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Explicit Instruction

Bradley Witzel, Ph.D. • September 2009

Topic: Response to Intervention in Elementary-Middle Math
Practice: Intentional Teaching

Highlights

- Importance of explicit instruction when math problems are new or difficult, including at Tier 1
- Building up intensity of explicit instruction: more time for modeling, teacher and student thinkalouds, guided and independent practice, thinking about processes
- Explanation of guided and scaffolded practice
- Examples of within-lesson scaffolding and between-lesson guided practice
- Variety of ways to do practice: type of homework that constitutes independent practice
- Feedback for struggling students to encourage perseverance

About the Interviewee

Bradley Witzel, Ph.D., is an experienced and award-winning teacher and professor of education for students with exceptionalities or at-risk concerns. He has worked as a classroom teacher and paraeducator in inclusive and self-contained settings with a focus on math and science instruction. He has taught geometry, algebra, pre-algebra, personal finance, and chemistry, as well as history, English, and mechanics.

Dr. Witzel received his B.S. in psychology from James Madison University and his M.Ed. and Ph.D. in special education from the University of Florida. He currently serves as associate professor, coordinator of the special education programs, and assistant department chair of Curriculum and Instruction at Winthrop University, in Rock Hill, South Carolina. At the university level, Dr. Witzel has taught undergraduate and graduate courses in special and general education methods as well as a variety of other courses, from transition to behavior support. His research focus is on mathematics and motivation strategies for students who learn at different rates and in different ways. Dr. Witzel has written several research and practitioner articles, books, and book chapters on mathematics education and interventions, and has provided professional development to teachers and administrators in several states and school districts. He has recently coauthored the Institute of Education Sciences RtI Math Guide and served as a reviewer of the final report from the National Math Panel. Additionally, he has a series of math interventions available through Pearson publishing and an RtI with math book through Corwin Press.

Full Transcript

Hi, I am Dr. Brad Witzel at Winthrop University, and I was a member of the panel for the IES [Institute for Education Sciences] Practice Guide on RtI [Response to Intervention] in Mathematics. Explicit instruction can't be ignored for the general population. A lot of people may believe that explicit instruction alone, that's for those other students, those are for the struggling students, and you hear that quite frequently in classrooms, but that's not necessarily true. In fact, explicit instruction is needed at the Tier 1 level. Almost all students will need some type of explicit instruction, particularly when a math concept is either new or difficult. So keeping that new or difficult problem in mind as we expand in tiers and we get students who are struggling, and now we have additional work with them at Tier 2, well again, we know that this is something that is difficult; we must have more explicit instruction within it. So as far as explicit instruction goes with that, we have to build up the intensity. Intensity might be more time spent on explicit instruction, might be more time for modeling, might be more time for student thinkalouds that go with the teacher thinkalouds, maybe more time for that guided practice, and certainly more time for the practice as well. But as far as building up that intensity, we have to also, as additionally and with this, give students more time to think about processes. So as we increase in tiers of where students are struggling, we need to increase the amount of explicit instruction or certainly keep in mind that explicit instruction needs to be handled particularly for the most difficult concepts we teach.

Guided and scaffolded practice is something that again appears really easy, but it's quite complex. Scaffolding itself is a complex series of give and take between a teacher and a student to make sure that we are preparing them to be independent at that final step we want them to be. There are two ways to look at this: there's a within-lesson way of looking at this and a between-lesson way of looking at this. A within-lesson guided practice or scaffolding means that during the lesson I am preparing students to be

independent. When I do it, the modeling is pretty much clear, but to get to that guided practice, first I am introducing it a little bit ahead of the students, then I want the students to be one step ahead of me, then I want them to be two steps, three steps, four steps until they are independent on their way. So that's kind of that "within." So, if I'm teaching addition of fractions with like denominators, I'll probably go through some of the different steps where addition works out, how denominators work, and then I can keep building it in step-by-step through it.

Guided practice can also happen between lessons. For example, if I'm teaching functions or solving simple equations, it's often in a textbook that it will show you 1x = 5, and so we just conclude the lesson, okay we're done. The problem is in about two or three lessons down the road, I have 2x = 5, 1/2x = 5, and that coefficient, if it's ignored up front, we are actually not preparing students for what we want them to learn in a couple of days. So if I really want students to be successful and I want to guide them to be successful later on, I need to teach a correct sequence of instruction first, whether those steps you think that they're not relevant or not for the particular problem, if they are the most efficient way to teach this, we've got to do it up front.

Practice can be done in a lot of different ways. Most teachers may think of practice as involving homework, and I'm sure that comes frequent to mind with most teachers: "Well, I give them enough homework." But it's actually what they're doing for homework that determines whether that's practice or not practice. Sometimes we say, "Well, listen I'm sorry. I've checked the watch. I don't have enough time to complete this activity today. Could you finish the rest for homework?" That's not independent practice; in fact, that may be even at the teacher thinkaloud stages where they are trying to figure out a process to it. Now we are asking mom and dad to play that role for us, so that's not practice. Practice actually can be different. Practice means that they are independent at that level, and now we need to maintain the independence and build in a process. So if homework, we're going to send home homework as independent practice, students are going to have to be clearly independent at that level.

The feedback that we have to give students who are struggling may be different from what we do with other subjects. First, math is hard. Math can be very complex. So to give some feedback to the students, make it pinpointed to directly that error pattern or that success pattern that they're having, and reteach based on it. And if they aren't doing well, encourage that effort that they are doing this: "Hey, listen, you're working hard. This is important, and you're going to get it." Teach perseverance; maybe we can praise the process, maybe we can praise students' work effort. If we can get those work ethics and work efforts up, I think we're going to have better results.