Volume 2 issue 1 Winter 2012

Link

Linking Mathematics Teacher Educators across Texas

OFFICAL NEWSLETTER OF ASSOCIATION OF MATHEMATICS TEACHER EDUCATORS OF TEXAS

PUBLISHED QUARTERLY IN SEPTEMBER, JANUARY, AND MAY

What's inside

Howdy AMTE-TX members,

I hope this finds you invigorated for a new academic semester. I do so enjoy the beginning of a new semester and meeting my students for the first time. I still get butterflies on the first day of class. Since our last newsletter much has occurred such as our AMTE-TX sessions at the Conference for the Advancement of Mathematics Teaching (CAMT), preparation for the AMTE national conference in Fort Worth, Texas, and the call for volunteers from Sandi Cooper and Trena Wilkerson, the co-chairs for the local arrangements committee at AMTE.

The AMTE-TX sessions were a huge success. Despite the tight quarters in the room and hallway, we managed to fill most of our sessions. Thank you to everyone who presented and attended the sessions. We named our new elected officers: Trena Wilkerson as President-elect, Sarah Quebec-Fuentes as Treasurer, and Kathy Horak Smith as our Member at Large, and gave tribute to those whose service had been completed.

Thank you to everyone who formally volunteered for the AMTE national conference to help with registration and technology. You should have received an e-mail about when and where to check-in. I encourage all of our members even if you are not volunteering to be sure and pick up your AMTE-TX ribbon and to provide a Texas welcome to all of our out of state guests at the national conference.

This month the newsletter is packed. Some of the content includes a book review by Barba Patton on *The Art of Motivating Students for Mathematics Instruction,* an article about *Apps for the Math Class* by Christie Bledsoe, Jodi Pilgrim, and Staci Eaton, and a review of the most recent National Assessment of Educational Progress (NAEP) for grades 4 and 8 titled *NAEP 2011 Mathematics: A Cause for Optimism and Concern* by Carole Hayata.

I am constantly looking for ways to involve more of our members in AMTE-TX beyond serving as officers. For example, at CAMT we now have AMTE-TX members serving as volunteers for registration and representatives on the program committee. If you have an idea to share you may e-mail me at leadership@amte-tx.org. This is your organization. I am here to serve you. I look forward to seeing you in February at the AMTE national conference in Fort Worth!

Dr. Colleen Eddy
AMTE-Tx President, 2010-2012

Key Leadership in AMTE (Texas Representatives!)

Affiliate Director (Member of AMTE Board of Directors)
Sandi Cooper, Baylor University

Newsletter Editor (Member of AMTE Board of Directors)
Trena Wilkerson, Baylor University

The president's message in spring 2011 announced the title of the AMTE-TX newsletter but did not elaborate how the title was selected. The following is a brief explanation of how the selection took place. The process of naming the newsletter started with the editor's call to our members to submit names in the fall 2010 newsletter. After no response from our members in fall 2010 and winter 2011, we turned to our officers for providing names for the newsletter. I have to say once one suggestion was given the names started rolling in. Sometimes we just need to add fuel to the fire! Suggestions such as SlideRule and Exponent were submitted but the AMTE-TX officers voted on Link: Linking Mathematics Teacher Educators across Texas. Trena Wilkerson who was treasurer at the time proposed the selected title. Congratulations Trena!

"Consider sharing your expertise with others..... your thoughts are needed "
Send Articles to Pattonb@uhv.edu

What School Districts Need in Entry-Year Mathematics Teachers

It is no secret that there is tremendous turnover in the teaching profession, and mathematics education suffers greatly from this turnover. School districts are constantly recruiting new mathematics teachers from a variety of sources, including experienced teachers from other school districts, alternative certification candidates, and recent graduates of colleges of education.
So what are school districts looking for in their entry-year mathematics teachers?

The ideal entry-year candidate possesses several qualities. We need teachers with strong content knowledge that not only includes the standard algorithms, but also multiple representations, multiple solution paths, and multiple entry points that are appropriate to their grade band. The elements that Deborah Loewenberg Ball calls mathematical knowledge for teaching or that Lee Shulman calls pedagogical content knowledge largely emerge from teachers' initial years of practice. Give us teachers who are open to building those critical domains of their knowledge, and we will help them shape it.

