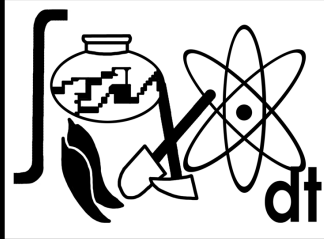


New Mexico
Mathematical
Association



of Two-Year
Colleges

NMMATYC News

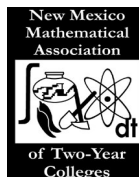
March 14, 2011

Volume 24

Issue 2

2010-2012 NMMATYC Board

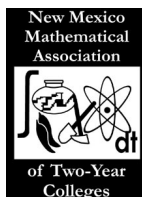
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NMMATYC News

Volume 24

Issue 2



Inside this issue:

President's Message	3
Bringing Diversity Across the Curriculum into My Math Classes	5
Beyond Data to Evidence: Finding the Critical Math Devil in the Angelic Semantic Primes	6
Annual Conference Information	9
Investigating Student Learning Capacities and Promoting Learning	10
NMMATYC Conference Information	12
Upcoming Conferences	15
Editor's Corner	16

President's Message

Ali Ahmad

Greetings,

I hope your semester is going very well. We have been planning the NMMATYC/MAA-SW Joint conference for several months. This conference will be held in Roswell from May 20 to 21. Along with the usual agenda items, this year's conference will also include a Thursday evening social, early registration and Saturday lunch with our keynote speaker. I encourage all of you to mark your calendar for this conference. The conference registration form and the conference presenter's form are available on our website.

Please visit our conference link and consider presenting at this conference. We all have different areas of expertise and have had different math teaching experiences. Sharing this expertise and these experiences is a great way for us to grow professionally and to be better professors. You can also contact our conference chair Janet Macaluso anytime at jaymac3000@msn.com.

The goal of our new website, available at <http://nm.matyc.org>, is to provide our members and visitors with up to date information. Please provide us with your input, comments and suggestions for improvement. If you have materials, topics or photos that you would like to share with NMMATYC members, please email them to me at aahmad@nmsu.edu or to Tom Kaus at tkaus@unm.edu.

New Mexico community colleges are blessed with many outstanding mathematics professors and the David

President's Message Continued...

Lovelock Teaching Excellence Award is one way to recognize their contributions. Please feel free to nominate yourself or your colleague for this Excellence Award. It will be given at the 2011 Conference in Roswell. Please be sure to send your nomination by April 1st. Application forms are available on our website.

Each year, NMMATYC awards scholarships to outstanding community college students: These are the Vicki Froehlich Memorial Scholarship and the Michelle Jimenez Memorial Scholarship. Please encourage your students to apply. Information is available on our website. Applications are due April 1st.

The American Mathematical Association of Two-Year Colleges (AMATYC) is a great organization that offers us many opportunities. I invite you to contribute to AMATYC by being a member and by attending AMATYC conferences.

AMATYC has given us a scholarship for one person to cover an AMATYC member's early registration at the Austin conference in November 2011. If you have not had an opportunity to attend an AMATYC conference in the past and you would like to have this scholarship, please contact me ASAP.

If you are a new full time faculty member (1-3 years), I invite you to participate with AMATYC Project ACCESS. The project's goal is to provide experiences that will help new faculty become more effective teachers and active members of the broader mathematical community. If selected, you will attend special sessions at the annual AMATYC conference each fall and will network through the AMATYC Project. The NMMATYC executive board has approved a contribution of \$500 to support NMMATYC members who are selected as members of the project ACCESS cohort. For further information please visit the AMATYC website <http://www.access.amatyc.org/>.

The Innovative Teaching and Learning committee (ITLC) of AMATYC is having an interesting webinar series I invite you to participate in these online workshops. Information is available at <http://www.amatyc.org>.

I look forward to seeing all of you May 20-21 at the joint conference in Roswell.

