

Removing the Blindfold from Math Achievement

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This is a guest post written by Robert Sun, CEO of Suntex International.

Imagine putting a Little Leaguer at home plate, having held a bat in his or her hands only once or twice before, and asking the budding athlete to hit a pitch—blindfolded. For many children, this is pretty much what they experience every day as they attempt to learn math.

Math is an acquired skill; one that requires repetition and positive feedback to achieve proficiency. Yet unlike sports or music, where our physical senses give us the immediate feedback we need to stay engaged, these senses are useless in the mental realm of practicing mathematics.

Today's teachers are wonderfully prepared to teach math. But instruction is only part of the path to proficiency. Practice and encouragement are essential components as well. We hamstring our schools and our children when we expect teachers to instill proficiency through instruction alone. Practice—especially the kind of practice in which the learner is personally invested in the outcome—is essential.

The problem is that, unlike many other skills kids can develop, there's typically no immediate feedback

loop for math practice. Let's look at another example from the world of sports. What would be the result if a child were placed at the foul line on a basketball court, blindfolded, and then asked to learn to shoot foul shots? With no way to see how to improve, soon we'd hear, "This is dumb. What's the use? I'm bored."

These are many of the very same responses teachers hear when kids practice math.

Mihaly Csikszentmihalyi, in his book *Flow: The Psychology of Optimal Experience*, noted that three conditions must be in place to achieve optimal engagement in any activity: clear goals; a balance between the perceived challenge and the perception of one's own skills; and an immediate feedback loop that allows the person to make adjustments. Give anyone, child or adult, these kinds of conditions and they are likely to be "in the zone," "dialed in" or, in Csikszentmihalyi's words, "in a state of flow."

Most students are anxious about math because of the imbalance that exists between their challenge and skill levels. Typically the challenges are extremely high and their skills are low. When their skill levels are increased through focused practice, however, students begin to achieve the balance between their abilities and the challenges they face. They begin to enter the state of flow, where the activity itself becomes the reward. Once they take ownership, practice becomes enjoyable and self-sustaining.

So how do we create this environment of math success? While there usually isn't enough time in the school day to set children on a path to "flow," it can

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be achieved by other means. The best and most efficient means available is technology. By creating conditions where students are given clear goals, receive immediate feedback in real time about their progress, and affirmation in the form of rewards that are linked to mastery of appropriate skills, flow can be achieved during independent study time before or after the school day—virtually anywhere a computer is available.

In its March 2015 report, *New Vision for Education: Unlocking the Potential of Technology*, the World Economic Forum strongly encourages the development and use of digital games to meet not only foundational literacies like mathematics, but also the higher skills need for success in the global 21st century economy—traits such as critical thinking, problem-solving and persistence. The report states that “...games allow a focus on multiple skills at once: while students work to improve their understanding of core concepts, they can also develop skills such as creativity, curiosity and persistence in the process.”

The essence of games is sequential, repeated problem solving. Remove problem solving and you

have just an activity. According to Greg Toppo, USA Today education reporter, “Digital games are the most efficient feedback machines we’ll ever encounter. Press a button, get a reaction. Your actions matter. At their core, digital games are built around a constant stream of mastery feedback.”

With resources in public education stretched to the limit, it’s essential that we use all the tools at our disposal to solve problems and improve the educational journey for our children. A big part of that is to better perceive the challenges and opportunities students face, and then to apply our resources wisely to satisfy those conditions. By using “gameful learning” technology in fresh, engaging ways, we can remove the blindfolds that frustrate children—and help them fully experience the joys and benefits of learning.

Robert Sun is the CEO of Suntex International and inventor of First In Math®, an online program designed for energizing every child to learn, love and live mathematics.