We also need teachers who are fluent with best practices that have been identified both by current research and practical experience. At the elementary level, we need teachers who are familiar with a variety of manipulatives such as base-ten blocks and pattern blocks. At the secondary level, we need teachers who are familiar with the use of technology such as the graphing calculator. At all levels, we need teachers who are familiar enough with cooperative and flexible grouping that they aren't afraid to try grouping strategies until they find one that works for their own classroom management style.

As our student population becomes increasingly non-Anglo and non-middle class, we also need teachers who can work with a wide variety of student populations, especially students that come from families and cultures that may not parallel their own familial and cultural experiences. In order to be successful, teachers need to be able to navigate through the extensive and divergent needs of non-traditional learners, including English language learners and students with special needs. Give us teachers with a foundation of ideas about how to work with non-traditional students, and we will help them learn the frameworks for being successful with all of our students.

Much of what makes a successful teacher comes from practical experience in the classroom guided by collegial conversations and entry-year mentoring. We can help cultivate that personal practical knowledge within the landscape of the teacher's classroom, school, and district. Highly sought-after teacher candidates come to us with solid content knowledge, familiarity with innovative teaching strategies, and the beginnings of a toolkit in working successfully with non-traditional learners.

Paul Gray, Ed.D., is the Chief Curriculum Officer for Cosenza & Associates, LLC, and a Past-President of the Texas Council of Teachers of Mathematics.
Linda Sams is the Coordinator for Secondary Mathematics in Cypress-Fairbanks Independent School District.
Paul and Linda both serve on the Board of Directors for the Conference for the Advancement of Mathematics Teaching (CAMT).

Book Review

Posamentier, A. S. & Krulik, S.(2012) *The Art of Motivating Students for mathematics Instruction.* McGraw-Hill: New York

This is one book in a series of practical guides. Dr. Posamentier, Series Editor, states in the very beginning that new teacher face many rivalités when they enter their first classroom and this practical guide series hopefully will be valuable to them. Some of the rivalites they face include motivation. This guide was prepared to help these teachers have a positive start to their career which in turn will most likely be the best path to becoming a master teacher. One of the major purposes of the series is to address teacher retention. Many teacher leave during the first five years of teaching as they do not have the mentorship and guidance needed at this crucial time.

The authors do not give a formal definition or formula for motivation, however, they do propose that the best teachers can do is to try to begin each and every class in an way in which it creates interest and allows their own genuine enthusiasm to be apparent and remain so during the upcoming lesson.

Each and every teacher should have as his/her goal to teach and effective lesson each and every day. With this in mind it is especially important that secondary-mathematics teachers have the tools to motivate their students. Many students arrive in the mathematics classroom not very excited or enthusiastic about the class. The teacher has a duel task at this point, first to get the students interested, motivated and excited about math and secondly to help the students master the content as most of the students will be faced with state tests such as end of course exams and college entrance tests. It becomes even more important that the teachers are able to reach each and every student in the mathematics classroom. The effective teacher needs to focus on the students who are the least interested in the content as they are the one who need to be motivated and encouraged to explore the topics being presented. Teachers should not just develop ideas of special topics which are of interest to the teacher but on techniques from which motivational activities for most all mathematics lessons can be drawn. Many ideas are provided in the text.

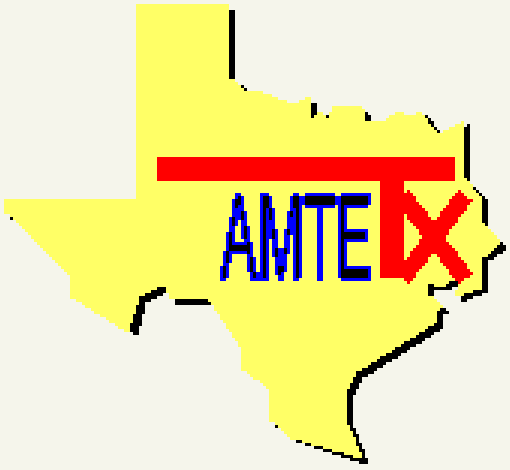
Reviewed by Barba Aldis Patton, Ed.D. Associate Professor University of Houston-Victoria, School of Education and Human Development, Victoria Texas pattonb@uhv.edu

AMTE 2012 in Fort Worth, Texas!