Ali Ahmad
aahmad@nmsu.edu

Bringing Diversity Across the Curriculum Into My Math Classes

By Vickie Aldrich

This fall I was a panelist in a workshop on Diversity across the Curriculum at the teaching academy. I was the math/science person. The other panelists were from English, Sociology, Anthropology and Business. We each shared about how we incorporated diversity education into our classes. Many participants were amazed that one could bring diversity into math education.

For the workshop I wore my NMMATYC t-shirt from years ago, the one with our logo inside of the balloon. I explained that the symbol meant the integration of the different cultures of NM with respect to time. There are many ways which we can bring in an appreciation for diversity just in our math language.

Two other examples I do is when clearing fractions I tell people to multiply every term, 'No Discriminating' even if the term is not a fraction or is just a lonely variable we still multiply by the LCM. Another example is the first time a student asks if they can write an answer as a decimal instead of a fraction I tell them that 'I am prejudiced against decimals but I am working on it'. I think language is important and that for students, many whom have been discriminated against to hear a teacher say 'No Discriminating' can be worthwhile and reassuring even if we are only speaking of clearing fractions. I also think that it is important for people to recognize that we all have prejudices and that we can work on these.

Other examples of bringing diversity into the math classroom came when I did paired classes with sociology and with our Math and Reading for Social Issues. One pairing was a sociology and math appreciation course. We matched the section on statistics with the sociology section on racism. My students investigated topics they chose, and assumptions they had about race; students researched topics such as sports, education, income levels, and poverty, and then did presentations about what they found using statistics.

I like being the one who brings the topics of diversity into the classroom, so that if a problem related to diversity arises the students realize that it is okay to discuss these issues in our classroom.

Vickie Aldrich
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Beyond Data to Evidence: Finding the Critical Math Devil in the Angelic Semantic Primes

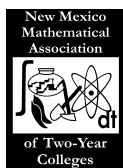
By Mia Kalish

The National Science Education Standards today tell us that “Learning environments that concentrate on conveying to students what scientists already know do not promote inquiry.” Instead, they inform us, we as educators should design curriculum, instruction, and assessment models that enable us “to build on children’s natural, human inquisitiveness.” This “emphasis on inquiry asks that we think about what we know, why we know, and how we have come to know” (NRC, 2000, pp. 5-6). For those of us who teach math, ascending the metalevel path defined by these exhortations is conflicted by the requirement that our students also acquire a set of basic Math facts, what we might call Mathematical Semantic Primes.

Mathematical Semantic Primes function in the same way as basic vocabulary in any language: They provide a framework through which we can both interpret what we see, and communicate what we know. Without such a framework, we are unable to know. This is particularly true in Math: If we do not know multiplication and division patterns, we do not see the patterns in problems and numerical combinations that lead us to solutions, especially by inspection. These same patterns function in more complicated environments to facilitate solutions by computer.

Professional Development Funds Available

Apply now for up to \$300 in funds offered each year to NMMATYC members to help defray expenses for **any** type of professional development activity. Consider using the money to attend this year’s NMMATYC Conference in Roswell on May 20th and 21st. An application is available at www.nmmatyc.org. For additional information, contact Ali Ahmad, NMMATYC President, at ahmad@nmsu.edu. The deadline to apply for 2011-2012 funds is April 1st, 2011.



In CCDM 100N, *Mathematics Preparation for College Success*, the course for which the original pedagogy was developed, Institutional Research indicates that 15% of our students flat-out fail, while 12% withdraw before they do. An additional 2-10% receive an RR grade that enables them to retake the course without penalty. My experience, and that of my colleagues, is that our students cannot read, and as a result, cannot comprehend the information texts are developed to convey. Underlying the cognitive process of understanding is a command of the basic information, the Mathematical Semantic Primes that include number patterns, and increasingly, operators and different grammatical forms. Methods and Procedures include a complex of rules, acronyms such as PEDMAS – Please Excuse My Dear Aunt Sally - as an Order of Operations reminder, and a plethora of choices for operator forms. Students become increasingly confused when faced with multiplication forms such as “*”, “”, “x”, or juxtaposition, as in $(-2b)(4c)=?$. They are also confused when “x” is used both as a variable and as an operator.

