Use of Technology in Teaching Mathematics

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It is without doubt that as we continue to progress in the 21st century also known as the computer generation, more and more teachers identify themselves as computer literate and technologically advanced. The widespread use of Facebook, Tweeter and other social network allow them to spend extra time in front of the computer and at the same time surf the net for lessons they can use in their classrooms.

The effort to incorporate technology in teaching particularly in mathematics which is considered as a dreadful subject is a good sign that there is this desire to make learning in mathematics meaningful and enjoyable at the same time. In the Principles and Standards of School Mathematics the National Council of Teachers of Mathematics (NCTM) identified the “Technology Principle” as one of the six principles of high quality mathematics education (NCTM, 2000). This principle states: “Technology is essential in teaching and learning mathematics; it influences the mathematics that is taught and enhances students’ learning” (p.24)

In a position statement of The Association of Mathematics Teacher Educators (AMTE) based in San Diego, California, technology in this context includes computers with appropriate mathematical software, Internet and other digital resources, handheld computing tools and their extensions, and future and emerging forms of similar devices and applications. Technology can be used in a variety of ways to improve and enhance the teaching and learning of mathematics. It can be used to facilitate mathematical discovery, understanding, and connections that may be difficult or impossible without its use. The computational and graphical capabilities of current technologies enable users to efficiently generate and manipulate a variety of representations of mathematical ideas and processes. Activities that engage students in connecting multiple representations (e.g., graphical, numerical, algebraic and verbal), and those that invite students to analyze or create images, visualizations, and simulations provide wide-ranging opportunities for mathematical exploration and sense making. Instruction that takes full advantage of what technology has to offer can encourage, foster, and support students’ construction of mathematical knowledge in a variety of ways. Technology can also improve mathematical communication, facilitate more efficient use of mathematical resources, and raise the quality of mathematical products and presentations.

So with this, as the Philippine education embraced the K to 12 curriculum it becomes imperative that teachers should not remain in their conventional/ traditional strategies in teaching mathematics especially that one of the reasons why our education system has taken the guts to change the basic education curriculum is for us to cope up with the global competition and not be lagged behind with the ASEAN 2015 that is just months away from now in its implementation.

Again based on AMTE’s position on the preparation of mathematics teachers to teach with technology, it recognizes that technology has become an essential tool for doing mathematics in today’s world, and thus that it is essential for the teaching and learning of mathematics. For
mathematics teacher candidates to be able to implement appropriate uses of technology in the teaching of K-12 mathematics they should have:

- a deep, flexible, and connected conceptual understanding of K-12 mathematics that acknowledges the impact of technology on what content should be taught;
- a research-based understanding of how students learn mathematics and the impact technology can have on learning;
- a strong pedagogical knowledge base related to the effective use of technology to improve mathematics teaching and learning; and
- appropriate experiences during their teacher preparation program in the use of a variety of technological tools to enhance their own learning of mathematics and the mathematical learning of others.

Similarly, in the review of researches on the effects of technology use on mathematics achievement in K-12 classrooms published by Best Evidence Encyclopedia, the review suggest that educational technology applications produce a positive result. Supplemental CAI technology had the largest effect, with an effect size of +0.19.

With this, it is without a doubt that educational technology is making a modest difference in mathematics learning. If technology is used to improve the learning of mathematics at all levels, our students will be better prepared to use technology appropriately, fluently, and efficiently to do mathematics in the techno-rich environments in which they will study and work in the future. Then eventually, we teachers can now say that we are ready for the future, we are ready for the ASEAN 2015!

Source:
Association of Mathematics Teacher Educators (AMTE)
www.amte.net