MATH SPIN News

Newsletter of the NADE Math Spin *Fall 2000*

News from the Chair

Fellow Math SPIN Members,

Is it just me or are the days shorter than they used to be? I am teaching an online course this term. I thought it would bring flexibility to my schedule, but instead I find that I am on call 24×7. It is certainly a new adventure! And, I am up for tenure. These days, that means putting together a portfolio of examples of superior teaching and advising, samples of involvement in community and college life, work that represents contributions to my field, and proof of my involvement in professional development. To help me with development, I am provided with an extravagant budget of $250 per year. And then there is teaching. My old concern when I entered the classroom was having enough chalk. These days when I teach a class, I have my laptop, my overhead calculator, and my lab materials. I am worried about my internet connection, having the right cords, and group dynamics! I am seriously considering a relaxing job at McDonald's. Never did flipping hamburgers look so good.

Which brings me to this - I simply cannot continue as Spin Chair. I have enjoyed being Chair, but need someone else to step up to the plate. Tom Armington has agreed to take over until we can hold a vote at the meeting in Louisville this spring. I know Tom will do an excellent job. He has been the backbone of the Newsletter for the last two years and has agreed to gather nominations. If you are interested or know someone you think would be a good Chair, please send nominations to Tom (armingtont@inet.felician.edu) at your earliest convenience. In addition to offering a leadership experience, the position also includes coverage of your conference fee during the years that you serve as Chair (to say nothing of opportunities to associate with a fine bunch of folks!).

Upcoming Events

NADE 2001 Conference
Louisville, KY
March 14-18, 2001

Technology Institute for Developmental Educators
S.W. Texas State University
San Marcos, TX
July 22-27, 2001

(Additional information on these events can be found at www.database@nade.net)

Roberta Lacefield

Issues in Developmental Math: PLACEMENT

Surprising as it may seem, placement issues continue to cause concern for many colleges. Perhaps this is because the placement issue is more complex than first appears. What are the issues involved in placement and what should a good placement instrument measure? In developmental math, the placement process should accomplish two primary goals -- it should match student mathematics skills with course offerings and it should guarantee a degree of homogeneity in the classroom.

A large variety of placement instruments is currently used to assess student skills in mathematics. These include commercial tests as varied as the SAT, ACT, ASSET, COMPASS, and others, as well as state-mandated

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competency exams and in-house tests. Whether one test is better than another probably depends as much upon the needs of the college as upon the test itself. However, the best measure for assessing the adequacy of a particular instrument is whether or not the faculty find that students entering their classes possess the skills required for success. Simply put, placement instruments should be evaluated by their success in getting students into the right classes.

A second goal of placement, however, is also to ensure a reasonable degree of homogeneity in the classroom. Irrespective of what placement scores may suggest about the skill levels of various students, too much disparity in student backgrounds or ability levels creates an environmental problem for the instructor. For example, mixing students who have never taken algebra with those who have had several years of algebra (even if placement scores are comparable) can lead to classroom management problems. The weaker students become confused if the instructor moves too fast while the stronger students become bored if the instructor moves too slowly. There is a limit to an instructor's ability to meet the diverse needs of vastly disparate groups of students locked together in the same classroom.

A third, less defined issue in placement involves the gaps that often exist between students entering a course through placement and those entering by passing prerequisite or transfer courses. Theoretically, students progressing from one course to the next should have the best placement as the skills required for one class have been demonstrated in a prior class. Yet, this is true only to the degree that the courses are well-sequenced. Close linkage of courses is essential for ensuring that students moving from one course to the next have the skills necessary for success. Unfortunately, transfer courses, courses taught by adjunct faculty, or courses with just plain poor linkage can be problematic in this respect. At times, testing may be called for even when prior, prerequisite coursework has been completed.

All things considered, there are some principles that are generally effective in meeting placement needs. As for placement instruments, commercial tests provide convenience, but in-house tests provide the most precise information about specific skills. Beyond testing, a review of student records is also essential. Student records assist in identifying students at risk because of background deficiencies and also in avoiding misplacement of strong students into courses below their ability because of minor mistakes on placement exams. As for homogeneity of classes, many colleges address this issue by designating certain course sections for students with strong backgrounds and others for students with distinctly weaker backgrounds. With respect to the linkage of courses, combination entrance/exit exams have been used effectively to assure that students meet specific skill requirements before moving on to subsequent courses. In this arrangement, the same exams (multiple versions) used to place students into a course are also used to allow them to exit the course.

