The Reading Connection

By Jordan Fabish

WHAT? ANOTHER CONNECTION?

Even before reading the front page or tearing out the crossword puzzle, I eat my Sunday morning cereal turning through Parade Magazine and usually stopping at Marilyn Vos Savant's "Ask Marilyn" column—kind of an intellectual "Dear Abby." It was there that I recently saw this question from a Massachusetts reader and Vos Savant's answer:

Do you have any ideas about why more people don't understand math any better than they do? The problem seems to begin in school, and the struggle—for too many—lasts a lifetime.

I believe that much of the problem lies in the lack of logic and reasoning skills. Math is just logic with numbers and symbols attached, and success with it requires the ability to reason effectively. But children usually are taught what to think, not how to think. That's why so many adults live in a state of perpetual misunderstanding about the world (2002, p. 26).

Logic? Reason? How to think? Isn't that what we do? Did we know we had a cure for this "illness"? From plethora to paucity, where a reading-writing connection is omnipresent in our consciousness and our lesson plans, a reading-math connection, at least in our training, is much less boldly drawn, scantily sketched under "reading across the curriculum" or "content area reading." Readance, Bean, and Baldwin's Content Area Literacy does not even include a math book list in its index, probably because there are not many of them. Yet the question of math proficiency is very real: we see widespread math anxiety on the one hand, but also students' perceptions of being "good in math/bad in reading" on the other. Is there a research base for Vos Savant's position?

A cursory survey of current literature reveals a surprisingly arid landscape, and any "Reading Connection" reader looking to publish post-graduate research-in-the-classroom might consider turning his/her focus to the reading-math connection. Indeed, it was from this personal, practical vantage point, during an interview with my colleague Diane Amelotte and another with Andrew Stevens, that I gleaned the most relevant insights into reading's relationship to math. Amelotte, a reading instructor at Long Beach City College, having also taught in the lower grades, has been tutoring learners all ages in both reading and math since 1978 in a successful and ongoing tutoring business. Does she agree with Vos Savant's diagnosis? Is the ability "to reason effectively" at the heart of the problem? Absolutely.

REG: To my mind, logic and reasoning are as closely tied to reading success as to math, but it does seem that many people see themselves as good in one or the other. What is of interest to reading teachers, I think, are students who seem to defend their shaky reading comprehension or their (lack of) ability to write effectively by positing that they are "good in math" and therefore are "bad in reading." What have you found?

DA: When students say, "I'm good in math," they usually mean they are good at computation, at the four operations, recall of facts. But, very likely, math concepts and application ("word problems") are difficult for them. Many have trouble thinking through the steps logically. Many don't even see that there are steps. They know their times-tables and addition facts, but cannot puzzle out the algebra or fractions because they can't see relationships. Just like Vos Savant says, logic and reason are crucial to understanding math. Students must go past rote memory.
[Doesn’t this sound exactly like what we find with reading comprehension? Struggling reading students may read the sounds of the words, but miss the conceptual relationships in text. Seeing relationships is a reading principle.]

REG: So reading and math are more closely tied than we have thought.

DA: Yes. The teaching of logic in math has a direct link to reading. Students have to apply thinking skills to figure out word problems, traditionally presented in fifth and sixth grades, although now introduced much earlier. Although it may appear that their rote computation skills are filling them, which can be the case too, many times it is their lack of ability to analyze and determine what needs to be done. Whether the subject is math or history, they need to be able to read—I mean logically comprehend—to follow directions, to learn and apply the vocabulary common to the field. And, of course, critical thinking is the key to logic.

REG: Can you comment further on vocabulary? It is such a familiar feature in the realm of reading instruction.

DA: The students don’t study the vocabulary. This may be because math teachers don’t teach vocabulary in the first place, at least not as a discrete study.

REG: And they’re not “getting it” from the context?

DA: No way. But once they know that “is” means “equal”; once they understand what not only “greater than” and “less than” really mean, but also “find the difference,” “product,” “reciprocal,” “quotient” “coefficient,” “variable,” or “the ‘Y’ intersect,” then they start to realize how to apply the computation for the problem solving.

REG: Conversely, there really are people whose strong thinking skills should transfer to math, but, sure enough, they are “good with language/lousy at math.” What about them? If Vos Savant is right, why can they reason effectively in one setting, but not in the other?