Mark your calendars! Get Ready. Feb 9-11 at the Renaissance Worthington Hotel.
AMTE 2012 is our chance to show that everything is 'Bigger and Better' in Texas and welcome our fellow AMTE members. This is the 20th Anniversary for the national conference so come join in the celebration and fun. There will be many excellent presentations and nationally recognized mathematics educators as keynote speakers. Check the AMTE website at www.amte.net for more details. Thank you to everyone who has volunteered for the registration and technology committees at the national conference. You may contact Sandi Cooper (sandra_cooper@baylor.edu) or Trena Wilkerson (trena_wilkerson@baylor.edu) who are the co-chairs for the local arrangements committee if you are able to give some time during the conference.

Hope to see you in Fort Worth!

MEMBERSHIP



WE now have 47 members.
By joining AMTE-TX., you become a member of a unique group of educators, all interested in the Mathematics Teacher Education in the state of Texas.

Dues: 1-year $20 3-year $50; Full-time Student $10

Members will automatically be added to the AMTE-TX membership.
If you have any questions, please email Sarah Quebec Fuentes at s.quebec.fuentes@tcu.edu. Please mail the form (found at http://www.amte-tx.org) and a check made payable to AMTE-TX to the following address:

Dr. Sarah Quebec Fuentes, Treasurer
Andrews Institute
Texas Christian University
TCU Box 297920
Fort Worth, TX 76129

AMTE-TX Officers

President: Colleen Eddy
(University of North Texas) 2010-2012
President–Elect: Trena Wilkerson
(Baylor) 2011-2012
Secretary: Sandra Browning
(University of Houston– Clear Lake) 2010-2012
Treasurer: Sarah Quebec Fuentes
(Texas Christian) 20011-2012
Member at Large: Beth Cory
(Sam Houston) 2009-2012
Member at Large: Dusty Jones
(Sam Houston) 2010-2013
Member at Large: Kathy Horak Smith
(Tarleton) 2011-2014

Newsletter Editor – Barba Patton
University of Houston-Victoria

Notes from the Editor:
Please submit any news you wish to be considered for the newsletter to Dr. Barba Patton, at pattonb@uhv.edu or dr.barba.patton@gmail.com

Articles about exceptionally good lesson for pre-service teachers are welcome.

Let us know if you are promoted, have an article published or make a presentation. Let us share the good news.

Please try to submit your information by August 1, December 1, or April 1 for the newsletters.

Be sure to keep your membership current. We need you!

Apps for the Math Class

Our students today live in a digital world where technology is changing the way we interact, socialize, entertain, work, and learn. Technology should also be impacting the ways we teach. Smaller, lighter technology is more portable and less expensive. The Apple products, such as iPods, iPhones, and iPads, are becoming increasingly popular and are being piloted by school districts around the nation. The apps, or applications, utilized by these products offer a variety of instructional uses and allow teachers to customize or differentiate instruction for specific students.

Undergraduate interns in the education program at the University of Mary Hardin-Baylor are completing field experiences in a middle school which is well equipped with technology. Each student was issued an iPad for school and home use. Teachers are incorporating technology in and out of the classroom. We have observed other schools with class sets of iPads. Some schools provided iPads for each teacher which could be used with students in tutoring or as a center. One teacher maximized educational time by allowing students to use the portable devices after school while waiting for parents to arrive. Elementary and middle school students are highly motivated to use the technology. While they are having fun, they are also learning.

The Apple iTunes store offers hundreds of thousands of apps, and more are being added daily. Many of these apps can be educational tools. Most apps are free or inexpensive. Other apps have a free trial, or lite, version. Publishers have developed supplemental apps for textbooks. The following apps are some of our favorite apps for the math classroom.

