Chapter 16

Driving Student Engagement and Focus in an Accelerated Biology Class using Blogs

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In the March of 2009, I attended a teaching in biology workshop where I had the pleasure of hearing Gardner Campbell talk about the value and virtue of blogging in the classroom. To be honest, I was initially not sold on the idea of blogs and wikis, and like a majority of those around me, I was reluctant to say the least. About two-thirds of the way through his workshop, the epiphany struck me. I had to surrender control of class events to my students if this was going to work. For most educators, and I believe science educators in particular, this idea of surrendering control isn't simply "thinking outside of the box" but rather "outside of one's mind."

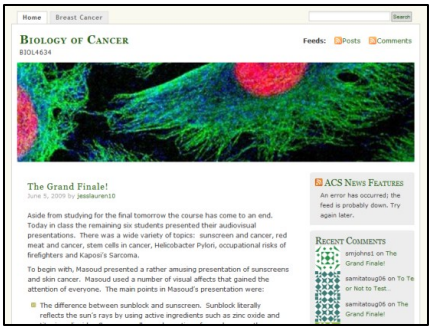
A few months later, I had the opportunity to teach a Maymester course at the University of Colorado Denver (UCD). Maymester is an accelerated three-week term in between Spring and Summer semester where students can complete an entire 3 credit course in just three weeks. This was my first encounter with teaching in an accelerated format. Being new to accelerated courses and the Maymester format in particular, I spent a considerable amount of time adjusting class content, considering new pedagogical tools, evaluating and designing new assessments, and redesigning my Biology of Cancer class from back to front to ensure students completing it in three weeks would be able to learn the same as students completing it in 15 weeks. One thing that concerned me the most was that students would not have the time to digest the major principles, discuss those principles with their classmates (this normally happens right?), and integrate their current knowledge with the new principles they were learning in class. I felt that unless there were opportunities to engage students with the class material right away, that their learning would not be long lived.

I began searching for a tool that my students would value, that would engage them outside of the classroom, and that would allow them to integrate their own life experiences and background into their learning experience. Moreover, I wanted a tool that would allow students to develop writing skills in a low risk environment that would make them accountable for their words and thoughts. Additionally, I wanted to help students better understand their digital footprint and how that footprint tells the world something about them, their values, their skills, and their morality. To me, I didn't want much, but to others I wanted the world! From what I had heard from Gardner Campbell, I decided that perhaps a class blog would meet my learning goals. In the following chapter, I explain how I used a class blog in my accelerated course to meet many of these previously mentioned goals.

Creating the Blog Environment

There are a number of blogging tools available. I decided to use Wordpress to create a class blog. The class blog is an open forum and can be viewed at: http://biol4634.wordpress.com. It took me approximately five hours to work out how to use Wordpress, to set up my blog, and to integrate some more advanced features such as RSS feeds from the American Cancer Society's website and my own Twitter stream. I paid a modest sum to upgrade the server space so that there were no problems

with students uploading files and videos to the blog. But from start to finish it took just an afternoon to setup.



Gaining Student Investment

One of my greatest fears (technical issues aside) was getting student buy-in to engage in something they had probably neither experienced before, nor seen the value of before. I am increasingly experiencing the phenomenon whereby educators leave the exercises and learning opportunities that they supposedly value (e.g., students collaborating on projects together), to out-of-class time where there is no instructor investment or guidance. I believe that the single best way to show a student that I value a skill or idea is to use class time on that skill or idea.

Knowing that blogging would quite possibly be overwhelming (in the light of other technologies I use and the compressed Maymester format), I dedicated a chunk of time discussing the blog at the beginning of the term. During this time, I addressed everything from showing students how to enroll in the blog as authors, to setting their expectations around what they could expect to get out of the blog, to discussing how they will be assessed, to explaining how they should deal with any problems that arise. In addition, I created a FAQ sheet that provided students with step-by-step instructions on how to become an author on the blog, what to do if they could not complete their blog entry in a timely fashion, and how to handle various technical issues that might arise. With this resource and the time I had allocated in class to get signed up, there were no problems with getting students added to the blog as authors. Although initially there were reservations and fears amongst the students, the investment of class time calmed those fears and allayed their reservations.

Modeling

I am a strong believer in modeling. I modeled the first blog post on the first day of class so that students could see the standard that I was expecting and the kind of things they should aim for when creating their own blog entry. I believe that modeling an expected behavior, standard of work, and depth of coverage for an assignment is a crucial role for an educator so that students can move forward in the first instance simply by mimicry. As they become more comfortable and competent, they are then able to impose their own unique style and integrate their own perspectives. I gave the students the following requirements for their blog entry:

- Minimally, you must summarize the major concepts of the day
- Add your own (critical, but constructive) thoughts about the material
- Consider how the material relates to other classes you've taken
- Add in media that helps communicate some of the class principles (e.g. YouTube videos, web URLs, animations)
- Connect the class material to your own experiences
- Discuss how the material helps you achieve your future goals

Additionally, students were required to make at least ten comments (I'll be honest, I didn't count!) on their classmates' entries.

Grading Blogs

I had concerns about how to grade a blog assignment. I did not know what to expect and I had no benchmark to work from. In discussions with students, I explained that completing the first point above would earn maximally a C grade if the work was correct, but that adding in additional material from the list moved one toward an A grade based on the insight of the entry, the insight of the students comments, and the use of some media in the blog entry (see Table 1).

