
Numeracy – Its Importance in Mathematics Performance and School Reformation

The development of a numeracy system is of the utmost importance at an elementary school – especially if the school is classified as a Title 1 school. The achievement gap in actuality is a skill gap, but the grade level skill deficiencies are exacerbated in Title 1 schools. The literacy gap can be addressed and alleviated with a structured phonics/phonemic awareness program, ancillary stop-gap fluency and non-negotiable word programs. The literacy reformation at a campus must also be spearheaded by independent reading home/school accountability via an Accelerated Reader nightly page limit approach and group-whole class novel studies. The focus at the school must be literacy which requires a minimum concerted effort of 2 years. However, this is not the case for mathematics. It requires only 1 year of focused effort to showcase dramatic academic school improvement. The math gaps are easier to close since they are more specific in nature than reading skills that require pervasive background knowledge whether the genre is fiction or nonfiction. Additionally, heightened reading ability requires students understand multiple meaning vocabulary word knowledge and overcoming the infamous 32 million word gap (Risley and Hart – 2003) that the vast majority of economically disadvantaged 4 and 5 year olds possess. However, what is not well known or understood is the role that numeracy affects not only the mathematics reformation, but the literacy academic performance at a campus.

What is the meaning of Numeracy and Numerical Fluency?

The phrases “numeracy and numerical fluency” are often bandied about as the means to remedy student mathematical skill deficiencies. A pragmatic understanding of numerical fluency may be comparable to reading fluency; as poor reading fluency negatively impacts a child’s reading comprehension, poor numerical fluency impacts comprehension and success in solving mathematics word problems. Many language arts teachers have observed that students possessing poor basic phonetic decoding and sight word recognition skills read so slowly that they are often unable to understand the very sentence they just completed reading. Poor numerical fluency has the same effect in mathematics. When the child’s numerical ability is lacking, they are unable to competently solve a real world multi-part math problem. Consequently, a viable and functional definition of numerical fluency is *the ability to work both mentally and fluidly with numbers in a variety of mathematical situations commonly occurring in everyday life.*

Why is Numerical Fluency Important in Mathematics?

The goal of modern day math classrooms is to equip students to solve everyday math problems. There are many effective approaches to developing problem solving skills. But, without a strong numeracy foundation, students will not be able to reach their full problem-solving potential. Good problem solving is dependent on students’ possessing core numeracy skills. When a child’s numerical ability is lacking, they struggle to solve multi-part or step math problems. Again, numerical fluency is the ability to work fluidly with numbers in a variety of mathematical situations. Hence, students numerically competent possess the ability to hold a multi-part problem in their working memory, use their math skills to resolve each part and solve the word problem as a whole.

Why is Numeracy Important in Title 1 School Reformation?

Heightening students’ numeracy ability directly correlates to better problem solving prowess – closing mathematics skill gaps – resulting in rapidly narrowing the achievement gap and dramatically accelerating standardized math test scores skyward in only one school year. That is the obvious effect of a successfully implemented, differentiated and structured numeracy program. What is not so obvious is the positive affect occurring on the Title 1 literacy reformation effort. When math is no longer a ‘going-concern’ at a campus, the mathematics core classroom work becomes standardized affording the literacy reformation work to become the primary instructional focus. For all practical purposes, math is ‘taken off the teacher’s plate’ as a major instructional concern. Hence, Title 1 schools that press a structured and accountable numeracy program in the primary grades and especially in third grade, actualize both high literacy and mathematics performance. If students’ numeracy ability is not addressed by the end of third grade, fourth and fifth grade teachers must contend with student math deficiencies at the same time standalone standardized State testing is assessed in both writing and science. Teachers are unable to focus on only literacy and basic science content – resulting in generally depressed test performance in all core tested subjects. For a typical Title 1 elementary school to succeed in all core content areas, mathematics must be transformed into a secondary issue so increased time and effort can be concentrated on closing the more difficult literacy skill gaps.