ShowMe (by Learnbat, Inc; free) is an interactive whiteboard which records pen strokes and audio simultaneously. There are many potential uses of ShowMe in the math classroom. For example, teachers can record each step of a problem with an explanation. The recording can be uploaded online and shared with students or parents. Users can change pen colors and import pictures as well. Middle school students used the ShowMe app to demonstrate order of operations. Check out this example created by a 7th grade student: www.showme.com/sh/?i=26659

MathBoard (by Palasoftware, Inc; $4.99) is useful for reviewing and practicing math facts. The app looks like a chalkboard and includes a location for scratch work using the interactive touch screen. Teachers can adjust settings to control operations, number range, number of problems, response format, and more. Feedback is immediate, and students can log in to record quiz scores. The multiplication table is an additional resource.

Pizza Fractions: Beginning Fractions (by Brian West; free) is a game which reinforces fraction concepts for early elementary students. Visual representations include whole pizzas and fractional slices of pizzas. Students choose a correct response of three given responses. The sound effects are engaging and feedback includes comments like, "You are a math whiz!" when questions are answered correctly. Two upgrade versions are available for $0.99 each which allow students to compare fractions and convert fractions to simplest form.

Rocket Math Free (by Dan Russell-Pinson; free) is an award winning app helps students to work on a wide range of math topics including numbers, time, money, shapes, patterns, and basic operations. Students build their own rockets and earn money with correct answers. The one player game allows elementary students to develop hand-eye coordination and has a fun, interactive interface with exciting graphics. The upgrade version is available for $0.99 and includes 56 "math missions."

Calculator Pro (by MYW Productions; $1.99) is one of the many options for calculator apps. While other versions are free, this one has additional features. The portrait view includes the basic functions, and the landscape view reveals the keys for additional functions. The large numbers and displays are great for presentations. Users may also purchase "skins" to change the appearance or theme of the display. This calculator app does not include graphing features

Our contributing authors:
Christie Bledsoe is an Assistant Professor at the University of Mary Hardin-Baylor. She teaches Math/Science Strategies and graduate research courses. Her research interests include math education, science education, teacher education, and technology.
Jodi Pilgrim is an Assistant Professor at the University of Mary Hardin-Baylor. She teaches Literacy courses in the Department of Education. Her research interests include reading fluency, teacher education, and technology.
Staci Eaton is a senior education major at the University of Mary Hardin-Baylor. She hopes to teach elementary school and pur-

Don't forget to keep your membership current !!
We need you as a Member of AMTE-TX

Enchanting Spam

The three problems in this article illustrate that algebra takes the mystery out of many problems sent in e-mail spam. The problems on the internet are presented as magical problems with enchanting results.

Enchanting Problem 1: Age Problem

Instructions	Arithmetic Example	Algebra
Choose any number	9	n
Multiply number by 2	9x2 = 18	2n
Add 5	18+5 = 23	2n+5
Multiply by 50	23x50 = 1150	50(2n+5) = 100n+250
Add 1761	1150+1761 = 2911	100n+250+1761 = 100n+2011
Subtract birth year	2911–1985 = 926	100n + (2011–Birth Year)

At the end, the person working the problem is asked, "Are the last two digits your age after your birthday in 2011?" and "Is the number preceding the age the number you chose at the beginning?" They are also told that this will only work in 2011; but the problem will work in 2012 if Step 5 in changed to "Add 1762".

Enchanting Problem 2: Three-Digit-Number Problem

Instructions	Arithmetic Example	Algebra
Write a three-digit number (ABC) twice so it becomes a six-digit number (ABCABC)	367367	ABCABC =100,000A+10,000B+1,000C +100A+10B+1C =100,100A+10,010B+1,001C =1001(100A+10B+1C)
Divide by 7	367367/7= 52481	1001(100A+10B+1C) ÷ 7 =143(100A+10B+1C)
Divide by 11	52481/11 = 4771	143(100A+10B+C) ÷ 11=13 (100A+10B+1C)
Divide by 13	4771/13 = 367	13(100A+10B+1C) ÷ 13 =(100A+10B+1C)

At the conclusion, the person working the problem is asked, "Did you get the original 3-digit number?" The students see that Algebra takes the magic from the problem.