What is clear to us, but obviated in approaches promoting the path to the metalevel, is that without the basic mastery, students do not have the tools to know what they know, nor why they or anyone else knows it.

As a Developmental Math instructor, I struggle with the need to provide my students with opportunities to learn the Mathematical Semantic Primes, a domain that includes Numbers and their natures and configurations, Multiplication tables and the Division patterns that emerge from them, and, at the same time, offer my students opportunities to engage Math more deeply by understanding how it and they function together in their everyday worlds. As an instructor, I hope that these opportunities to engage will lead my students to formulate explanations from evidence.

As a researcher, I would like to know how the mixed media pedagogy that I employ actually facilitates the complex goal achievement of not only providing my students with opportunities that spark critical thinking, social learning, and connections to their families, friends and communities, but also helps them develop strong basic Math skills, that is, mastery of the Mathematical Semantic Primes. My current pedagogy adds Facebook assignments for interaction and community connection, and Adobe/Macromedia Flash movies for multiplication and division practice to reading and written homework.

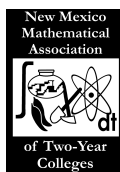


Table 1 shows the details for the original pedagogy. A pedagogy this rich and complex for the average class of 18-20 students meeting twice weekly requires a data base for management and support. The disadvantage of such a pedagogy for educators is the amount of time required to grade and record. The benefit is the wealth of information it provides.

To explore how effective different pedagogical configurations are in the field, I am developing statistical models using an application of Bayes that uses previous grades and performance to predict future outcomes while simultaneously evaluating the quality of the Theory ($p(T)$ given that the derived hypothesis is true) and the information gained ($p(H_0)$ after finding $-p(H_0)$ before finding), where p is the posterior probability, H_0 is the Null Hypothesis, and T is the Theory (Trafimow, 2003). To see if my students' performance is improving, I am modifying Potential Performance Theory (PPT), an approach originally developed in Psychology to determine the accuracy of responses to moral questions, to evaluate the pedagogy itself. PPT allows a statistical focus on strategies and consistency while eliminating random factors.

Type	#	Total Pts	Avg/Assignment
Chapter Tests	3	300	100
Daily Bonus Quizzes	9	265	29.44
Facebook Homework	16	305	19.06
Final Exam	1	100	100
Group Work	10	590	59
Quizzes	4	400	100
Written Homework	37	3610	97.57
** Total	80	5570	

Table 1: CCDM100N Fall, 2010 Assignments

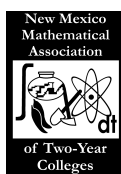


Chart 1 shows the prior probabilities from 4 Fall semesters of all CCDM 100 courses (N=512). The Posterior Probability shows a hypothetical performance goal, with a hoped for increase in the number of As, and a reduction in D's, R's, F's and W's. The goal (Actual, N=18) was not met for the number of A's, but the withdrawal and failure rates were lower, the B's and C's held their own, and the number of D and R grades was higher than hoped for or expected. While other factors such as coming to class, reading the book, and doing the assignments figure in substantially to future success, these results may be a small indication that perhaps the challenges emerging from the Critical Thinking Devil/Angelic Semantic Prime dichotomy can be accommodated by careful design.

