

Social Math: Why Speaking Math To Others is Essential

By Robert Sun

Sitting in an English class at the Arbel School in Israel was the last place I expected to have an epiphany about mathematics.

During the 45-minute class I was observing, teacher Ella Frayter introduced her fourth-grade students to about 20 new words. Watching the Israeli children brought me back to my childhood in Philadelphia—as a nine-year-old immigrant from Shanghai struggling to learn a new language. I remembered intensely years spent learning the 5,000 or so words needed to become fluent in English, and the incredible effort involved.

I was suddenly struck by how different the experience was for me than when I learned mathematics.

Learning math should, theoretically, be easier! We are spared years of effort acquiring an extensive vocabulary. With mathematics you don't have to know what a 9 means, you only need to understand how a 9 can relate to a 3 or 27, because math focuses on relationships and how numbers connect.

But the big disadvantage of mathematics is that it is practiced primarily as a solitary activity. We focus on writing mathematics much more than speaking it, and therefore we lack the social aspect that allows others to supply us with immediate feedback.

Language is both written and spoken, and the spoken component is by nature social. Anyone who has tried to learn a second language understands that spoken communication is essential to the learning process. You can focus on grammar and reading, but without the instant

interaction, feedback, and encouragement you receive from talking with another person, your progress in mastering that language will be limited.

Developing a working vocabulary is an exercise that can take many years. Until we build a foundation of competency, we are reluctant to speak, because speaking is public—and in that public act we reveal ourselves.



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Our education system seeks fluency in the language of mathematics, yet it does not encourage students to use it in a social way, producing many who are anxious about it. If they don't have to speak mathematics, few people really know the extent of their proficiency. It becomes easy to keep the "secret" of how weak they may be. Like all secrets, anxiety builds the longer the secret is maintained.

Over the last several decades, being "bad at math" has become socially acceptable, and admitting you are not proficient enables you to divert the subject and protect your deficiency. Unfortunately, so many people publically make this admission that it has become a culturally accepted way to avoid getting good at mathematics. We need to change this dynamic.

We can start by encouraging our children, from an early age, to speak as well as write the language of mathematics.

Just as Ms. Frayter instructed her students to speak their new English words out loud, the same is possible when teaching mathematics. Teachers can encourage their students to express themselves verbally using mathematical terms; even in the early grades, children can be asked to explain what they want or mean using numbers, or relation-

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ships between numbers. Anything that encourages them to talk about mathematics and its concepts is beneficial. Once children gain confidence in mathematics, they are more willing to speak it. We need to support that effort.

Whenever children in a school are struggling to learn English, we invest considerably more resources into building their competence in that subject than we do when a comparable deficiency exists with mathematics literacy. If our children are not expected to speak the language of mathematics, they do not reveal their weakness and it becomes easier to ignore.

Today we understand how to remove the traditional stumbling blocks that prevent many from acquiring mathematics proficiency:

1. Provide immediate feedback; i.e., social engagement.
2. Offer engaging and comprehensive content at hundreds of entry points, ensuring that no matter the skill level of a child, he or she can find an entry point to experience success and move progressively to advance their skills.
3. Give children a sense of control and ownership over the learning process.
4. Allow students the freedom to make mistakes, so they will push their skills right to the edge. That's where the real active learning occurs.
5. Encourage our children to SPEAK and write mathematics so they will be truly fluent.

Technology has enabled us to develop tools that are designed to incorporate these features. Schools using these innovative tools discover that their students are eager to speak and practice mathematics.

Some believe that our education system is out of balance, putting most of its resources into teaching mathematics but precious little into practice. I believe that sustained practice will become the norm when we create a love for mathematics that permeates our culture—especially in our schools and homes.

When we speak the common language of mathematics with vibrancy and passion, we inspire our children to explore and pursue the rich opportunities offered in this essential and universal form of communication. This will benefit our next generation of thinkers immensely, providing them with the foundation to support careers in the STEM professions and every part of life.

Robert Sun is the CEO of Suntex International and inventor of First In Math, an online program designed for deep practice in mathematics.