Narrative Reflection, Spring 2019
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In the Spring 2019 term, I had precious data, feedback, and experience to draw from; every course I taught this term was one I had taught before at Southwestern: MTH 81 (*Culinary Mathematics*), MTH 95 (*Intermediate Algebra*), MTH 105 (*Math and Society*), and MTH 243 (*Probability and Statistics*). Both my students and my peers have been tremendously helpful in understanding where I need to improve, what I need to jettison, and what I should keep. Moreover, the accumulation of classroom experience at Southwestern has greatly enhanced my sense of what Southwestern students need from their courses and what I can expect from them.

Based upon the above feedback from the Winter 2019 term, I made several changes (some of which are outlined in my Narrative Self Evaluation for Winter 2019) that appear to have made my courses better; based upon feedback for the Spring 2019 term, my students seem more satisfied, engaged and invested in the material we cover.

I would also like to add that the section of MTH 243 (*Probability and Statistics*) I taught this term was my first experience teaching online. The degree of success I had in teaching this course was more than I had expected. I credit my degree of preparation to the *Online Course Development* course I took at Columbia College in Spring 2018.

On the other hand, as the saying goes, "there is always room for improvement." Indeed, there were situations this term where I could have done much better. I will point out several specific areas where I can make improvements as informed by student feedback and my own classroom experience.

What Went Well

I would first like to highlight the successful changes I made to my section of MTH 105 (*Math and Society*). The first change I made was to pare down the number of graded items so that students could focus more on specific skills as opposed to making it a sprawling liberal arts experience.[1] The second change, which I believe was the most effective, was to incorporate material that was directly related to mathematical thinking applied to the workings of society. It was my intention this term to make this course live up to its name. A course whose title is *Math and Society* should at the very least address how mathematical ideas and society interact with one another. As mentioned in my previous Narrative Reflection, I incorporated voting theory into my Spring 2019 section of MTH 105.

Students responded well to this topic. In fact, it breathed new life into the course. Not only did exam scores improve with this topic, student morale and ownership of the material improved as well. Despite the abstractness of the ideas involved, the very real aim of applying them to better understand the processes of collective decision making was very motivating for these students. Voting theory also had the effect of making other topics we had studied more relevant. For example, the relevance of statistics and polling to the overall process of voting is naturally bolstered by the

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[1]This is not necessarily be a bad thing, but I do need to rethink how to manageably tie in broader liberal arts themes before throwing students back into the deep end.

theory of voting. Overall, in their evaluations, my students expressed an appreciation for my efforts to make the course relevant to their lives and interests.

Another feature of the above is that students were able to partake in the mathematical experience, in particular, when a chain of valid reasoning which leads to a conclusion which is not intuitive. In voting theory, students learn through a combination of their own experience and theory that there is no voting system which can be fair all of the time. This result, a sort of capstone for this topic, is perfect for this course for two reasons: 1) students naturally understand the ramifications of this result for how we make collective decisions, that is, students see a very concrete connection between mathematical ideas and society, and 2) students get to experience some of the more intriguing and beautiful ideas mathematics has to offer.

There is yet another benefit to incorporating voting theory into the curriculum: I was able to channel students into being more invested in the course. In particular, we applied our new skills in ranked choice voting to choose the final topic we studied. It seemed that giving student some control over the content by actually applying what we learned in class gave students a level of ownership that is rarely observed in a course at this level.

For me, the above stands as one of the most satisfying successes of this term and this academic year.

I would also like to feature the success I had in my online section of MTH 243, *Probability and Statistics*. Although far from perfect, my first attempt at teaching a fully online course was a great experience. I was able to apply the skills I acquired in the *Online Course Development* course I took at Columbia College. It was an affirming experience to see from an instructor's perspective just how effective those techniques can be. As evidence of my success in this regard, many of the written comments in my student evaluations point to me being very available and helpful in the online setting. Aside from the course being taught online, my students also wrote that they were actually able to learn the course material by using the resources I had created. I take the above two points (availability and student success) as the the greatest accomplishments of this course.

The student reviews for my MTH 95 course were also quite favorable, and by sheer numbers were an improvement over the previous reviews I received for the course when I taught it in Fall 2018. (The comments for Fall 2018 were unfortunately not activated and are consequently unavailable.) As for what I set out to improve from Fall 2018, in particular, how students perceive their actual learning compared to their course grade (Question 10 on the student evaluation form), the mean and the median score increased by almost an entire point (on a five-point scale) since the last time I taught this course. But numbers aside, the written comments also give me a sense that my MTH 95 course has improved since the last time I taught this course. I credit these improvements to doubling down on the philosophy that students learn best with individual assistance achieved by working collaboratively with their peers along with individual attention from the instructor. I also believe that the experience I have gained here at Southwestern with students and getting to know them better as a an entire group has helped me to better serve their educational needs.

As a capstone to the above, my peer and administrative observations have continued to be favorable, and my first year has ended with a positive evaluation which acknowledges my passion for

helping students acquire new knowledge and my enduring commitment to my teaching philosophy.

Where To Improve

At the beginning of each term I tell my students that the best part of my job is working them individually. It is one of the core beliefs of my teaching philosphy that the more closely I can work with students on an individual basis, the better individual outcomes will be. Even more, I am a believer that individual interaction boosts morale and the sense on the part of students that the instructor is invested in their success.

With the above being said, my MTH 81 (*Culinary Mathematics*) this term gave my philosophy a real run for its money. These students were almost exclusively those who had not been successful in my Fall 2018 and Spring 2019 sections of MTH 81. Knowing this, I had doubts that a literal repeat of the material in the form of lectures and group collaboration would work well with this group. So I tried an approach that I know has worked for other instructors of this same course: let students work the material on their own in class with mini lectures and other supplemental instruction added as needed. This group did not need another round of repeat lectures.