Mia Kalish
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 mkalish@nmsu.edu

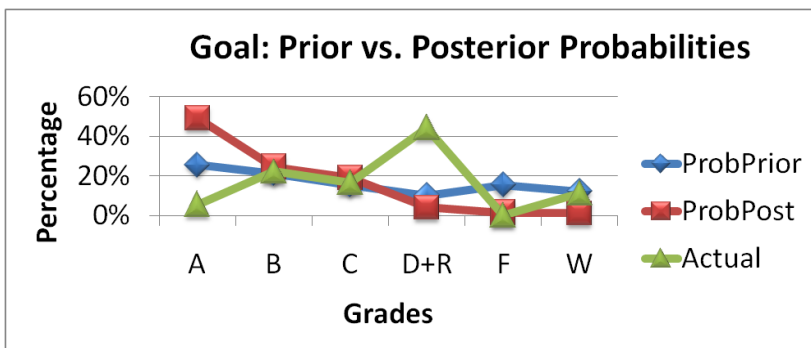
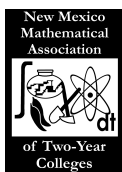


Chart 1, Prior, Hypothetical, and Actual Outcomes

References

National Research Council (NRC) (2000). *Inquiry and the National Science Education Standards: A Guide for Teaching and Learning*. Washington, D.C.: **National Academy Press**.
 Trafimow, D. (2003). Hypothesis Testing and Theory Evaluation at the Boundaries: Surprising Insights from Bayes' Theorem. *Psychological Review*, 110, 526-535.
 Trafimow, D., & Rice, S. (2008). Potential Performance Theory (PPT): A general theory of task performance Applied to morality. *Psychological Review*, 115, 2, 447-462.
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Investigating Student Learning Capacities and Promoting Learning

by
Dr. Fariba Ansari

According to the local research here at EPCC that I did for past two year it was very interesting that students like to be part of lecturing in the classroom and present the materials that they never think that they could present in front of class. The reason behind this method was to see how students would be successful in presenting themselves in front of crowd, and to push the student to demonstrate their ability and use their presentation skills. The base of the research was to make a student group of four then let them present the new chapter with a rubric to follow.

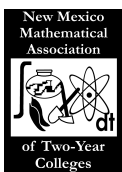
The survey of all the students showed that they did better in their learning and they had an ownership of what they learned. This learning is then passed on as they go on to become future teachers.

That means everything is possible if you want to do it if you put your mind into it. Just sometimes maybe you need the first push. By either your friend or your classmate, or you professor.

Fariba Ansari
El Paso Community College

Professional Development Funds Available

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MATHEMATICS

TAKING YOU TO

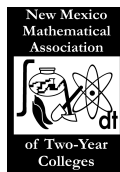


AND BEYOND!



**NMMATYC/MAA-SW
Joint Conference**

**ENMU-Roswell
May 20-21, 2011**



**Conference Time!
NMMATYC/MAA-SW
Joint Conference
May 20th & 21st
Hosted by ENMU-Roswell**

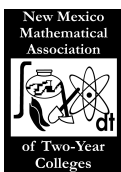
Along with the usual agenda items, this year's conference will also include

- Thursday evening social/early registration
- Saturday lunch w/keynote speaker

Presenter/presider forms and registration & hotel information is available on NMMATYC's new website (<http://www.nm.matyc.org/>).

You can also contact conference chair Janet Macaluso anytime at jaymac3000@msn.com.

Peer presentations are what make our conference worthwhile, so...
start planning your presentation now!



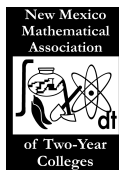
REMINDER

The deadline for the following student and faculty opportunities is April 1st, 2011! Please visit the new NMMATYC website at <http://nm.matyc.org> to print off the application material for each.

- The David Lovelock Teaching Excellence Award honors an educator who has made outstanding contributions to mathematics education at the two-year college level. The recipient receives a one-year AMATYC membership and a plaque. Nominate a deserving colleague or self-nominate.
 - The Professional Development Award of up to \$300 provides financial support to a NMMATYC member to participate in a professional development activity.
 - The Vicki Froehlich Memorial Scholarship is awarded to a declared education major with emphasis in mathematics. The \$500 award is for the 2011-2012 academic year.
- The Michelle Jimenez Memorial Scholarship is awarded to a student whose declared major requires several mathematics courses at the two-year college level. The \$500 award is for the 2011-2012 academic year.

