

Creative Relationships in Math

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At the college level, the time begins to specialize in one field. All majors have some diversification, especially in the core curriculum, but the focus still remains in the field of study. If the student has a broader scope of classes, what is the outcome? The reason for this question is simple. The combination of subjects to augment one is powerful, indeed.

How math relates to other subjects is particularly interesting. Art doesn't seem to relate to math. Also English does not relate to math. Obviously, these subjects have nothing in common. Actually the opposite is true.

Drafting relates to shape. Shapes relate to math. In fact, geometry is the math behind shapes. Drafting is an art. Drafting is a technical art as writing nonfiction is to poetry in creative writing.

Writing is part of English. Often the goal of English is to define or describe, as the goal of math is to define or describe. Often math relies on English to put the math concepts into words. After all, there would not be a math textbook without English. Sometimes it is easier to describe the math by words other than by an equation with symbols.

Often math is not thought of as creative as English or art. The truth is that English and art are creative, but the more education in math, the student realizes that math is more than memorizing formulas and plugging numbers. Math is also creative. Math's designs are most easily seen in science, but the process of thinking while designing is similar to that other creative subjects. The classic example of Newton hit on the head by an apple supports math's credibility as a creative subject. A poet would have written verses on the growth of the apple from a bud in spring to a fruit that eventually leaves the tree as a seed to grow into another tree. Newton discovered gravity.

A myth exists that an artistic person cannot do math. Artistic people often have trouble in math, but their difficulty with math relates to their approach rather than ability. Math, like any subject, requires practice and study, and the student must understand what the math problem asks. For example,

on logic and reasoning tests, the test compares shapes to see if they are flipped or rotated. The concept is simple enough that a young child could comprehend, but unless, the test taker knows what it means to flip or rotate a shape, he will not score high. Any artist has the cognitive ability recognizing the difference between a flip or a rotation, because the artist does it every time he draws something symmetrical. Does the cognitive problem confuse the artist, or does a mathematical description confuse the artist?

A student who keeps a journal in English is common. Writing memories, occurrences, or poetry is natural. Recalling and organizing thoughts are the main reasons journals are kept. The student never knows when inspiration will strike.

The same principle of keeping a journal applies to math. The student cannot recall pages and pages of formulas. Not writing ideas results in them being lost. Finding significant math knowledge is rare. Imagine if this knowledge is lost.

Words are a good format for a math journal when equations are not formulated, yet. The student should not worry if the theory is valid. Validity is not important here. The concept is important. The student should take the untested idea and describe it as much as possible with plain words. Just as in English where adjectives describe the nouns and adverbs describe the verbs, in the journal form, description is key.

In art a picture tells a thousand words. In math a picture can tell a thousand equations. Along with words and formulas, pictures are essential to the journal and the understanding of the concept. The student tries to make the word description as clearly and accurately as possible to describe the given problem and the solution.

The following paragraph is an example of an explanation that probably does not work, but the example, demonstrates words as a mathematical description.

A rectangle forms over the points of a joint and a moment of force around that joint. The line of action is a straight line representing the path that the moment force acts. The moment arm is the diagonal of the rectangle multiplied by the sine of the force's angle if in the y-direction or multiplied by the cosine of the force's angle if in the x-direction.

This paragraph will confuse someone with no knowledge of statics, but the point is to have a short explanation in words. The description may be right or wrong, but the description is in perfect form for a journal. Math takes time to prove or disprove, and groundbreaking ideas take time to discover. The method described here is for learning applications. The method of using math research as a learning tool is proven. Research interests the student, while they get a chance to apply what they learned.

Now that the theory is established, the theory expands with additional work in the following paragraph.

If the angle between the force and line of action is known and the value of one side of the rectangle that forms over the points of a joint and a moment of force around that joint, is known. The triangle that connects the rectangles diagonal multiplied by the sine or cosine, which is the line of action, and the length of the known part of the rectangle, is possible to solve knowing only the two adjacent sides and the angle opposite the sides. The case to solve the triangle would be side---side---opposite angle. The theory is proven with two joints and a moment force that is 45 degrees from one of joints.

Again, the person reading the description is probably lost, and the theory is just a theory with nothing proven. Math is very difficult to put into words. Symbols and pictures help the mathematician convey the message. The purpose of this knowledge is to help the student starting a journal and explain similarities between math, English, and art.

Creative writing is just as important to math as it is any type of non-fiction. The goal of English is to write with substance and clarity, as is the goal of math. Any attempts to put math into words is difficult. It takes just as much effort, if not more than standard writing. So it is solved, so let it be written.

This paper's purpose shows the reason I took a class in creative writing. I solve or at least try to solve math problems for fun. Most of my problems are very abstract meaning they often do not work. However, the solution is only part of the problem. I want to learn multiple ways of looking at the same subject. I also want math to be creative. For example, once you learn Newton's Laws in physics you modify them to fit the need of the problem. Yes, there is some "plug and chug" involved. I need tools like Newton's Laws in my mathematical tool kit but should aspiring mathematician not try to think like a scientist; like Newton?

My goal is to write a book and have it published electronically for Amazon's Kindle or Apple's iPhone or iPad. Such formats allow anyone to publish. The need for an editor and proofreader is still apparent. Also new author's books are often lost in the thousands available. However, I believe my math book will be different enough to stand out.

I learned in the *University of Phoenix* Online English 340, that writing takes much work. It is like digging a mile long ditch with a hand shovel. You work all day then going to bed knowing it is another busy day tomorrow, and once you finish the ditch there is another three mile ditch across the street. That metaphor is not the most creative, but sometimes when writing, the writer runs out of good lines.

I learned that you have to write even when you are not inspired because there are deadlines. I had many ideas for the short story, but the story was difficult to organize. I forced myself to write until sentences fell into place. The hardest part is getting started.

I also learned to improve my grammar. I always thought I had good grammar. In high school we were taught to make a gerund in a gerund phrase object of the participle. Then when I went to college I found no one can understand you if you write that way. I recently read a book on writing a novel that stated most grammar is accepted as long as it is consistent. Obviously that is wrong.

I took the creative writing course with goals of writing. First I want to finish the math book, which is an ongoing project. Then I want to write an article for either *Popular Mechanics* or *Scientific American*. It would be nice to publish short stories. These are big dreams, but I am not beyond writing for small town, local paper.

My other goals include becoming a math tutor or teachers assistant in drafting, math, or science. Before I can do any of these dreams I must get a degree. Of course, I must take it one step at a time.