

## [Re]contextualizing Knowledge for a Synthesized Future in Biology and First-year Composition

When writing the syllabus for my section of the life science-centered FYC course, I looked to the January 2011 issue of *Across the Disciplines*. Three articles in particular helped me formulate my approach for teaching writing for the life sciences. In “Proofs and Persuasions,” Bahls et al. examine the writing of math students looking for similarities and differences between what is considered successful writing in terms of composition studies and what is successful writing in math. The authors, representing both disciplines, discover that there are more similarities than they originally anticipated. Across the board they agree that components such as “transitions and metacommentary,” “contextualization,” and “use of sources” are necessary for “good” writing. In the same issue, Roland Stout, a chemistry professor, shares in his article “It’s a Shame to Put Such Wonderful Thoughts in Such Poor Language,” that good thinking is best revealed through good writing. He uses writing assignments to find those students who perhaps understand the material but cannot find the best ways to express their understanding. Helping them use their writing to express their knowledge has helped students gain deeper knowledge of the material and better means of expression. And finally, Rich, Miller, and DeTora share in their article, “From Concept to Application,” that students who use metacognition in order to problem solve are better able to grasp the concepts and meanings of scientific ideas rather than just “plug and play” with equations. All three articles highlight the importance of meta-awareness, the role of context, and the link between clear expression and relaying knowledge effectively.

Writing Programs at ASU has similar desired outcomes for our FYC students. Our goals include helping students build their rhetorical knowledge (often a meta-awareness of audience, voice, style, etc) and their critical thinking, reading and writing (multiple perspectives of issues, situated context, etc). Guided by these shared principles, I attempted to develop a syllabus that

asked students to consider the means by which scientific knowledge becomes public. How is it relayed? How does the public react? And how do public responses shape future scientific research?

As someone without a strong background in the sciences, I was hesitant to teach a section of this course. I realized early on that I was not going to be able to take on the role of expert in their field and would instead design a course in which the students and I shared expert status. Discussions of WAC and WID from non-compositionists often include the concerns that teachers in other disciplines are not equipped to teach writing and that to teach writing means taking time away from their real goals. I had similar concerns about how I would teach writing about sciences when I was not at all prepared to teach science. My decision was to present myself as an expert writer and present writing as a crucial element of communication. I addressed my students as experts in their fields and asked them to maintain those roles throughout the semester. The aim of asking students to be experts, one that I believe was achieved, was to give them a sense of confidence. Once they felt confident and shared the sense of responsibility with me for the success of our course, convincing them to take seriously those desired outcomes expressed in the WAC literature and ASU's Writing Programs was not difficult. In fact, we were able to fuel an entire semester by our meta-curiosity. Since students already had the role of expert, we could focus on successful communication of our knowledge. We also, as a class, could spend a good deal of time discussing the different ways others are already communicating scientific knowledge and look to their successes and failures as learning opportunities.

As I have mentioned, in my course, students were asked to write and think their way through the problem of relaying scientific information to the general public. The essay series was as follows: ethnography and personal reflection, writing science for the mainstream, and film

analysis/research essay. I will now discuss the first two assignments and share the successes and failures in terms of promoting the values I believe are shared by composition studies and life sciences.

Because of administrative complications, of the nineteen students enrolled in my section, about four of them had declared majors in something else. While the theme of the class remained the intersection of life sciences and the public, I tried to design assignments that all students would find interesting and helpful for their futures at ASU. Honestly, I had my non-science students in mind as I created WP 1. The students were asked to do two different types of research. First, they were asked to reflect on why they had chosen their majors and what they thought being a part of that particular community entailed. The second part of the assignment asked them to observe an upper-level laboratory or class and compare what they observed as reality to their preconceived ideas. They were asked to take a step back and be critical of their surroundings and their own experiences.

All of my non-life science students had great success in observing an upper-level course in their majors. Two got to participate in fieldwork, one observed a graphic design studio, and one sat in on a graduate-level law class. They had to contact the directors of their programs (after I had initiated a conversation) and find a course and time that worked for all parties. In that respect, the assignment was truly successful and I will probably continue using it even in traditional 101 courses. Comparatively, there was a bit of a communication break down with the School of Life Sciences (SOLS). I had a very hard time finding someone to help me coordinate laboratory visits for the life science majors. When I was finally given a list of professors to contact, the two that responded quickly enough for the time constraints of the assignment were teaching labs that were only one or two sections above the one my cohort was currently taking.

Thus, there was not enough of a difference between the levels of complexity to keep the students interested. These labs were not doing ground-breaking research or even allowing students to create their own experiments. They were still in the stage of following a prewritten experiment with a prewritten lab report. As a result, this particular half of the assignment was really a failure for the majority of the class. For future versions of the cohort, I suggest more communication once the semester begins. I did not feel I knew who I could go to for help and I was ignorant enough of SOLS that I did not know which labs would be best for observations.

Aside from the difficulties in organizing the ethnographies for my life science students, this assignment could easily be seen as a failure for another reason. (And just as easily a big success.) After reflecting on how they came to be in our cohort at ASU and how it matched up to their anticipations, several students decided they did not want to be life science majors any more. When they first started telling me they were thinking of switching (or had switched) majors in the middle of their first semester I was horrified. SOLS came to us in large part to help with retention. And here were students already deciding it was not for them. There are several reasons for this, but I think the failure to observe a more exciting lab was one. I also think that SOLS is set up so that the students really think that their early classes are representative of what it means to be a scientist, which is probably not at all the case. The part of me that feels this made the assignment successful believes that students had actually stopped to be critical of their thoughts and choices. They were practicing a meta-awareness that I am not sure they had ever really done before and it really set the tone for the rest of the course.