Inquiries concerning any of these awards may be directed to Mary Caffey, NMMATYC Nominations Chair, at mary.caffey@clovis.edu.

**Editors Note: NMMATYC honored Dr. Paul Mason of Dona Ana Community College with The David Lovelock Teaching Excellence Award for 2010.*



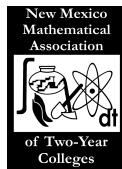
*Get your "Taking You To Infinity and Beyond" water bottle at the NMMATYC Conference.
A great souvenir for only \$10!*



Have you checked out NMMATYC's new website yet?

<http://nm.matyc.org>

NMMATYC's Next Board Meeting
will be held May 21, 2011
at the annual conference in Roswell, NM.





*37th Annual AMATYC Conference
November 10–13, 2011
Austin, Texas*

Other Upcoming Conferences

**National Council of Teachers of Mathematics
2012 Annual Meeting and Exposition**

April 13–16, 2011

Indianapolis, Indiana

Website: <http://www.nctm.org>

**National Association for Developmental Educators
36th Annual Conference**

February 22–25, 2012

Disney's Coronado Springs Resort

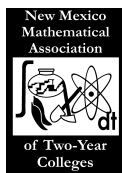
Lake Buena Vista, Florida

Editor's Corner: Helping Students Manage Their Time

I believe it is important to not only help students learn mathematics, but also help them to obtain tools for being successful in life. For this reason, I always integrate into my mathematics classes assignments on goal setting and time management. I give my students an opportunity to earn some credit by completing a sequence of assignments designed to determine what their wants, needs, and goals are, and then work to better manage their time through proper scheduling and time management.

Recently, I got a perspective on this from a former busy student. The person who shared this with me is currently the coach of my children's hockey team. This individual graduated from college with a high GPA, played on the school hockey team, and then went on to play professional hockey for four years. He shared something with me that stuck with him all through school, something that he felt really helped him get through when things got tough. A coach of his told him to think of all of the responsibilities in his life as rocks. The big rocks are the most important: family, school, and for him, hockey. The small rocks are things that consume your time but should be put aside when the big rocks need time. These smaller rocks for a college student might be hanging out with friends, playing video games, etc. The coach then said, "Everything else is just sand. Let it slip through your rocks and don't spend your time on it."

I really enjoyed this analogy, and could see immediately how I could relate it to my own life. I now tell this to my students when we begin our road to goal setting and time management.



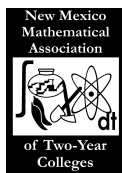
Math Jokes

Old mathematicians never die; they just lose some of their functions.

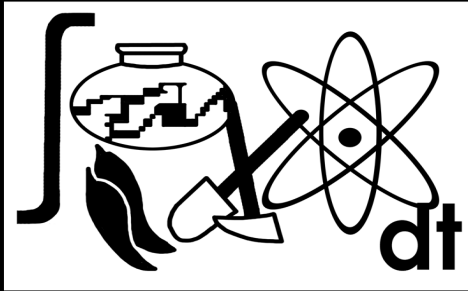
-New York (CNN). At John F. Kennedy International Airport today, a high school mathematics teacher was arrested trying to board a flight while in possession of a compass, a protractor and a graphical calculator. According to law enforcement officials, he is believed to have ties to the Al-Gebra network. He will be charged with carrying weapons of math instruction. It was later discovered that he taught the students to solve their problem with the help of radicals.

There was this magnificent mathematical horse. You could teach it arithmetic, which it learned with no difficulty, algebra was a breeze, it could even prove theorems in Euclidean geometry. But when you tried to teach it analytic geometry, it would rear back on its hind legs, kick ferociously neigh loudly and make violent head motions in resistance.

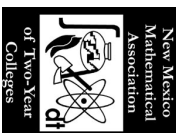
....The moral of this story is that you can't put Descartes before the horse.



**New Mexico
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**of Two-Year
Colleges**



Suzanne Hill

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