

Precision Teaching

“The simple act of paying attention produces real and powerful physical changes in the brain.”

– Jeffrey Schwartz, M.D.

Precision, call-response teaching is the most powerful method of direct instruction that I know. During a summer of 2006 teacher training, Dr. Yoram Sagher, professor of mathematics at Florida Atlantic University, introduced me to this high engaging method of delivery that he developed after observing overcrowded, title one public schools in Chicago. This form of precision teaching rhythmically paces a Math lesson, curbs ADHD, and goes further to making ALL students feel successful than any teaching method I’ve seen.

Dr. Sagher emphasized the need to use brevity in instruction, saying that every time a teacher speaks for more than 20 seconds, a large percentage of the class stops listening. In the most engaging classes I visit, each student answers between six and ten questions per minute during direct instruction and the teachers speaks less than five words for every one word that their students say. In the least engaging classes I visit, students rarely – if ever – answer questions and the teachers say approximately 70 words for every one word a student says.

In this method of delivery, teachers lead students to understanding new topics through a laddered series of foundational questions, using as few words as possible. The questions are based on concepts that students have already mastered and gradually grow in complexity. Instead of calling on an individual student for an answer, a teacher calls on the entire class. While this is not a full proof way of knowing whether or not all students understand (students can mime responses), it’s usually fairly simple for teachers to recognize whether 90% of the class knows the answer to a question. Each fractured choral response means that the teacher has asked a question too hard. The teacher then needs to create more rungs in their ladder by asking a simpler question(s) and building back to the complexity.

Over the past six years, I've come to the conclusion that the key to teaching Math well is to quickly assess student understanding and then move on to a harder or simpler complexity according to the assessment. I believe that good Math instruction involves hundreds of minor assessments during a class period in which every student moves on to higher complexities once simpler concepts are mastered. I haven't found a better way to do this than using Dr. Sagher's precision teaching delivery.

I feel fortunate to not have had any prior experience teaching Math before Dr. Sagher introduced this method of delivery to me. Because I didn't need to break the habit of *over-explaining*, I was able to work on *extraction* as my method of delivery. I quickly found that students very much enjoyed feeling successful and getting the chance to answer questions regularly throughout Math class. Seeing below basic students feeling successful excited me and I began working hard to master Dr. Sagher's method of delivery.

While I'm not sure that I ever mastered it, I did become much better at its delivery. After several years of teaching, I attempted to have each of my students answer 200-250 questions during the first 35% of the class period, before moving on to tasks that required deeper, more centered thinking.

At first, I thought that this method of teaching was only useful in public school settings in which classrooms were overcrowded. However, the more I work with all different types of schools – private, public, urban, suburban, rural – the more I believe that it is a superior method of instructional delivery for all students in all schools.

Plato once said that "...by some divine art" arithmetic "arouses the dull and sleepy brain, and makes it studious, mindful and sharp." I feel that precision teaching does the same. Good classroom management and pacing channels student enthusiasm, centers their thinking, and curbs behavior for the better.

Mastering this form of teaching is a lifetime pursuit, but a teacher can drastically improve their instruction in a very short time, keeping a few rules in mind

1. **Start with an easy question that every student in the class can answer.** The simplest question I can think of is pointing at a number and saying, “Raise your hand if you know what number I’m pointing to.” Although extreme in its banality, simple questions like this can go far to keeping lower level students engaged and feeling successful.
2. **Call for responses with a sharp click.** Snapping, knocking, and striking chalk on a chalkboard all work well. The click maintains rhythm and cohesion in choral responses. Students, especially those that often struggle, like to feel like they are a part of the group.
3. **Use the exact same wording whenever reviewing how to do problems OR helping a student with class work.** Succinct word precision is incredibly important in being effective at direct instruction. Asking a series of clear questions that lead students to answering difficult questions is very hard and requires a lot of practice. The lower the skill of the student, the more important the teacher becomes. When teachers are able to continually ask students the same series of questions using the exact same language, the lesson has a better chance of internalizing in the students’ memory, leading them to being able to solve problems on their own.
4. **In the early stages of learning to teach via call-response direct instruction, begin by trying for a short amount of time (4-7 minutes) and gradually build up endurance.**
5. **Writing “Teacher says, Student says” scripts are helpful when beginning. This forces the teacher to think critically about what questions are being asked, and anticipate student responses.**

Teachers often position easily distracted students at the classroom’s periphery to prevent them from distracting other students. Although the roots of this decision is understandable, it often magnifies the distracted behavior. Teachers also have a tendency to position struggling students physically close to them. This can be a useful practice with any type of instructional delivery, but it only works well with precision, call-

response delivery if those struggling students are centered in the teacher's vision, in a position of high accountability.