

BYRAM HILLS CENTRAL SCHOOL DISTRICT
ARMONK, NEW YORK

GROWTH PLAN END-OF-YEAR REPORT

Title: Student Math Interview to Aid Student Learning and the RTI Process

Author: Jennifer Toland

Year: 2010- 2011

School/Grade: Wampus Elementary School, Grades 3 – 5

SUMMARY OF ACTION RESEARCH PROJECT

Context

My role in my elementary school, serving students in grades 3 – 5, is one of a math specialist meeting the learning needs of all math students. My students vary from those with the most remedial math understanding to those who have deep levels of thinking and can move far beyond the classroom curriculum.

New York State has mandated each school district to have an RTI process in place by the year 2012. The math specialists have a key role in implementing this process. Our goal is to use our findings from student interviews about students' strengths and weaknesses to effectively drive students' interventions. We were seeking a process to help us identify these strengths or weaknesses. Our problem was that we didn't have a tool to do this.

Action Plan

Our question was: Can we create an interview/screening tool that can better pinpoint the learning needs of our students by asking children to compute, understand, analyze, and talk about math?

We (the other math specialists and I) chose this question because every year we have classroom teachers asking us to work with students who "need help in math." Most often, these needs are not narrowed down and we spend countless class periods evaluating where the gaps lie and how to best help each student, sometimes never feeling like we successfully met those needs. With our interview, in a matter of 20 – 30 minutes, this tool can help us to learn exactly where the student's strengths and weaknesses lie.

To support our inquiry, we worked together and looked to experts in many fields. We are all a part of our school's Instructional Support Team and this year we focused a great deal on the RTI process and on the teachings of Jim Wright. This led me to realize that in order to show growth with interventions, we have to first be sure that we know *where* to intervene!

One thing that was surprisingly helpful for our action research group was getting information from professionals outside of education, such as lawyers, who interview

candidates on a regular basis. We found out important questioning techniques and tools that help make the student feel more comfortable and therefore able to give us his or her best answers.

I took a course, *Assessment For and Of Learning*, based on the work of Jim Stiggins. I was pleased to reinforce my belief that our interview serves both as an assessment *OF* learning, where I can see what a student already understands and as an assessment *FOR* learning, since we use our data to see where student learning gaps lie. This is used to create interventions to target these specific needs.

We also learned from experts in the field of mathematics like Marilyn Burns, that the length of the interview is important. We needed to learn how to gain all the information we needed in a concise way. Additionally, we were afforded the opportunity to work for two days with an expert math consultant, Sandy Atkins, who modeled interviewing techniques and gave us input about how to improve our tool.

The data we collected was in the form of multiple student interviews. As we progressed throughout the year, we edited, revised, and updated our interview based on our use of the tool and results from students. We saw where clarification was needed as well as where we could streamline our questioning. One of our first revisions included coding the Habits of Mind into each set of questions. Originally, we thought we'd be able to code as we questioned students, but it became painfully clear right away that that would be close to impossible as it was a difficult task to accurately and completely record student responses alone. Instead, we looked at the content areas and the types of questions asked and decided which Habit(s) of Mind matched those questions and coded the questions instead of the answers.

Results

Our results were dumbfounding. Initially, we thought we would use the tool to focus in on different content areas of math such as numeracy, place value or algebra and find out that a student is having difficulty multiplying, for example, because he never internalized his addition facts. A short 6-8 week intervention could quickly "solve" this problem and the student could then find success with multiplication. While that was true in many circumstances and is still a helpful use of the tool, overwhelmingly, more results showed us that we are often seeing students for math remediation when there are actually *no* underlying math issues. Our interview revealed over and over that students had various learning issues, such as test anxiety or difficulty reading and understanding the language involved in math, but in fact, they could compute and problem solve just fine.

We wanted the results to be useful to the classroom teacher so we added a final page to the interview summarizing the student's strengths and weaknesses on one short page. Obviously, the teacher can still have access to the entire interview, but this saves him or her the time and trouble involved in analyzing the results if he or she is not comfortable doing so.

We learned that our students need help *outside of the math content* in order for them to be successful math learners. An example of this is one interview I conducted with M.T., a fourth grade student who was in and out of math remediation in third grade. She always seemed unsure and unclear when new information was introduced, but then scored a perfect score on the third grade New York State Math Assessment.

This didn't seem to compute, so I decided to research her further. By interviewing M.T., I learned that her math skills are right on target, but she feels great anxiety when approaching *any* new subject or topic. She said she immediately thinks about the end-of-unit assessment and worries that she will not perform well. This causes her to shut down when new content is first introduced, making her appear in need of remediation. As she becomes more comfortable and confident with the information, she not only gains confidence, but she retains all that was taught and can exemplify that on any assessment.

With M.T., I was able to meet with both her parents and her teacher and create interventions to help her feel successful from the beginning. Her teacher now previews upcoming information with her during times like quiet reading when she can work with her one on one. This helps M.T. feel comfortable and more confident when the teacher introduces the concepts to the class. She already has "a leg up" on her classmates. Her parents are helping by making her realize that she is indeed a very smart young lady. They also use the "worst case scenario" with her explaining that even if an assessment doesn't go well, it's not a big deal. She will have many opportunities to make up for one poor test grade.

Since these interventions have been implemented, M.T. has shown great growth in her confidence level and has been much more successful from the onset of new learning.

Implications

I am incredibly pleased with our action research project. Through repeated trials and multiple revisions, we have created a tool that can increase student learning. It can help students, classroom teachers, learning specialists, and parents to better meet the needs of each student. We can do this by pinpointing learning deficits and creating appropriate interventions to help students become more successful learners.

I have a few new questions that I'd like to research in the future:

1. How do we find interventions to meet needs of a student whose deficits are along the spectrum of behavior, such as anxiety or if one maintains a belief that he or she can't perform in math, when all the skills are actually already there?
2. Is there a difference between a difficulty in reading and comprehending mathematical questions as compared to reading and comprehension in general? What is the role of language acquisition in mathematical development?
3. Additionally, I would like to tweak this interview or make a new one to serve the needs of our advanced learners. Again, on the other end of the spectrum, we are often asked to serve the needs of children who are "strong in math". What does this mean? Are those students strong in every aspect of math? Are there gaps? Are there places where the understanding is much deeper than others?

There are so many facets of math learning that can be researched. With deep and careful thought, I know we can find ways to meet the on-going needs of math learners and math teachers.