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# The First CAMS Project: A Humanistic Endeavor

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## I. INTRODUCTION

One of the current themes in mathematical circles is humanistic mathematics. Educators want to make mathematics seem humanistic particularly to non-mathematics majors. There are various ways in which faculty at Salisbury State University attempt to do this in the liberal arts mathematics courses; however, this paper will describe something a little different. During the 1993-94 academic year Salisbury State University created a Center for Applied Mathematical Sciences (CAMS). The center attempts to connect a client (from industry) who has a project or problem to be solved with a team of students and faculty members who serve as advisors. Although most of the contracted projects are scientific in nature (physics, mathematics, computer science, etc.) and require a team of students knowledgeable in these sciences, there are many humanistic aspects involved in such projects. We share our experience as directors of the first CAMS project.

## II. THE FIRST CAMS PROJECT: A SATISFACTION SURVEY

With much emphasis today being placed on accountability and how well faculty perform their jobs, the Director of CAMS thought a survey of the "mature graduates" of Salisbury State would be a good first project for a CAMS team. He thought also that such a survey would be of interest to the president of our University.

We agreed to co-direct such a project and proceeded to recruit some of our mathematics majors who were working toward a concentration in statistics. With these students we approached the president of the university and easily convinced him to fund the project. The president was enthusiastic about the project because assessment was one of his priorities for the year.

The first semester we had five students enrolled in "Directed Consulting," the course name given to a CAMS project. Four of the five were mathematics majors with concentrations in statistics and the other was a liberal studies major with a concentration in computer science. We decided that "mature graduates"

would be those alumni who had been out of college from five to twelve years. We assumed that such graduates had been out long enough to have either gone to graduate school or be settled into a job or career. Part of the agreement with the provost and the president was that we interview the department chairs and deans to find out what types of information they would like to get from the survey of these "mature graduates."

It should be mentioned that the important aspects of a successful project are teamwork and good communication skills. This team worked well together and partitioned the work load fairly. The first task the team tackled was deciding who would speak to whom and then they began their interviews with the department chairs. These students soon discovered that good communication skills were essential. Many department chairs did not understand what the "math department" survey had to do with them. The students decided that since there is often a small return rate on mail surveys, they would offer an incentive to the early respondents. As a team, they agreed that a university mug would be a nice gift for the first 100 people to respond. They shopped and compared prices. They also considered various art designs and talked to administrators on campus about funding for these mugs.

Next came the development of the survey. Clarity and political correctness were absolutely necessary. Again, a great need for good written communication skills became apparent to the students. The authors each gave the survey to an upper level class that we were teaching that semester to serve as a pilot. After receiving feedback, the students edited and revised the instrument. These students were also very concerned about aesthetic appeal of the survey instrument. They wanted the appropriate color of paper and arrangement of questions on the page.

Students who participate in a CAMS project must present the results/conclusions of their project to the Department of Mathematics and Computer Science and to the client who contracted the project. At the

end of the first semester, this first team gave such a presentation to the department, the president, and other administrators on campus. This presentation consisted of their discussing the various tasks they had performed, sharing of what value this experience had been for them, and presenting the final project, the survey instrument. With approval from the president, we planned for a January mailing.

### **III. MAILING THE SURVEY AND INCENTIVE.**

We all agreed that with the semester ending in December, we should wait until after the holidays to mail our survey. During winter term we all met for three days to prepare for bulk mailing. The students were very concerned that the survey would be put aside with other papers and overlooked. They believed that if our survey were colorful it would not be easily misplaced. Their choice was to have the survey on gold paper. The cover letter was pink and the return sheet (for sending the mugs) was blue. We spent three days stuffing envelopes, sampling from a sampling frame of address labels generated by the alumni office and sorting by zip code for the bulk mail. We really began to know the students quite well and learned to work very well as a group.

### **IV. ANALYSIS AND RESULTS OF SURVEY**

As the surveys started coming in we kept track of the first one hundred received. The blue slips were pulled from these so as to not have name and/or address associated with response. Once the first one-hundred responses were obtained, the team packaged and sent the mugs.

The second semester two additional members joined our team. One was a graduate student majoring in mathematics/secondary education. The other was a part-time student who was a mathematics major with a concentration in statistics.

We spent several meetings beginning to code the data from the surveys. A data file had to be created, and if each student was to enter data, we had to be particularly careful that everyone used the same format. In short, the data had to be coded. We had to agree on the proper numeric codes to represent each possible response. The students at this point behaved much like poets and writers. Just as a poet or author wants the exact word to communicate a thought, the students were very choosy in their selection of codes.

With data entry, there had to be a division of labor. Each student entered approximately 100 surveys. Two of the students wrote an SPSSx program to analyze the data. These students were very conscientious about sticking to the objectives of the survey. There were many comparisons that could be made but some were not consistent with the original objectives. Only those comparisons that were pertinent were included in the analysis.

The results were written in a report and were given in a presentation. Two other students used Harvard Graphics to prepare bar graphs and pie charts for the responses for various questions. A beautiful color report was prepared and presented to the president of the University. Again they emphasized the artistic quality of the report. The colors and style made this easy to read and understand. These students decided that the final presentation should be a celebration. We reserved the great hall on campus. We invited the president and other administrators as before. However, notices were sent around campus notifying everyone in all departments of the event. CAMS board of trustees and other local business people who may have an interest for future CAMS projects were invited. Family members of the seven team members were also invited. Refreshments were served afterward.

### **V. REACTION TO THE PRESENTATION AND RESULTS**

The presentation was a huge success. Of course the results were very favorable and certainly what we all liked to hear. The quality of the presentation was superb. A local businessman told us that he had attended many conferences and presentations and heard some very well known people present talks, but none seemed any more professional than these students.

### **VI. SUMMARY**

Many people feel that mathematics is not humanistic in nature. They feel that it is different from the arts, music, literature, and communication. Most mathematicians know that mathematics is an art and that it is beautiful; however, for those who still believe that mathematics is only for "solving problems," we hope we can convince them that even when scientific and/or mathematical approaches are used to solve problems, one still needs the arts and communication. This first CAMS project would not have been successful without these interconnections between the arts and mathematics. The success of this project was in large part due to the humanistic aspects of mathematics.