At the conclusion, the person working the problem is asked, "Did you get the original 3-digit number?" The students see that Algebra takes the magic from the problem.

Enchanting Problem 3: Telephone-Number Problem

Instructions	Arithmetic Example
Enter first three digits of your phone number (XYZ)	575
Multiply by 80	575x80=46000
Add 1	46000+1=46001
Multiply by 250	46001x250=11500250
Add last 4 digits of your phone number (LAST)	11502561+2311=11504872
Add the last 4 digits again	11502561+2311=11504872
Subtract 250	11504872–250=11504622
Divide by 2	11504622/2=5752311

The person is asked, "Did you get your phone number?" The algebra follows.

Dr. Estella De Los Santos shared these interesting problems with us. She uses problems like these to motivate students. She teaches math concepts for the EC-6 and 4-8 teacher candidates at the University of Houston-Victoria. Her email is delos-santose@uhv.edu. Thanks for sharing Estella.

100X+10Y+1Z (100X+10Y+1Z)x80
(100 X+10Y+1Z)x80+1
[(100X+10Y+1Z)x80+1]x250=(100X+10Y+1Z)x20,000+250
(100X+10Y+1Z)x20,000+250+(1000L+100A+10S+1T)
(100X+10Y+1Z)x20,000+250+(1000L+100A+10S+1T)x 2
(100X+10Y+1Z)x20,000+(1000L+100A+10S+1T)x 2
(100X+10Y+1Z)x10,000+(1000L+100A+10S+1T)x1
1,000,000X+100,000Y+10000Z+1000L+100A+10S+1T

Red Rover with a new Twist (Place Value)

Today's students face many achievement tests throughout each school year. One concept which is always evaluated is 'place value'. It is not usually straight forward but if the students are not able to identify the value of each of the digits in a number, they will not score very high on the test.

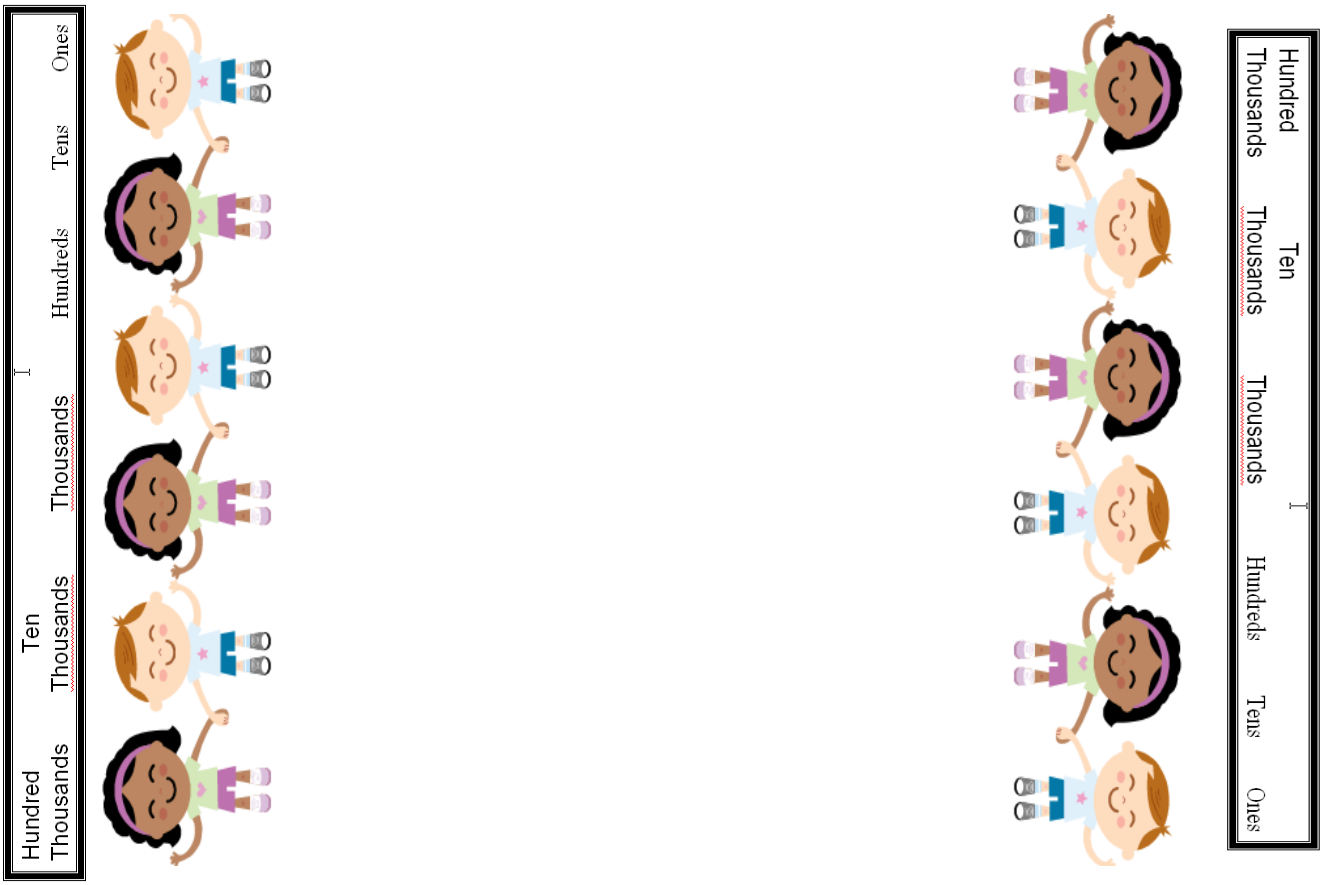
The students who played this activity had some in-class instruction on place value and had used the base 10 blocks to illustrate the expanded form of a few numbers. This however, was limited to the use of three digit numbers or less. The classroom instruction was also limited to two class periods (approximately 60 minutes each). The students were introduced to the outdoor math activities in the fall and just a few days into the school year. By using whole body movements, many students were able remember the concept being taught. This activity was used with a group of very low performing 5th graders. None of whom had ever passed a state achievement test. It seemed very evident that the students were mastering the concept therefore the teachers stepped back after a few rounds of the game were played. The teachers just observed. The students were very quick to correct identify their new roles after each run and to help classmates if there was a need. They were also quick to point out if one of their peers made an error.