DA: I see a lot of Honors Program students who are confident readers and strong writers, but are panicked about being in Honors math. They don’t seem to realize they can and must use for math applications the same logic/comprehension/following directions/vocabulary they’ve been using for language applications. They don’t know how to make that transfer, they experience failure, and they get discouraged. They start to see themselves as “bad in math.”

REG: Like “Math Matthew Effects”!

DA: Exactly.

[Think, too, of the many years it takes to become academically proficient with a second or third language. A second-language learner who prefers math may simply be tied to his/her familiarity and practice with symbols that are more universal than alphabets and syntaxes, and the Matthew Effect strikes again.]

Every goal we set in reading is useful in math, even the computational aspects. Think of the similarities between syntactical patterns or paragraph patterns and a second grader’s recognition of number patterns; think of the role visual memory and vocabulary play when a fifth grader has to order 4.032, 4.023 and 4.203 from least to greatest. Similarly, when we work to help our students see the details of accent or other diacritical marks in a dictionary entry, they will be better able to see the details when they determine greater than or less than comparing 11,560, 560 to 11.5605. And it is comprehension and critical thinking—clarifying ambiguities for accurate literal interpretation, recognizing the main idea, drawing inferences, linking conclusions to appropriate reasons, evaluating evidence, discovering missing
information, and, generally, thinking at Bloom’s higher levels—that promote understanding, regardless of
the discipline.

What about the aesthetic counterpart that literature brings to our lives? Is there a parallel in math? Those
who have pushed ahead into higher math assure me that surprise, imagination, enjoyment, mystery and
creativity are hallmarks of such study. Andrew Stevens, an academic coach in several areas, including
higher math, also supports Vos Savant’s contention that children are too often taught what to think over
how to think.

AS: Our base-ten number system is really just an agreed-upon convention originally linked simply to our
having ten fingers out in front of us. Unfortunately, most children’s experience in math begins with being
forced to accept certain axioms as exact facts. As they learn more, they start to encounter math’s “dark
corners” that cannot be resolved in a linear fashion—or at all!

REG: And if they haven’t initially been encouraged to question and think critically, they may have a hard
time moving on?

AS: Yes. Let me give you an example of one of math’s un-knowable features. Think of a circle. The
Greeks figured out that in this perfectly symmetrical shape, the diameter grows or diminishes as the
circumference does. This is obvious and intuitive. But a surprising ratio pops out of the circumference of
any circle, regardless of its size, when divided by its diameter: pi. And it is always pi. We have labeled it
pi, and we’ve abbreviated it to 3.14, but we cannot account for its mystery, for its infinite quality.

REG: How’s that for mysterious and creative?

AS: All the great mathematicians were amazingly creative and artistic people.

Also, Stevens’ graduate work in psychology was based on the position that students’ positive strengths
can transfer to their areas of weakness, and he earnestly supports connecting reading and math.

Finally, if you have reason to investigate the reading-math connection further, you may find the following
resources good places to start:
A couple of my favorite math-picture books: If You Hopped Like a Frog by David M. Schwartz Illustrated
by James Warhola. “If you hopped like a frog . . . you could jump from home plate to first base in one
mighty leap!” Make some amazing comparisons using math. Math Curse by Jon Scieszka & Lane Smith.
“You know, you can think of almost everything as a math problem.” Solve all your problems with this
bizarre math book!

Of the hundreds of math-help Websites, most of which offer exclusively computation practice, only a few
incorporate reading principles, but there are some, often the product of a grant for this purpose.

I loved Webspeditions—Making the English-Math Connection:
http://www.pekinhigh.net/grant/webspedition/grantwebspeds.htm

Using ten literature pieces from Barbara Kingsolver to Shakespeare, this site has links to explanations of
the works’ allusions, settings, history, and related, interactive math concepts and practices.

Check out ThinkQuest, http://library.thinkquest.org/50045/verna.htm

Teachers enrich math teaching/learning with reading strategies, sharing their results and reflections. See
the power of the Graphic Organizer applied to math; observe a math teacher who really does teach
vocabulary. Revamp KWL to the math classroom:
M = Math Problem : What must I solve? How can I reword or refocus the problem?
A = Actually what I know: What is listed in the problem that will help me, or do I already understand?
T = What must I think about: What is the importance of this problem? Why would one want to solve this?
H = How can we use what we learned: What are the implications or applications to real-world settings?

