Why Study Algebra

by Leslie Jones

Cape Cod Community College’s The Write Stuff Magazine

Every once and a while a student does something that makes teaching exhilarating. Those moments underscore the whole purpose of teaching. I would like to share one of those with you which I had recently.

Leslie started college as a returning student having raised a family and worked at part time jobs. She had all the symptoms of a person unsure about the world of college, a completely new experience for her, high anxiety, low self esteem and lots of self doubt. She started in my elementary algebra class and is now completing intermediate algebra and is ready to take on college level math with a great deal of confidence.

Leslie responded to my pre-course letter of introduction, where I ask students to write their math autobiography before coming to the first class, by writing a 3 page essay. Most students write 1 page, double spaced, if that. She indicated then that she appreciated the opportunity to write to me since she understood that form of expression while she couldn't comprehend math concepts. She responded to all my writing assignments with enthusiasm and often mentioned how they helped her get through the course. Throughout the course she along with many of her peers kept asking the eternal question "What do I need this for???". My response was always that it would help her in life. That usually brought guffaws and giggles from everyone.

Leslie approached me before class and said she had something special for me. "Uh Oh! What could that be??!" I wondered. She wrote an article for our schools' literary book "The Write Stuff", which is refereed by faculty, and her article was accepted. Let me tell you this is one proud student and one proud teacher. You will see why in a moment.

Leslie has captured the essence of why anyone should take classes at college. Her inspiration happens to have come through her experiences with algebra. She has made a few good friends through our classes and has learned a lot about herself. I have had the privilege to watch her grow and develop into a mature college student. I attribute her response in large part to her adapting to and using cooperative learning and a mastery approach to testing in a supportive, non-threatening environment which was created by collaboration instead of competition.

Leslie has given me permission to duplicate her article for my other classes and to send it out over the internet. If you feel it might have an impact on some of your students feel free to use it.

This student's response will keep me humming and smiling down the corridors for some time.

ALGEBRA ANYONE

by Leslie Jones

Cape Cod Community College

When an Elementary Algebra class is in progress, repeated choruses of "Why do we have to take Algebra anyway?" can be heard echoing down the college corridors. I was an avid member of this chorus in the early weeks of DE060 (Elementary Albegra) while struggling to get my aging brain to grasp the basic concepts. But, as my ability to handle algebraic complexities increased, I gradually became aware of the benefits of algebra. They have little to do with the usefulness of any particular math skills and formulas in the future and more to do with the reality that solving life's problems is rather like the process of doing algebra. Time, skill, wisdom, and determination are necessary keys for success in both endeavors.

The effort of gaining skills and solving problems, whether in life or algebra, often takes a sizable investment of time and energy. Adequate time does not magically appear in the crowded schedules of the late 20th century lifestyles, it has to be carved out, sometimes ruthlessly. New priorities have to be established, if only temporarily, and ways of using time more efficiently will have to be discovered in order to accomplish everyday chores more quickly. But first and foremost, finding time to learn skills and solve problems depends on a willingness to invest the required time and determination to give whatever it takes to accomplish the goal at hand. Some of life's problems hardly seem worth this investment, just like Algebra. Doing so anyway increases discipline, focus, and understanding for those times that are critical.

Not only is it necessary to gain knowledge and skill to effectively solve problems, but wisdom is also needed to decide which option to chose and when. I have often thought about this when confronted with setting uo and solving an equation or simplifying an algebraic expression, especially one that contains a complex fraction. Invariably I forget to keep track of the signs or remember the rules that govern them, and so I arrive at an incorrect solution. There are so many questions to ask of myself and many that I forget to ask. Have I reduced or factored far enough? Is it even factorable? Sometimes I forget to factor all together or forget that eliminating fraction denominators any where but in an equation is not allowed. I love to get rid of those irritating fractions. When working on a personal problem I have often pictured a complicated polynomial expression in my mind's eye and the confusion of all the rules, terms and variables involved in simplifying it. When I think of an equation, I am reminded of balance as I remember that what is done to one side of the equation must be done to the other. Balance is a good thing to keep in mind when solving problems. I don't always get my solutions right in life or in Algebra, but the more I practice and understand my mistakes, the more my wisdom and skill improve. This is most definitely an advantage.

Finally, algebra is a wonderful opportunity for strengthening determination and self confidence, valuable character traits when faced with a problem. It is the only academic subject I have taken where it is possible to gain some degree of understanding and confidence only to turn the page to the next chapter abd not have the slightest idea about what the text is attempting to explain. This is disequilibrium...."BIG time." At its worst disequilibrium involves fear of the unknown, of not knowing the right way. At best it is simply confusing and frustrating. Either way the temptation is to avoid it rather than gather up the courage and patience to stand up on one's potential and trust that eventually the light will dawn. I can foresee that pushing through the dark chapters in Algebra will help when the dark chapters in life occur, problems for which past experience has not been adequate preparation.

After satisfying the math and science requirements for a degree, it may be true that I will never again use the particular math skills I have learned along the way. I will not, however, consider the investment of my energy a waste of time. The reward of improved discipline, skill, wisdom, and determination will be useful keys of success for the rest of my life, especially when confronted with the "impossible."