Using a strip of white fabric and a permanent marker the various place values were written in correct order. If the strip was placed behind the line, the students could turn around to get their place value then turn back around to play the game. This manner eliminated that reverse image or mirror image when playing. This strip is shown on the game illustration below. The students lined up and assumed the role of the place value according to the chart. Each of the various roles (place values) was written on two small pieces of paper and one student from the team reached into the bag and drew a role, this was to determine what role that team would call over. The pieces of paper with the roles was returned to the bag after each run. The fact that there was two of each role only insured that there were more than the six pieces of paper (if you desire you could put in more). The bag is not necessary but it was used to keep the students from only calling on their friends. This was a small class but if it were larger the chart would have included more places. Also on the state test, 5th graders are only required to have mastery through the hundred thousand's place on the standard concerning place value.

The students proceeded to play Red Rover in their new role (name). The chant was "Red Rover Red Rover Let *'Tens'* Come over" or any of the other place values. The chant changed as a different role was selected from the bag. The teams took turns just as in the traditional game as well as abiding by traditional rules: 1) if the player was able to break through the line, he/she was able to return to his/her home team and take another player from that opposing team when returning and 2) if the player could not break the line then he/she became a member of the opposing team. The students had to re-evaluate the place they were occupying each time there was a play as their team lost a place or gained a place. The students therefore the re-evaluation is a must.

To determine who would be selected to be called the following was method was prepared. The various place values were written on lids from Milk bottles and placed in a bag. In order to have a few more lids in the bag, three were completed for each value. One member of the team selected a lid for the role that they would request. The selected lid was replaced after each selection.

The game makes the students check the various place values after each time someone tries to break the hold of the other side. If the runner breaks through then there will be one addition to the runner's team and according to where the new team members goes, the others will have to check their role. The opposing team will now have one less member than before so they too will have to check their roles and possibly reassign some roles.