Moving on now to the second writing project, I want to begin with a story from an early meeting (before the semester started) with SOLS faculty that I, my fellow teacher in this initiative, and the director of Writing Programs attended. The other instructor and I were asked to

share our writing projects. Having learned from the events of the first semester, there was definitely a more concerted effort for all involved to meet with each other. I also felt no pressure from SOLS to follow their assignments. That being said, when I shared my plans for WP 2, I was surprised at the reaction. For the second writing assignment, I required students to find a scientific article on a topic of their choice and rewrite the information for two new, public audiences: the first a newspaper—also of their choosing—and the second a podcast (we used RadioLab as our model.). In that early meeting, the science faculty seemed convinced that our freshmen would not be able to do the assignment successfully. With this concern, they were echoing claims made as recently as 2011 by Les Perelman in “WAC Revisited.” When reflecting on an early Beaver College model of first-year WAC instruction, Perelman argues, “But as WAC / WID matured as a discipline . . . it became clear that it was impossible to teach students how to write and think in different disciplines within the context of a first-year writing (FYW) class.” He goes on to explain that “What is clear is that there is a set of very large skills that are discipline and genre specific and that need to be taught within the context of those activity systems.” I agree that it is most certainly true that FYC instructors cannot achieve the task of teaching writing in multiple disciplines. But I think there is room to at least teach key, agreed upon elements of writing that are shared between composition studies and another discourse even as early as FYC. At the very least, cohorts like the one we are discussing today begin the process of helping students see that writing takes place in different forms and plays a significant role even in the sciences. This was the reason that even though according to the SOLS faculty students with so little experience in the life sciences would not be able to truly understand a difficult science article, I kept the assignment. I also realized that I would not be able to teach all of the conventions of the different genres of writing within the life sciences. I chose those select,

shared values I spoke of earlier. I made sure we spent a lot of time practicing critical reading of the content. We read an article in class together for which we looked up words, asked others for explanations, and used context clues. We compared several different newspapers to find their distinctions from each other and contrasted *their* science articles with those of peer-reviewed journals. We listened to several episodes of RadioLab to find the features that made the podcasts so engaging and interesting while also informative. When the time came for the students to compose WP 2, they felt, for the most part, prepared.

They worked in pairs. I made sure to put non-life science majors into pairs with their science counterparts. While my goal was to have them work together in order to share the workload, answers to one question on their mid-semester survey revealed that teamwork added a dimension of difficulty to the assignment that I had not considered. Responses to the question, “What was your experience working in pairs?” ranged from, “I didn’t really like it because I have a very specific way I write and it was hard trusting someone else with such a huge part of my grade” to “the conflict of scheduling was our biggest downfall” to “having someone who knows about your topic thoroughly review your work was helpful.” From the survey responses, email correspondence, and face-to-face comments I would argue that the choice to put them in pairs was successful in that it was a lot of work to do as one person, but I think I failed in preparing them for that particular new form of composing. If I were to use this assignment again, I would spend time in class discussing good strategies for group work and I would include grading criteria that reflect self and partner evaluation.

The assignment was broken into several steps. Overall, student response to this assignment was positive, especially response to the podcasts which they recorded using our Blackboard tools. When asked, “What was your experience composing podcasts?” the students

wrote overwhelmingly positive comments: “It was fun and it helped understanding how to present information to others,” “Extremely fun, writing the script, interacting with my partner, getting friends to do some different accented voices. FUN! ” and, “podcasts were a fun way of taking a very complex article and making it understanding [sic] for others.” Overall, this component of WP 2 was the most successful of all of my assignments. Students had a great time, they had the chance to be humorous and creative, and they did an excellent job translating difficult journal article information into engaging material for public consumption.

In contrast, there were several pairs who were less successful in rewriting the material from journal articles into newspaper articles. It seemed that the similarities were too invasive. There was sometimes not much difference in the language and style and several additional drafts were required. I think that future versions of this assignment will not include the newspaper article component. The benefit of a medium like the podcast, which is so different from the journal article, is that the two cannot really be confused for each other. The concerns of the SOLS faculty, that students would not be able to fully understand the articles, were alleviated because they were forced to change the material so drastically. While I do believe each group managed to get a good grasp on the original material, the newspaper articles did not seem to give them an opportunity to prove that in the same way as the podcasts. Just as Roland Stout notes in the article from *Across the Disciplines*, often it is the lack of clear writing that causes readers to believe students do not understand the material. When my students wrote their podcast scripts, they better understood the importance of clear writing and strong communication and thus it was obvious that they knew the material.

This would be my case in point to the SOLS faculty and to those who believe WAC cannot be successful in FYC. Perhaps SOLS was not giving our students enough credit. Not

because they believe our students are dumb, but because they are not giving them enough opportunity to communicate clearly. And perhaps it is not that WAC cannot be successful in FYC, but rather we should make sure we create our own clear definitions of success for any given program. My students succeeded in thinking critically and raising their meta-awareness. They can encounter two different versions of the same information (scientific journal and podcast) and find what makes them different. They can repurpose and rewrite scientific information for public audiences and have fun doing it. I think that is a success of the course we've created at ASU. They are not perfect writers in their chosen fields, but they are more conscientious students and more thoughtful writers. Thank you.