

My Teaching and Learning Philosophy for Secondary School Mathematics

Mathematics is typecast as irrelevant and difficult to grasp. In secondary school, this false sense becomes more tangible as the students move up to higher levels of mathematics without the appropriate skills in understanding the essence of the subject. It is, therefore, imperative to take into account the cognitive and social developments of adolescents to delineate how learning occurs. Thereby, fit an enduring motto that constantly drives the pursuit to simplifying, instead of complicating, the teaching of mathematics.

As a future educator of Secondary School Mathematics, recognizing the adolescents' patterns of thought and their needs in social context determine how they process information. For these students, learning involves seeing varied possibilities, imagining abstract ideas, thinking about one's own thoughts, viewing matters in multiple dimensions, and possessing a relative outlook. They no longer have a child's perspective of getting 2 with $1+1$ only but they have several possibilities to obtaining 2, which can be through the concepts of multiplication, fraction, or inverses using several tools. Moreover, interpretations are not literal anymore but figurative. For instance, with children, a circle is round like a ball but for adolescents, it can connote the abstract impression of infinity or eternity. Stretching further, the truthful innocence of the young is replaced by the adolescents' preoccupations. The little ones blurt out words without thought of repercussions while adolescents express themselves and then, contemplate whether or not they said it correctly. In solving problems, teenage students look at issues from numerous standpoints. For example, they don't say that addiction is harmful but there are underlying factors that make addiction detrimental. There are also no absolutes in their points of view as in righteousness is not conclusive but relative to the person who defines it. While understanding these intrinsic workings of the students' minds, it is just as vital to consider the social settings that affect their

ability to articulate verbally, in writing, or in other ways of expression. From home, school, to out-of-school venues, the students' diverse backgrounds, experiences, and multiple intelligences create a gamut of prior knowledge that greatly affects the culture of learning.

Keeping these predominant attributes of adolescent cognitive development in mind as well as the external aspects influencing them, simplifying and not complicating the teaching of mathematics is an ardent pursuit. Simplifying in this sense does not mean easy task without critical thinking. It is making the mathematics understandable by breaking up parts and synthesizing into a cohesive whole or vice-versa, establishing relevant connections, and realizing the purpose of mathematics in their lives – why they have to study it. Simplifying also signifies eliminating intricacies individually, as part of a group, or as a member of the class. Complicating, on the other hand, is convoluting students with numerous but shallow facts and placing students in unreasonable rigor without being equipped with the wisdom of understanding. It is always easier to complicate than simplify. The former is gobbledygook of ideas conveyed by ineptitude or facilitation without competence while the latter requires thorough content knowledge, effective pedagogical techniques, proficient technological skills, and years of experience with continuous professional development. Hence, the quest for simplicity is an ongoing reality.

The nexus between adolescents' learning in both cognitive and social contexts and the teaching motto of simplicity is apparent. A few examples render clear portrayal of this link. With the adolescents' perceived possibilities, exploratory activities are commendable such as investigating ways to use variables and constants in Algebra on diverse situations. In dealing with their abstract thinking, technology is a significant tool as demonstrated by the intangible concept of infinite series visualized geometrically via simulation softwares as *Sketchpad*. To

enhance their meta-cognitive skills, encouraging them to communicate their strategies in detail helps them reflect the efficiency of their own processes. Taking advantage of the adolescents' multi-dimensional perspectives can work well with subject area integrations. Keeping their minds open to mathematics is demonstrating it with science, social studies, English language arts, foreign languages, physical education, and other courses. Placing their relativistic views to the forefront is to give them opportunities to challenge or question convention as in using either formal or informal proofs to arrive at a point. Incorporating all these cognition, is respecting the diversity of the student body. Thus, a multicultural theme on word problems is an idea. Incorporating audio, visual, and even kinesthetic approaches to mathematics accommodate multiple intelligences. In addition, variations in implementing anticipatory sets keep them engaged while determining connections to prior knowledge and transitioning smoothly to new lessons.

Accordingly, as an educator, adapting to the needs of my students is the utmost goal. In their mathematics, this evolving adaptation holds the maxim: "Why complicate if I can find ways to simplify." - ISZBC

Reference on Adolescent Development:

Steinberg, Laurence. *Adolescence*. New York: McGraw Hill. 2008.