Table 1. Rubric for Grading Blogs

A	Discuss how the material helps you achieve your future goals
	Connect the class material to your own experiences
	Add in media that helps communicate some of the class principles (e.g. YouTube videos, web URLs, animations)
	Consider how the material relates to other classes you've taken
	Add your own (critical, but constructive) thoughts about the material
C	Minimally, you must summarize the major concepts of the day

It turned out that my grading fears were unfounded as students, in general, were enthusiastic and eager to impress their peers. In fact, it turned out that the blog entries were some of the best pieces of writing I had seen in a science class. I was also impressed by how the students integrated their own personal experiences into their entries and comments on other students' entries.

Other Logistical Issues

I wanted the students to feel as though the blog was theirs, even though it was something I had set-up. To facilitate their feeling of ownership, I did not 'assign' specific bloggers for specific days. Rather, after my initial modeling on the first day of class, I nominated a single student to be the next blogger. It became that student's responsibility to nominate the blogger for the next day of class and so on. Besides a prod or two during the short semester, the students took control of the blog and needed little guidance or prompting to keep up with their entries and comments.

Colleagues who have mimicked my blogging experiment have found that in a 15 week semester it is somewhat harder to maintain student engagement with the blog. It is possible that the Maymester format is more amenable to blogging than in the regular 15 week semester. However, making the blog the focus of the class could possibly offset this challenge.

Students Perceptions about Blogging

Although I was initially skeptical about the value of blogging in the classroom, I was subsequently impressed by the quality of the student entries and comments. As an afterthought, I decided to obtain Institutional Review Board approval to collect student perceptions on the blog as part of their class. Also, two colleagues (Drs. Lisa Johansen

and Laurel Hartley) were interested in exploring the use of blogging in their own classes. We have now collected some data on student perceptions on blogging in the science classroom from three classes with three different instructors and are working to publish the results of our analyses of the student comments. Below, I have briefly summarized some of the information that I obtained from my own students regarding their blog experience in my Maymester class.

- 80% of students strongly agreed with the statement "blogging increased my interest in the class material."
- 80% of students agreed with the statement "blogging made me more comfortable about communicating about biology in general."
- 75% of students agreed with the statement "I enjoyed blogging."
- 75-100% of students agreed, or strongly agreed with the statements "blogging facilitated my sharing personal experiences related to class" "blogging increased my motivation or empowered me to contribute during class discussions"; "blogging helped me share my background knowledge with my classmates"; and "blogging helped me share my background knowledge with the instructor."

Although my main goals were to provide a forum for students to engage with the material outside of the classroom, and to share and integrate their personal experiences, I hoped that the blog would allow students to explore the influence of culture and society on their perception of biology. Students reported the following on how blogging impacted their perception of the interface between society, culture, and biology:

- 100% of students agreed or strongly agreed with the statements that "blogging helped me appreciate how different social groups interpret and act on biological information"; "blogging helped me appreciate how cultural heritage can influence how people interpret and act on biological information"; and "blogging facilitated my understanding that culture and society plays an important role in the choices cancer patients make in their disease management."

Additionally students were in overwhelming agreement that the blog was a useful forum for them to reflect on the class content and receive clarification on the major principles from each class. The students reported that they could better appreciate how their classmates perceived and understood the material, they reported that they gained insight to how learning largely occurs outside the confines of the classroom walls, and they reported that the blog helped them perceive material in a context different to the one in which they had initially synthesized the material. In general, students found that blogging facilitated their reflection on the class material and aided their comprehension. In respect to using the blog to drive student understanding of their digital footprint and technical awareness one student noted that:

> *"I thought I was "on top" of technology and it's [sic] advancements when I first started the class. It made me realize there was a lot more out there to have as a resource. I have discussed electronic/social media responsibility as well as benefits with countless friends, relatives, and coworkers. It has been eye-opening."*

Future Directions

As noted above, two colleagues have explored the use of blogs in their classrooms. It seems that some class formats are better suited for the use of blogs as a learning tool than others. We have learned a lot from our combined experiences with blogging. If we were to repeat the use of the blog in our classes we would offer the following pieces of advice:

- Model very clearly at the beginning of the semester
- Invest class time exploring the blog in class
- Make the blog the focus of the class as a resource
- Encourage colleagues to comment and participate
- As an instructor, frequently refer to the blog and its content for class purposes

Concluding Remarks

For my use in the accelerated Maymester format, the blog worked well to drive student engagement, to promote student reflection, to make students aware of their online presence, to provide a forum for writing, and to encourage students to share how their own background influences their experience of biology. I have not subsequently used the blog in my Cancer Biology class as it has since only run in the 15 week semester. However, as the Maymester approaches and I once again adjust my class, I will most certainly be considering it as a learning tool. On a personal level, I learned that for my students to better engage the material, to better reflect, and to better explore the domain, I have to let go of some of the control that we are all accustomed to having in the classroom. I simply have to provide a forum in which my students can explore, engage, and relate.

Bio

Tod Duncan, Ph.D. is a senior instructor in the Department of Integrative Biology in the College of Liberal Arts and Sciences. His research background was in the regulation of the eukaryotic cell cycle and mechanisms of DNA repair as they relate to cancer. Currently, Tod does not have an active bench research program; however, he is engaged in several science education projects. Tod is involved with the Rocky Mountain Middle School Math and Science Partnership (RMMSMSP), is a member of a panel advising the National Association of Biology Teachers, and takes an active role in promoting better science pedagogy whenever possible. Currently, his science education interests involve the use of Web 2.0 tools in high-enrollment classes where there is significant diversity in the student body. Tod believes that the online environment can be used to foster student-student and student-instructor relationships when those relationships cannot effectively be built in the first person.