Indicator: All teachers re-direct student questions. (4427)

Explanation: Research endorsed best instructional practice includes question redirection whereby a teacher turns back to the student the question that student initiated. The teacher may also share the solution seeking with the rest of the class. Doing so encourages deeper inquiry and engagement. Question redirecting also promotes civil discourse among students and encourages greater student interaction.

Questions: What evidence will the principal seek to determine whether teachers redirect questions back to the student who poses the question? How will the principal establish the instructional expectation that all teachers use question redirection as a teaching strategy? How will the principal support all teachers in honing the practice of question redirection? How will the principal determine if all teachers know when to redirect questions back to the student or the rest of the class?

Context for Inquiry-Based Strategies

Much of the research around questioning strategies and open discussions in classrooms comes from the field of science education, as the nature of science lends itself to inquiry and processes of increasing critical thought. These "inquiry environments" tend to have more open questions, more neutral teacher responses to student contributions, and have discussions that are less evaluative in purpose. Questions in these classrooms are often "developed by the teacher with the intent of supporting student understanding as they participate in the process of scientific inquiry" (Smart & Marshall, 2012, p. 3). Van Zee, et al. (2001) cite the National Science Education Standards, which state that "inquiry into authentic questions generated from student experiences is the central strategy for teaching science" (p. 160).

As part of this process, conversations in an inquiry-based classroom buck the traditional authoritative dynamic of the teacher asking questions that the students must answer correctly; this antiquated routine focuses on how the teacher processes the material, not on the students' processing (Van Zee & Minstrell, 1997). Chin (2006) writes that instead of the teacher providing all of the information, an inquiry-based environment allows students to construct their own meanings, share their own thoughts and ideas, and guide the discussion. Smart and Marshall (2012) found that allowing students this academic freedom in classroom discussions had a statistically significant relationship with students being more cognitively engaged in the work.

How Teachers Can Foster Inquiry-Based Learning Through Reflective Questioning

Smart and Marshall (2012) cite Chin (2006) and others when they write that, "In order to allow for the development of conceptual understandings of science concepts, classroom discourse must proceed beyond the correct answer" (p. 3–4). To do that, the teacher must use student responses and questions as a jumping off point for further ques-

tions and discussion. This strategy, of which there are many varieties, is known as Socratic questioning (Chin, 2006). Teachers facilitating guided discussions respond to student comments with deeper, probing questions to further develop students' understanding of the subject (Van Zee, et al., 2001). This approach also puts the onus of responsibility on students for their own thinking process and comprehension of the subject. Students are encouraged to self-evaluate their responses, instead of the teacher doing it for them, to reflect on and improve the accuracy and depth of their understanding (Van Zee & Minstrell, 1997; Chin, 2006).

One particular type of Socratic questioning is known as a "reflective toss," employing a metaphor where teachers "catch" what students are saying and "throw" the tasks of self-evaluation and reflection back to them. This tactic, which typically follows a pattern of teacher question, student response, and another teacher question, can be used not only with individual students, but also with the whole group. Other students in the classroom are also able to reflect on the responses of their peers to further the conversation (Van Zee & Minstrell, 1997).

Redirecting student responses can serve many purposes for student learning. Posing additional questions may help push students to higher levels of cognitive tasks, can encourage a student to clarify, refine, or elaborate on the response he or she just gave, and allow peers to compare and contrast ideas or evaluate other responses. If a teacher does not immediately respond to a student's follow-up, this technique can also subtly encourage other students to speak up and participate in the discussion (Van Zee & Minstrell, 1997; Van Zee, et al., 2001; Chin, 2006). Redirection can be especially helpful when a student gives an incorrect answer; instead of a teacher correcting the student, both the student and class are encouraged to think about alternatives or justify their reasoning in a neutral, non-judgmental setting (Van Zee & Minstrell, 1997; Chin, 2006).

What Teachers Need to Remember Before Adopting This Approach

In order to challenge student thinking, teachers must be cognizant of the classroom environment and the perceived emotional safety that the students feel. Smart and Marshall (2012) emphasize that:

> Within the inquiry environment, teacher questioning is intended to encourage students to elaborate on previous answers, not to judge the correctness of those responses. Instead of ending the questioning cycle in an evaluative statement, students are encouraged to self-evaluate their answers and justify their claims… By re-directing the evaluative role back to the students, the teacher establishes a climate that values justification, conjecture, and the co-construction of knowledge" (p. 3).

However, students need to feel comfortable having their ideas and thoughts challenged and feel confident enough to participate in this shared knowledge building. Van Zee, et al. (2001) similarly noted that students were most likely to ask questions when they felt comfortable within the classroom environment and could freely engage in discourse. Consequently, the teacher must use discretion when pushing back, considering how early it is in the school year, the students' comfort levels with and respect for each other, as well as the individual students' emotional needs (Van Zee & Minstrell, 1997). Teachers need to think carefully about these factors and their instructional goals in advance, planning their questioning strategies but remaining flexible for students to help guide the conversations (Van Zee & Minstrell, 1997; Smart & Marshall, 2012).

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