

Faculty Professional Growth Summer Project Final Report Draft

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Do not bother with fancy formatting as none is preserved in the online form.

Summer Project Title

AMATYC Summer Institute

Abstract

Write a concise summary with descriptive information about your project, location, time span, your relationship to it, etc. Include specific information-- since you have completed your project, your knowledge is valuable and can be shared with your colleagues (200 word limit).

We participated in a 4 1/2 day AMATYC (American Mathematical Association of Two-Year Colleges) institute. The title of the institute was "Developmental Algebra Using a Function Approach" and was devoted to how to integrate function concepts, data collection, and technology into Introductory and Intermediate Algebra classes. The workshop took advantage of its location at the US Army Corps of Engineers Field Research Facility on the Outer Banks of North Carolina. We had the good fortune to share a house with a total of five of the participants. The evening discussions were also quite lively.

Outcomes

In a paragraph or two describe what worked well. Did you accomplish your objective(s)? Were you able to complete your summer project as written? If not, what did you modify and why? What did not go as well as expected, if anything? Were there any surprises? **Note: Use the questions as guides for your outcomes. Do not include detailed list of workshops attended, speakers who presented, or a list of items you have seen, heard, or read.**

Lucia Kisiel

The institute provided an in depth examination of the benefits, useful technology and ample real data sets for a wide variety of function types in teaching developmental algebra to students utilizing a function approach. The materials provided will be extremely useful in my Introductory and Intermediate Algebra classes. I attended this institute in the hopes of learning alternate approaches to presenting traditional algebraic topics to students who may not have been successful the first time they took algebra, whether in high school or at the community college level. My ultimate goal was to learn ways to teach algebra to make it more "real" to the students. The institute was highly successful in this endeavor. I am convinced that the function approach should be utilized to some extent in these courses, however, I will not utilize it to the extent that the institute presenters recommend for several reasons. These include the fact that I think time constraints and the extent of course competencies to be covered as well as the fact that the textbook that accompanies these courses does not develop these topics in this manner makes it a difficult endeavor if one wants to solely use a function approach.

David Dudley

The workshop was extremely well-organized by the presenters. It was well-paced even with ample input from the participants. They included mathematics instructors from around the country and from both high schools and community colleges. This is the third workshop I have attended that was sanctioned by the

American Mathematical Association of Two Year Colleges and as with the other two, it was exactly as advertised. I feel I completed the project as written.

Professional Growth

Your own professional growth is a large part of your project. Your professional growth is important to you, your students, your college, and possibly other colleagues. How did project affect you professionally? What skills did you learn? What environments were you working in and how might your summer project influence your teaching or other responsibilities? Did you gain a different perspective? Was it professionally valuable for you?

Lucia Kisiel

This summer project was extremely valuable as it exposed me to a multitude of techniques for teaching algebra topics in Introductory Algebra and Intermediate Algebra and even College Algebra (although the institute was geared to only the former two courses mentioned.) I believe that my participation in this institute will help to make me a better math teacher. I often tried to make connections between algebraic topics from both a graphical and analytical approach. My weak link was including a numeric approach. The institute provided ample evidence and materials for also including the numeric approach and consequently I have tried to incorporate this more frequently into my teaching this semester.

In addition, institute participants worked with a wide variety of real data sets collected and provided by the institute leaders and by the institute participants. On several occasions we used the TI Navigator, the CBL-2, the Ranger and a variety of probes for measuring temperature, motion, light, pH, force, etc. in conjunction with our TI graphing calculators. We set up collection experiments, collected and then graphed data, and looked at functions that modeled the data. Learning to use of the equipment was invaluable in making decisions about how and when the equipment could be used appropriately in the classroom as well as exposure to types of equipment failure. However, learning to use the TI Navigator, although interesting was less useful as we do not have the Navigator technology on our campus and I am not convinced it is all that beneficial. I will use the Ranger or CBL-2 in class but only as a full class activity for data collection as the math department only has two available.

Overall, participating in this institute was valuable in that it will enhance my use of graphing calculator technology in the classroom and it provided a plethora of connections to real world data and alternate approaches to instruction in several key algebra topics, such as equation solving, factoring and transformations.

David Dudley

I would like to incorporate more projects of the type we had at this workshop into my classes. However, the tyranny of the current curriculum and textbook choice give me little latitude to do so. I did learn a great deal more about memory management on the TI-83 and TI-84 graphing calculators and about new technology tools that can be used to manage student work.

Dissemination

How will you share this information with your colleagues, department, students, or campus?

Lucia Kisiel

During one of the Math Department's monthly share sessions I plan to share with my math colleagues my experiences along with the numerous data sets representing various function types and some ideas about incorporating this in the classroom. The institute provided us with a thick notebook full of activities, worksheets, and ideas for teaching function behavior and for connecting the numeric data to both the graphs and symbolic form of representation. This notebook is available to any of my colleagues who wish to use it (we were given permission to use and share this information.) In addition, I plan to use the Ranger or CBL-2 to collect data in class and have students in Introductory Algebra begin their study of linear functions with data, before we look at graphs or linear equations. This will be a new teaching approach for me but I am hoping for better success with this traditionally difficult unit for students. If I have greater success with this new alternate approach then I will include more such changes in my instruction.

This institute was valuable, as all AMATYC institutes I have attended have been and I will recommend it to other math instructors as it demonstrates how beautiful and connected math is to the world around us.

David Dudley

At my college, we have initiated the process to identify the necessary skills of Introductory and Intermediate Algebra students should have. We will also be developing guidelines for the sort of activities that would develop those capabilities. I will be sharing what I learned at this workshop with other members of the department at our biweekly meetings dedicated to revising these two courses.