For an evaluation, the students played another activity. In this game there were ten –twenty paper strips with a large (value) numbers written on each. No digit appeared more than one time on any strip. See below for illustration. There were ten plates placed on the ground. One of the digits 0-9 was written on each plate. These plates were randomly placed and different each time we played. The students were divided into two teams for this activity. Each student would toss a form-type ball from the line and tried to get the ball to land in a plate. The distance between the line and the plates needed to vary according to the grade level. (If the students have difficulties getting the ball to stay in the plates, just use the plate that the ball touched first). Then the student would have to identify the place value of the number on the card. For example if the ball landed on a 3 and the student had the card below, the student would state that the 3 is in the "ten thousands place' and is worth 3 X 10 thousands (30,000). The student then earns a point for his/her team.

As a way to keep score, water bottle lids were dropped into a plastic half-gallon milk bottle. The competitiveness brought the students to a new level as they became very excited. Each student mastered the concept and truly seemed to enjoy the activities.

410,536,897

Students did not seem to forget place value after this activity. They were still able to answer place value questions, several weeks later and were also successful on the state achievement test in the spring. This is quite an accomplishment for many special education children. Hopefully, the students will retain the skill for use in later grades and with other concepts.

This motivational activity is given a math methods undergrad class as a guide for preparing motivational activities. It was first played with students in a former student's class. Barba is an Associate Professor at the University of Houston-Victoria. pattonb@uhv.edu. She teaches undergrad math methods and graduate math methods classes.

NAEP 2011 Mathematics – A cause for optimism and concern

The Nation's Report Card: Reading and Mathematics 2011 was released on November 1, 2011 with the results of the 2011 National Assessment of Educational Progress (NAEP) for grades 4 and 8. U.S. Secretary of Education Arne Duncan (2011) stated that the "modest increases in NAEP scores are reason for concern as much as optimism." Although student achievement has improved from 2009 in 4th and 8th grade mathematics and 8th grade reading, the number of students at the proficient level is far below the goal of the No Child Left Behind legislation of all students performing a the *Proficient* level by 2014. The lack of significant gains will be detrimental to the nation's youth as they prepare to compete in the "knowledge economy of the 21st century."

The current NAEP mathematics framework and assessments (established by the National Assessment Governing Board), implemented in 1990, measures both what students know and what they are able to do in mathematics. The five mathematical content areas include: number properties and operations; measurement; geometry; data analysis, statistics and probability; and algebra. The emphasis at the 4th grade level is on number properties and operations (40% of problems) while the 8th grade assessment places a greater emphasis on algebra (30% of problems). Due to the large number of mathematics problems used to assess the content areas, the problems were divided into 10 sections. Each student only took one section (14-19 problems) and the results from all students were combined into the national and state average scaled scores.

The NAEP mathematics results were reported as two scores: a scaled score (*0-500*), and an achievement level (*Basic, Proficient, Advanced*). A *Proficient* achievement level was designated for scaled scores of 248 for 4th graders, and 299 for 8th graders. This level represents a "solid academic performance." Furthermore, students have "demonstrated competency over challenging subject matter." The national scores included the combined results from both public and private schools. The 2011 national average scaled score for mathematics showed a gain in the score for 4th grade (from 240 to 241) and 8th grade (from 283 to 284) from 2009. The percentage of students at or above *Proficient* also increased for 4th grade (from 39 to 40) and 8th grade (from 34 to 35). Although the results show significant gains, the nation will be far short of the NCLB goal for 2014 at this current rate.

In addition to subject matter assessments, NAEP also collects and reports data that illustrates the changing demographics in the U.S. schools. For example, in 1990, White students comprised 75% of the 4th grade student population as compared to 54% in 2011. New for 2011, the Asian/Pacific Islander category was separated into *Asian* and *Native Hawaiian/Other Pacific Islander*. The fastest growing subgroups were Hispanic (from 6% to 22%) and Asian (from 1% to 5%), whereas the number of Black students has decreased (from 18% to 15%). Students' eligibility for the National School Lunch Program (NSLP) was used as an indicator of family income. Since 2003, the distribution of 4th grade students eligible for free or reduced-price lunch has risen from 41% to 48%. Similar NSLP trends are also seen within the 8th grade student population.

