

Vision - Potential

Vision Within Every Instructor - Potential Within Every Student

Newsletter of the HBCU College Algebra Reform Consortium*
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[1] THE MARRIAGE OF WRITING AND COLLEGE ALGEBRA

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Having taught College Algebra for many years, I constantly try to provide different activities and opportunities for my students to increase their chances of success in the course. In the past, I had given extra credit assignments, that quite frankly, looking back, really had no relationship to the understanding or appreciation of college algebra. Many were “filler” assignments – those types that occupy students’ time but provide them little or no relationship to the subject matter. Students continued to ask the age old question “How does this class have anything to do with my real life?” They also said “I have never been any good at math! So why will I be any better?” After seriously considering these questions, I finally came to the point that I had to come up with some element of the course that would provide students some concrete answers. These answers did not necessarily have to be research-based; however, I had to

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give them some avenue for expression of their thoughts and feelings. Then, the idea came to mind to incorporate writing into the course – i.e., a “marriage” of writing and college algebra.

Students gave strange looks and even more strange reactions the first semester that I announced the “wedding.” The group was divided into 2 basic groups. Those who were not talented writers resisted the notion, saying they would rather do a multitude of algebra problems than write – imagine that!! The other portion of the class welcomed the idea to be able to be expressive, creative and use that talent to their advantage in a math class. They immediately realized that writing might just be their way of passing the class. However, both groups were willing to give this marriage a try.

The first reaction of most of my peers (past and present) was that I must be out of my mind to include writing as a class requirement of the course. After all, we are MATHEMATICS instructors – complete with PowerPoint presentations, graphing calculators and problems that are sure to frustrate even the most talented of students. Far be it to venture into the realm of written expression. That would constitute an invasion into the English department. However, a few of my peers had a wait and see attitude. This was something they were not willing to try themselves. They claimed that I would compromise the integrity of the class and dilute the course

content. They would wait for the jury (students) to present their verdict.

Now, 5 semesters later, not only is the writing component an integral part of the course, it is also a student expectation!! The “reputation” of the course has manifested itself to the greater student population – that if you take my College Algebra course, you will be expected/required to write in it. For many incoming students, they come into the course with an attitude that this component will finally be their opportunity to be successful in a mathematics course.

Now, I am no English instructor, that is for sure. So, I could not be dogmatic in terms of their writing style. That made it easy for me to allow them to be creative. I made sure that they knew that there are no correct or incorrect responses to their writing components. However, I equally stressed that their writing should show thought and organization and should read as though they are, indeed, college students.

With these thoughts in mind, please allow me to share with you some of the writing activities that I have used over the past semesters. Some have been more successful than others, but all of them have given students an opportunity to share their thoughts about mathematics.

Activity #1 : WEEKLY POSTINGS. The very first day of class, students are given a list of scenarios. I have kept an informal journal of students questions’, inquiries and comments over the years. Since every student has a school-based email address, I require them to submit these by the end of Friday each week. There are no make-ups. Students who do not submit their posting on time will not receive credit. It is their responsibility to stay current.

I will share several of those scenarios here. A further list of these scenarios will appear in

the March issue of this Newsletter.

1. Everyone has had positive and negative experiences with math and math teachers. Tell me about one or two of those experiences and how it has impacted how you feel about learning mathematics and mathematics today.

2. Think about the class in which you experience the greatest success. What is one or two of the study habits you use in that class that you could incorporate into increasing your possibility of success in this class?

3. Mid-term is just a week away. Write an evaluation of yourself so far. Talk about those things that you have done that have made you feel better about your performance. What do you intend to do to keep that level of success and what do you intend to do to improve during the rest of the semester? (Note: I also require this activity at the end of the semester, asking them to compare their mid term performance to the end of the semester)

I keep the grading of these subjective, and quite simple:

10 points (maximum): Student has responded to all parts of the question. Answers reflect thought, organization and sense of completion. Written in a style that reflects a college student.

5 points: Student somewhat vague and incomplete. Thoughts expressed seem unorganized and response does not seem to show a sense of completion. Leaves the reader with the idea of what is coming next.

1 point: Student did not attack the question. Answer was short, and incomplete. Showed very little thought and organization. Gives the reader the sense that the response was just a “knee jerk” reaction.

0 points: Failure to submit or no submission.

Activity #2: SECTION SUMMARY

We all tell students that, prior to the next class session, they should read the upcoming

section of the text. We try to convince them that they will be more receptive and understanding of the material if they do so. For the majority of students, they do not absorb any more information by reading the text than by not doing so. This presents itself as an opportunity to visit with classes about how reading a math text is much different than reading a newspaper, magazine article or a novel by their favorite author.