(Editor's note: Additional information on this topic or responses to the thoughts outlined above are welcome. Comments will be published in upcoming issues of the newsletter.)

NOTES/ANNOUNCEMENTS

☞ The Math SPIN web site is located at www.way.peachnet.edu/devstudies/mathspin/ The site has information about SPIN activities and links to various web sites of interest to developmental math instructors. Past issues of the newsletter are also posted on the site. Members are invited to contribute links or other information to the site. Those interested should contact Roberta Lacefield at RSLace@mail.way.peachnet.edu.

☞ The newsletter welcomes submissions of any kind that members feel are appropriate including announcements, comments, articles, teaching tips, research, etc. Please be conscious of space limitations. Materials should be sent to:

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Formula for Teaching Application Problems: Insure Student Success

By Linda Hunt and Drema Stringer, Marshall University Community & Technical College

Story problems, word problems, application problems ... it does not matter what we call them, chances are students are going to loathe them. Ofttimes these types of problems were not stressed in students' previous math backgrounds.

At our institution, the developmental math courses prepare students for higher level math courses which are predominantly application oriented. Thus, in our developmental algebra courses, application problems make up 25% of the students' grade. Students need a lot of practice doing application problems in order to become proficient at them.

We use a five step process to teach application problems: 1) identify the variable, 2) write an equation in terms of the variable, 3) solve the equation, 4) check the solution, and 5) answer the question. Each step is worth one point. This gives students a framework to use to help them solve problems. Students are requested to read through the examples in their book before coming to class. In class, problems similar to the ones studied are slowly modeled on the board or overhead projector. We solicit as much student input as possible, and focus on getting students to understand a few problems well. Students are then given a worksheet as homework and are required to correct their work against a video (usually available with textbook) in the Learning Lab.

By this point, students have been exposed to three people modeling how to do word problems: the authors of their text, their instructor, and the video math teacher. Each will have explained application problems differently; thus, the students will have had similar problems explained with variations. The homework sheet is collected for a grade, which builds students' confidence since most will have been able to get some problems completely right, to get others started, and to learn from their mistakes.

We also assign homework problems from the text and encourage students to work together on them. By finding out which problems give students difficulty, and by then having other students explain those to the class, we provide yet another model of how to solve a problem. Students put their solutions on transparencies and we look them over before class to make sure they have been worked correctly.

Lastly, we assign four problems for work in collaborative groups. These are also turned in for a grade. By that point, students are used to showing the five steps and know how their problems will be graded. So by the time students take their exam, they usually feel fairly confident about the application problems since they have had two graded assignments on them.

Students may grumble about doing so many application problems, but they complain less when they experience success. Many of our students have later thanked us for stressing application problems in the developmental math courses, as it helped them succeed in subsequent courses. As a colleague of ours says, "Life is an application problem."

Public Service

by Meredith Anne S. Higgs and David Otts (Middle Tennessee State University)
Gwen Richards (Walter J. Baird Middle School)

The mission statement of most institutions of higher education includes public service. Public service is an important part of the professional life of a faculty member and benefits more than the faculty member. Public service benefits the community directly and the institution indirectly, the community gaining the faculty member's expertise and the institution gaining recognition within the community. Unfortunately, creating the right public service project can be a confusing and cumbersome task. Activities that qualify as public service may differ between institutions and even between departments within a given institution. The following questions can aid in the process.

1. What is my favorite activity or hobby?
2. What is my favorite unit in each of my courses?
3. How can I integrate my favorite hobby and unit into a project?
4. Would my institution and department consider this project public service?
5. Would I be enthusiastic about this project?
6. To what group could I market the project?
7. How much time will the project require and what supplies are needed?
8. How can I evaluate my success with the project?

Often in the search for quality service projects, opportunities available at nearby middle or high schools are overlooked. By cooperating with a middle or high school teacher, developmental educators can broaden their own teaching repertoire and, at the same time, help prepare the college students of the future. Many public school teachers welcome the assistance.

The authors of this article have been working together for the past two semesters, sharing ideas and developing a wide range of activities for middle school and college developmental classes. Some of these include using the classroom as a living coordinate axis,"Gimme A Point" game, and Statistical Carrots: an introduction to probability and statistics." The relationship has been mutually beneficial. They welcome inquiries at mhiggs@mtsu.edu or GwenR1@prodigy.net.