I tried to make the class as flexible as they needed. Many of these students were already working in the food industry and need such flexibility. They could choose who to work with and when to turn in certain assignments. The main objective this term was to simply get them to do the work and pass their exams. The only constraints were 1) engaging with the material in class was required, and 2) that homework assignments assigned before and exam were due the day of the exam. It was a relatively small group, and they had me at their disposal for questions. But being available simply wasn't enough.

Students did not seem to even want my help. Generally speaking, these students gave me little to no indication of how I could help them. My attempts to work with them individually were met with little reciprocation. Despite the flexibility and freedom I offered this this group in meeting course objectives, they needed something radically different from what I offered them in Fall 2018. What I gave them was not different enough.

In retrospect, I gave them too much freedom and not enough guidance in other forms. In fact, if I could do it over again, it may have been better to have have given them more structure than I had in the Fall 2018 section: due dates, group exercises, daily quizzes on the current material, etc. It may have been better 1) to have imposed a due date for every homework assignment, and 2) to have made class time even more stuctured than I had in Fall 2018.

As a supplement to the above, it also might be that I did not do enough to win their trust. After already underperforming in my course and having me again as their instructor, I perhaps did not do enough to show that I am really on their side, that I really do want them to succeed. It was not enough to simply get them to complete course objectives: I let them retake exams, I let them turn in more substantial projects late for full credit. I tried to win their trust by not being too strict. But again, all signs seem to point to not having been strict enough. (Perhaps "structured" might be a better choice of words.)

Of the entire eleven students in the group, one student gave a review of the course. Not surprisingly it was a very negative review. One of their main criticisms was, as I amply mentioned above, that the course was not structured enough. They simply needed more direction (and perhaps prodding) than I had given them.

A more unnerving criticism the above student made was that my course website was not working the way I said it would. They said it crashed often and that they had spent more time working around problems than focusing on homework. This, of course, would be an unacceptable situation, and I will be the first to point out that my website is far from perfect (I often make updates based on student feedback), but no one from this class ever showed me any of the problems they were experiencing so that I could fix them. (Again, I believe the lack of communication was rooted in a lack of trust.) As for solving the problems mentioned by the student, I was not given anything specific enough in order to make an improvement. All I can infer from this student's feedback is that they may have needed to reset their browser settings (for example, sometimes students need to turn of "auto refresh"), or that there might be some peculiarity with the tablets which are given out to all of the culinary students (which use non-standard, non-open, highly-proprietary, software). I imagine there are plenty more possible explanations, but without specifics, and since no other student came forward to point out such problems, I am unable to address this student's particular concern.

In summary, if I am ever again faced with the task of helping a group of students who were previously unsuccessful in one of my courses, I need to focus more on two things: 1) give them more structure, not less, and 2) learn and figure out ways to build and earn their trust. Both of these items, regarding this course in particular, stand as my biggest failing this term, and where I need to improve the most.

I shall now address some of the other criticisms made in my other courses and where improvements can be made.

The main criticism students in my online section of MTH 243 (*Probability and Statistics*) course had was that it was difficult navigating two websites for obtaining course materials and understanding deadlines. Course materials (including homework, lecture videos) are on my personal website and grades with due dates are on eLearning.

In line with this criticism, one problem I noticed, which was a source of frustration for both my students and myself, was that deadlines for certain assignments (in particular, "Problems of the Week") were posted on eLearning. However, I always told students not to look for due dates there; all of the due dates could be found on the last page of the course syllabus. I only used eLearning to post grades. The problems arose when (despite my repeated appeals in mass emails to NOT use eLearning for due dates) I would post grades for an assignment when I received it. Those who were using eLearning for due dates would only see the assignment either the day before or the day it was due and would think (and naturally so had they not looked at the syllabus) that they only had a day or less to complete a very substantial task.

I believe that the above was on of the main frustrations among the students who had made these criticisms, and thankfully, this will be an easy fix since it simply means that instead of convincing students to look at the syllabus, I simply need to post all fixed due dates in both the syllabus and eLearning.

The one exception to course materials being on my personal website was that group discussions were posted on eLearning. I don't believe this was a source of frustration outright, but there was the more general dissatisfaction at being required to use two websites at once. As I rely very heavily on my course website to disseminate materials which I create (much of which involves software which I write which is not compatible with eLearning), merging both into eLearning is not much of an option. However, I will try to invent new ways to make both sites more seamlessly connected by linking more between both sites on both ends.

What Lies Ahead

With the success of trying to make "'Math and Society' live up to its course title," I plan to continue working in other topics that more directly relate "math" and "society." In particular, I would like to expand possible topics to include power in weighted voting systems and apportionment problems in fairly assigning seats in a legislature (proportional representation). For me, this is one of the most exciting areas for where I can improve my courses.

For online courses, I will continue to make myself as available and as accessible as possible. I believe online courses will be increasingly important to the institution as an ever-growing part of our course offerings. Instructors who have a good online reputation for being effective and available to students will attract students to our institution, and I intend to be one of those instructors. In line with this, I will attempt to increase the connectivity between my personal online resources and institutional online resources.

Finally, I will reconsider how I relate to a certain segment of the student population we serve who require a different kind of help, especially if they are repeating a course. It my intent to help these students find ways to be successful that differ from ways that work with other students. Finding such ways will begin with ruminating and reconsidering how my methods and philosophy apply to students who have already experienced the sting of failure. These methods will involve more guidance, not less, and finding ways to build greater trust between these students and myself as their instructor. The philosophy will involve a healthy dose of compassion and empathy by revisiting my own painful moments when I was in their place too. I hope that through self-reflection, and gleaning from the wealth of experience of my colleagues, that I will find better ways of effectively handling such future situations.