# Should Calculators be used in the Classroom?

Mathematics involves much more apart from repeating steps taken by the teacher. It is not just completing a set of tasks. Mathematics is a problem-solving discipline. It equips the student with skills to apply strategies on problems and ways to gauge whether their solutions make sense. Doing mathematics in class is supposed to reflect mathematical issues that students face in real life. Students can notice patterns from a tender age. Observing various generalizations and making a note of the trends depends on the student's understanding of mathematical operations. Students are also able to appreciate essential relationships between multiple numbers. When students learn how to solve mathematical problems based on memorization, they may not fully understand the logistics behind the solution. This makes them unable to solve problems based on the twenty-first-century requirements. Calculators were introduced to make counting more accessible and help students deal with numbers that are more significant. There are reasons calculators have been introduced in schools. The paper explains the reasons for not introducing calculators to primary classes since, at that stage; students are learning fundamental skills in mathematics.

Basic arithmetic is best understood when students are involved in calculation physically without observing. This allows students to follow the numbers and the number patterns, which grows their overall appreciation for mathematics. Their level of thinking mathematically improves tremendously. The student's ability to incorporate these necessary skills in their daily life such as in unit pricing by head is also enhanced. Young minds of elementary students need to continuously write down mathematical problems and solve them on their own so that they can detect errors. This is the same case with spelling, where students write words for so long such that they can recognize when a specific word is spelled wrong. Students need to develop the same technique in mathematics. The use of calculators robs them of this unique skill as they become entirely dependent on the calculators to come up with a solution as long as they key in the correct data (Van de Walle et.al, n.d.). Students are focused on hitting the right keys to get accurate results, which sidelines the mathematical principles at hand.

 Developing a non-mathematical mind from such a young age is very dangerous. In the lower grades, students are equipping themselves with arithmetic such as subtraction, dividing, multiplication, and adding. When the students use a calculator, they can arrive at the correct answer. This does not help the teacher gauge whether the students have understood the principles or not (Savant, 2014). It only shows the student's prowess in using a calculator. Calculators are tools such as pencils. They should help the student but not give answers directly. Use of calculators for assignments at the elementary stage is not advisable as it defeats the purpose of gauging understanding.

Learning mathematics begins with simple arithmetic to complex arithmetic. The complexity advances as a student advances to senior levels of education. It is important to introduce calculators in advanced arithmetic studies to make problem solving less technical. At this stage, students are sufficiently equipped with basic arithmetic. As they, move on to advanced and more complex topics, a calculator could help improve their accuracy and speed. Students can countercheck their arithmetic with the calculator since they already understand the principles behind the solution. Since the problems at higher grades are more complicated, students need to understand the formulas and various principles to input critical details to the calculator. Therefore, calculators do not prevent them from understanding essential principles at their level. They only make students faster and help them focus on the mathematical principles at their level and not simple arithmetic.

However, instructors must be watchful since there are graphing calculators that allow one to perform various complex tasks and store notes and formulas. This information promotes cheating during tests and comes in the way of understanding principles. Rules on the use of any form of computation during tests and class work should be unambiguous and concise at all levels (Van de Walle et.al, n.d.). The introduction of calculators should support the development of skills involved in problem solving. Once that is established, students are able to engage with challenging problems that require further exploration of patterns and relationships within numbers. This ultimately improves the student's fluency in numbers and their abilities in estimation.

The debate on calculators is very critical in most educational institutions. Some educators suggest that the old ways of solving arithmetic problems such as writing a multiplication table are tiresome and outdated. Most people use calculators and other methods of computations to solve problems in the current world (Romberg, 2017). It only makes sense that students are allowed to use calculators from a young age so that they are familiar with the equipment. Machines make work more comfortable and should be utilized to simplify any task. However, it is essential that technology work with the appropriate principles (The Atlantic, 2016). Adopting calculators entirely into the system takes away the mathematics identity. It is more beneficial when students can carry out operations with their calculators and by hand than solely relying on calculators.

 Once students realize that they can use shortcuts to get answers, they are no longer curious to find out how they can solve the problem on their own. Students are robbed off the excitement that comes with finding solutions since everyone who can punch the keys of a calculator can arrive at a solution. Other than that, the experience that involves appreciating numbers and various solutions to specific problems ends. Learning mathematics becomes a computer like a discipline, where multiple programs are manipulated to get to a particular answer. The old school of thought is not entirely against the use of calculators. Instead, it advocates for a more controlled application. When all the intricacies and mysteries of mathematics are solved so quickly, the urge to continue to solve more problems that are complex dies away. As stated earlier on, calculators are not problem solvers. When calculators are made a norm in our education centers, students no longer make meaning of the numbers they punch in a calculator (Van de Walle et.al, n.d.). This may lead to errors, which are noticeable when the student solves the problems by hand. Calculators propagate for a more answer oriented mathematical approach whereas hand-written solutions propagate for a process-oriented mathematical approach. When learning the basic principles, it is critical that the primary focus is on the experience in finding the solution and not the solution itself.

 In conclusion, calculators are an unnecessary expenditure, especially when students are in the lower grades. At that stage, students should focus more on understanding concepts through apprenticeship and research on materials such as books. Giving calculators to students in elementary classes kills the learning experience. Once students understand the fundamental concepts in mathematics, calculators may come in through under maximum supervision from supervisors. Calculators can either destroy or enhance the mathematics discipline depending on how the various stakeholders in education handle them.

## References

Romberg, T. (2017). Changes in School Mathematics: Curricular Changes, Instructional Changes, and Indicators of Change.

Savant, M. V. (2014). Why Math Students should not Be Allowed to use calculators.

The Atlantic. (2016). The Conundrum of Calculators in the Classroom.

Van de Walle, J., Karp, K., Bay-Williams, J., Wray, J., & Brown, E. (2017) *Elementary and middle school mathematics*. Pearson