses as a percentage of the value of the whole question so long as you do not select an incorrect option.' A timer shows '0:00:13 [You have 120 minutes.]'. Below the instructions are two question panels. Question 1 asks for three competing ideologies of the 20th century, with options: democratic capitalism, mercantilism, fascism or national socialism, and communism and socialism. Question 2 asks about the share of the world's population living under democracy, with an option: increased unevenly with ups and downs. To the right is a video player showing a slide titled 'Marxist-Leninism' with bullet points: 'struggles of working & oppressed people against capitalism, imperialism' and 'weapon for working & oppressed people'. The video also shows a portrait of Lenin and a 'MAY DAY' sign.

Screenshot of the web program where students answer questions while watching the instructional video. Video lengths range from about 10 minutes for grades six to eight and up to twenty maximum for grades nine and up.

The Debriefing

The term "debriefing" arose in the Cold War era and referred to the conference spies would have with their superiors after completing a mission. I have been using it to categorize any lesson where I review student performance on a task and offer suggestions for improvement. This incarnation of the term means a question-answer session where students reflect on their "mission" (learning from the video lessons) in a whole-group setting. The questions are intended to go beyond recall of facts and to be devised at Bloom's upper levels of the Cognitive Domain: analysis (compare-contrast, categorize, cause-effect), evaluation, and synthesis. Some questions calling upon students to connect the material with their own experience. The final question in the

series should invite questions of a factual nature that were not covered in the readings or video lessons. I find students like to participate in "what would you do if...?" type questions and debatable issues. A student assistant will be asked to make a checklist of students who contribute as a way of maintaining accountability even if I do nothing with that list on most occasions.

Participation in my traditional lecture sessions usually ran two to four students who answered all my questions (it is not my custom to select students to answer who do not volunteer).

Participation in the debriefing was outstanding. 16% of students participated in the debriefing a single time. 59% contributed more than once in the debriefing sessions (average class size was 16). Devising good questions would seem to be key to this lesson and I expect to become more adept at this through time.

The Video Lessons

Besides my own video lessons that I have been creating for a decade, there are many good public videos on YouTube and at the Internet Archive (archive.org). In their book *E-Learning and the Science of Instruction: Proven Guidelines for Consumers and Designers of Multimedia Learning*, Clark and Mayer provide research that guides the creation and selection of effective video lessons. E-Learning materials should be designed such that

- they include words and graphics rather than just words alone (Multimedia Principle)
- text and graphics be presented in an integral fashion (Contiguity Principle; printed words are presented next to the graphic they describe).
- words should be presented in audio rather than on-screen text (Modality Principle)

- they should not contain redundant on-screen text with graphics and animation
(Redundancy Principle)
- there should not be extraneous audio or graphics (Coherence Principle)
- they use familiar speech and writing patterns over formal ones (Personalization Principle)

Conclusion

The transformation of the class with this format was positive and astounding. The multiple-choice questions accompanying the videos demanded an unprecedented accountability. The class participation during the debriefing surpassed any I had experienced with the old way. During the first debriefing, students were invited to share pros and cons of this method over the old one. The only cons that they could articulate were that the old way was more entertaining and that the new way threatened their grade point averages if they got low marks on the multiple-choice. I found that factual recall from the videos was very high during the debriefing and reciting aloud served to reinforce that knowledge. There are additional advantages:

- Students who are absent can now have access to this material.
- Students who are moving faster than the class are no longer held up by the teacher presentation day.
- Students can do this twice with the highest grade counting and so many will actually listen twice.
- The information delivered to different classes at different times will be more consistent.

Clearly, the ideal teaching situation is one such as Alexander the Great enjoyed: his family hired a personal teacher (Aristotle). Public schools developed over the centuries attempting to recreate in group something close to the idea 1:1 teacher to student ratio. Modern technology may just

make it possible to move closer to that ideal using stimulus-based tasks such as video lessons with multiple-choice questions.

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