NAEP results by state are available for public school students only. In Texas, the 4th grade students scores did not show any significant gains from 2009 to 2011. However, Texas was one of 13 states in which the mathematics scores from 2009 to 2011 were higher in the 8th grade. The average mathematics score for 8th grade students in Texas showed a gain of 3 points (from 287 to 290) with 40% of the students at or above *Proficient*. The average mathematics scaled score for 4th grade students was 241 (240 in 2009) with 39% of the students at or above *Proficient.*

The NAEP results provide educators with indicators of overall growth, the general health of student academics and subgroup performances. As correlation does not imply causality, researchers are cautioned against using the background data about student and teacher characteristics and behavior to infer causal relationships (Podgursky, 2002). As mentioned earlier, in mathematics, the each student only completed a small section of the problem set used to assess student achievement over the content areas. In addition, although the student participants were selected to represent the nation's student population, the participating teachers were consequential. Another consideration is that student achievement is greatly influenced by socio-economic status, parent educational background, and race as well as teacher behaviors. For example, from 2003 to 2011, students not eligible for the NSLP scored higher each year than the students who were eligible. The background data may show that teachers of high SES students use instructional methods that promote higher order thinking skills, whereas teachers of low SES students use methods that focus on basic skills. However, it is incorrect to conclude that higher order thinking skills cause higher scores (Podgursky, 2002).

Despite the cautions, large-scale assessments such as NAEP provide a wealth of data to support and inspire research. To assist researchers and educators, the NAEP Data Explorer (NDE) is available online (nces.ed.gov/nationsreportcard/naepdata/). As an example, a report (Table 1) can be built with the scale scores for fourth-grade students' scores in the content area, number properties and operations, between national public schools and Texas public schools since 2000. The same can be done for eighth-grade students' scores in algebra.

Table 1
2000-2011 NAEP Selected Results for National Public Schools and Texas Public Schools.

Year	4th grade: Number Properties and Operations		8th grade: Algebra	
	National Public	Texas Public	National Public	Texas Public
2000	222	231*	275	274
2003	232	236*	280	278
2005	235	241*	282	284*
2007	237	241*	285	288*
2009	237	238	287	290
2011	239	239	289	293*

Note. Statistically significant higher scores between National Public average scaled score and Texas average scaled score is denoted with "*".

As with the national results, the data in Table 1 suggests both optimism (increasing trend in Algebra scores) and concern (the lack of gains in 4th grade number properties and operations).

The NAEP 2011 results provide a measure the nation's academic well-being. In mathematics, there were significant improvements, but there were still matters of great concern. At the 8th grade, 47% of the students reported enrollment in an algebra 1 course or higher yet only 35% of the 8th grade students are at or above *Proficient*. For 8th grade students in 2011, the average mathematics score for male students was 1 point higher than female students, yet the score gaps between White and Black students is 31 points and has not changed significantly since 2005. *The Nation's Report Card: Reading and Mathematics 2011* for Grades 4 and 8 is available at nationsreportcard.gov.

References

National Center for Educational Statistics (2011). *The Nation's Report Card: Mathematics 2011* (NCES 2012-458). National Center for Educational Statistics, Institute of Education Services. U.S. Department of Education, Washington, D.C. Retrieved from nationsreportcard.gov

Podgursky, M. (2002, September). *NAEP Background Questions: What Can We Learn from NAEP About the Effect of Schools and Teachers on Student Achievement?* Discussion paper prepared for the National Assessment Governing Board. Retrieved from http://web.missouri.edu/~podgurskym/papers_presentations/index.htm

United States Department of Education (2011). *Statement by U.S. Secretary of Education Arne Duncan on NAEP Reading and Math 2011 Results.* Retrieved from http://www.ed.gov/news/press-releases/statement-us-secretary-education-arne-duncan-naep-reading-and-math-2011-results

Carole Hyata is a doctoral candidate at the University of North Texas, and her dissertation research is focused on the development of MKT (algebraic thinking and number sense) in elementary pre-service teachers. Thanks Carole for sharing this important information.