This site also includes numerous materials to print and use for worksheet practice.

Mega-Mathematics! from Los Alamos National Laboratory, http://www.c3.lanl.gov/mega-math/ is very impressive. There are links to vocabulary terms, “big ideas” and “key concepts” on many, many mathematical matters. It’s mega, all right!


Ask Mr. Calculus, http://www.geocities.com/Athens/Acropolis/6432/ is definitely a math in-crowd experience, which is never all that much fun if you are on the outside, but it is there for higher operations.


or http://www.suzannesutton.com/. A site built with honesty and empathy, you must see it for yourself, but as a sample:
“Girls belong in mathematics. Because it is lovely, and because it is tough.”
“In trying to get our children to like math, we make a mistake in thinking we need to make it easy. Watch your child playing ball—he runs and reaches and sweats—and he loves it.”
“Math teaches us to think clearly, to reason well, to strategize effectively. It teaches us not to be fooled by packaging, but to be able to see through to the essence of things. And math teaches us to maneuver without a "road map," very much like life will ask us to.”

Clearly, whether you teach math directly or not, “reading people” have a lot of reasons to give hope to our struggling reading/math students! We can assure them that the thinking processes we are helping them learn and practice will lead them to competency in both reading and math, and, if they are already good in math, they’ll be even better.


For tutoring in the San Pedro and surrounding area, you can contact Diane Amelotte at Amelotte’s Learning Loft, (310) 833-4814. E-mail: learningloft6@aol.com

For tutoring in the Long Beach and surrounding area, you can contact Andrew Stevens at A.C.E., Academic Coaching and Enrichment, (562) 212-4538. E-mail: actionsmith@earthlink.net

To contact me about this or another newsletter article, please e-mail me: jfabish@lbcc.edu

Faculty Footnotes

By Kathi Bartle Angus
This issue’s column will highlight the recent activities of two of our faculty emeriti as well as faculty and alumni. Dr. JoAnn Carter-Wells announced the creation of a new MS in Instructional Technology. Carter-Wells is coordinating the exciting new program, which began offering courses to students this semester. All course work is completed in online classes. Students from industry, education, military science, and health care competed for admission into the first class. The program will prepare students to use technology for instructional design, teaching and curriculum development. The courses are taught by faculty from Educational Leadership, Reading, Secondary Education, and Elementary and Bilingual Education. Drs. Anthony and Ula Manzo’s latest publication is featured in the September issue of the Journal of Adolescent and Adult Literacy. “iREAP: Improving reading, writing, and thinking in the wired classroom” presents a system for improving reading comprehension using technology. Dr. Deborah Osen Hancock, Dr. Rosario Jasis, and Kathi Bartle Angus formed a committee to review applications for the Klausner and Hancock Scholarship applications. Many quality applications were received. The recipients will be announced in the next newsletter and recognized at the REG Winter Dinner. JoAnne Greenbaum has been busy working to update the Reading Department web page. The results of her efforts can be viewed at http://hdcs.fullerton.edu/Reading/reading.html. Ruth May Siegrist has announced the launching of a new web site that offers book reviews and information about her father, noted author, Lorenz Graham. Graham authored many fiction and non-fiction children’s books about Africa and African-Americans. You can visit the site for more information at grahambooks.com Reading alumna, Laura Schwalm, was pleased to accept recognition for the Garden Grove School District as one of the top districts in the country for overall improvement and narrowing of the gaps between students from different races, ethnicities, and economic backgrounds. Schwalm is the superintendent for the Garden Grove district. Congratulations Laura! Finally, Reading alumna and former Newport-Mesa cohort student, Nanette Jeppesen, is writing a regular column for the Northern Colorado Courier. Her column is titled “Advancing toward the Goal of Literacy” and she informs us it is not in APA format. Nanette relocated to Colorado after graduation.

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**Hancock Fund**

The Hancock Fund was established to honor Dr. Deborah Osen Hancock for her contributions to the field of reading and specifically to the Reading Department. The fund is solely for use by the CSUF Reading Clinic. Over the years, the fund has supplied books and technology for use by clinicians and students. REG would like to thank the following members for their generous contributions to the Hancock Fund:

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If you would like to have something published in the REG Newsletter, please contact the REG staff at kellermrs@hotmail.com.