After saying all this, I do require students to read the text before coming to class. I require them to write what the section was about, with a brief description of the concepts from that section. I ask them to tell what concepts they did not understand. After reading their summaries, I make note of those concepts that were difficult for them to grasp. I look to see that I have covered that topic in class. If I failed to do so, those topics will be my first lecture point for the next class meeting.

Since this assignment is due at the very beginning of class, I use it to verify their attendance for that particular class session. Point values for their grade are assigned as in the other writing components.

Activity #3: TEST CORRECTIONS:

Many of my colleagues allow students to correct errors from an exam. They allow students to rework and resubmit problems that were missed. However, I have taken the process one step further. I also require them to rework missed problems. In addition to reworking the problems I have a space for them to analyze WHY they missed the problem. They know that their reason for missing the problem should match up with the work they showed on the original problem. If they choose not to tell why they missed the original problem I will NOT give them credit for reworking the problem. They know that they are expected to analyze their errors with the hope that errors of that kind will be reduced

or eliminated in the future. I use the same rubric for scoring their writing here on the test correction form as I do on the weekly postings.

Activity #4: CURRENT EVENTS

This is an activity I used many years ago when I taught middle and high school students.

Each week, students were required to go to the newspaper and pick a current event of interest to them. NO ADS were allowed.

They were to cut the article from the source and attach it to their paper. Then they were to answer the following questions:

WHAT was the article about?

WHY did they pick this article?

HOW was math used in the article; or if they felt it wasn't used, how could math have been used.

I required one of these each week –due on Fridays. I used a similar rubric as in Activity #1 and #2.

FINAL THOUGHTS:

From my own point of view, I feel that I have provided students with an opportunity to succeed in a mathematics class. More importantly, I am attempting to show them that mathematics, in particular College Algebra, is not an island by itself. It is not a course that can be learned by a select few of the population. My hope is that, students will begin to see the relevance, possible application of and connection between College Algebra and career fields such as electronics, finance, programming, nursing etc.

Students have responded to the writing component in a positive way. Many have said that requiring them to read a section and respond to it prior to class made them more aware of what a concept was about and what particular skills they were going to have to improve. Probably the reaction that surprised me most was that writing the summary and turning it

in at the beginning of each class made them more conscious of their attendance and less tempted to skip class.

Students' responses to the weekly postings have been amazing. Most of the students answered the postings openly and honestly. Very few attempted to submit a response that they thought their instructor wanted to hear. A vast majority of them said that the weekly postings made them discover a way of realizing that their method for learning math could be the same as the way they learn in a class in which they are more successful.

If you have been thinking of including a writing component into your course I would sincerely suggest that you take that first step. Please realize that you will probably be criticized for taking the step to incorporate writing into your course. Remain steadfast in the idea that this can (and probably will) improve students' attitudes toward learning mathematics. As their attitudes change, you may see improvement in their competence and academic grades.

I would also encourage you to come up with writing activities that are compatible with your teaching style and the student population that you serve. Give the process time. If you feel discouraged, remember that you are attempting to change habits, change attitudes and change the learning styles of mathematics students.

A good marriage takes time. So, the "marriage" of writing and College Algebra will take time, work, and perseverance. However, the rewards of these efforts are immeasurable.

[2] Query

Jim, driving for *Link America*, took 12 hours to drive 600 miles from Atlanta GA to Miami, FL. Because of increased traffic in the Miami area, his return trip took him 15 hours. Compute his average speed (mph) going from Atlanta to Miami and then his average speed going from Miami to Atlanta. How does his average speed for the entire trip compare to the average of the speeds on the two legs of his trip? Explain.

[3] Notices

1. Jennifer Beecher is the McGraw-Hill Representative for Contemporary College Algebra 563.584.6323, [jennifer_beecher@mcgraw-hill.com]
2. A copy of the White Paper synthesizing the recommendations on Standards and Assessments in K-12 Mathematics from the CBMS Forum last October is posted on the CBMS website at [http://www.cbmsweb.org/Forum2/CBMS Forum White paper.pdf](http://www.cbmsweb.org/Forum2/CBMS%20Forum%20White%20paper.pdf).
3. Deadline for contributions to the March Newsletter is March 1, 2011. Opinion articles, suggestions for writing assignments, small group in-class activities, small group out-of-class projects, Queries, announcements, etc. are welcomed.
4. To subscribe to this Newsletter, write to Don Small, Department of Mathematics, U.S. Military Academy, West Point, NY 10996 or contact him via e-mail at don-small@usma.edu.