REDIRECTING QUESTIONS[1]

Description:
Redirecting questions can be considered the process most central to the Supplemental Instruction program. The process itself is fairly simple to understand, but difficult to practice without a context in which to do so. The goal of this process is to encourage more and better student-to-student interactions in the sessions. It is based on the concept that we all learn better when we have to explain something to someone else. The natural tendency for anyone is to answer questions asked; this process requires the Leader to suppress that tendency and redirect questions back to the group. Perhaps it is easier to illustrate this process with a few examples:

Sample Interactions:

Student to Leader: What is the derivative of a constant?
Leader: Can anyone find an answer to that in your notes/text?
[*Use the resources that students have. Useful when it is obvious that students don't know the answer. Makes students think for themselves and process the material in a way that will be helpful for them.*]

Student to Leader: I don't understand how temperature affects a chemical reaction.
Leader: I'm glad you brought that up! Why don't we analyze #5 on the handout to see if we can understand how temperature affects different reactions? Let's see if we can come up with the reasons by the end of the session. [*Remember to use responses that offer positive reinforcement. Leaders often will anticipate problem areas and have sample problems on a handout. A useful handout may structure the answers and list steps.*]

Student to Leader: I don't know how to do this problem.
Leader: What part(s) of the problem do you understand?
[This will help narrow the question and divide it up in more useful parts.]

Student to Leader: I understand how to get the derivative, but I don't know what to do next.
Leader: Would someone please go to the board and scribe as we work it together? Or: Would someone please put what you have for this problem on the board?
[*Note: This interaction demonstrates that there may be a two- or three-phase process. SI leaders get questions redirected back to them, for example. In that case, help the students to structure the problem, redirecting as you go.]*

[1]Riley, J. P. (1981). The effects of preservice teacher's cognitive questioning level and redirecting on student science achievement. *Journal of Research in Science Teaching, 18*, 303-309.; Brown, B. E. (1979). *Probing skills for tutors*. Paper presented at the Annual Meeting of the Western College Reading Association, Honolulu, HI. (ERIC Document Reproduction Service No. ED184065)

REDIRECTING QUESTIONS

Additional Sample Phrases:
What is this question asking for?
Why are you thinking of it in that way?
Give an example of that.
Can you summarize the discussion up to this point?
Can you think of another way to think about this?
How is your answer (point of view) different from _____?
Let's rephrase it on the board and figure out what information we will need to answer it.
Can you be more specific?
How does your response tie into ____?
Let's look that up in the text.
Let's write down everything we know about this topic/problem/theory.
How can you relate this to everyday life?
Okay, that's the book definition, but how do we define that (i.e. in your own words)?
So, how do *you* think you can redirect questions?

Practice Exercise

1. Have each participant write down a question that could be asked in a session for his/her discipline.
2. Make sure that the group is in a circle to avoid this evolving into a mini-lecture.
3. Select one participant to take the role of an SI Leader.
4. Have the participants ask the questions they have written down.
5. Have the Leader redirect the questions to the group. Group members should answer as naturally as possible.
6. After several exchanges, change who is taking the role of the Leader and repeat the process.

How does this process attempt to break the *Dependency Cycle*?

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What would you do if the response by the student after the Leader's redirect were "If I knew how to do this problem, I wouldn't have come to SI!"?

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Are there some questions that should not be redirected? Give an example.

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WAIT-TIME

Definition[1]:
Wait-Time is the time that elapses between an SI Leader-initiated question and the next behavior (student response or the Leader talking again).

There are two kinds of wait-time:

Wait-time 1: The time the Leader waits after asking a question

Wait-time 2: The time the Leader waits after a response is provided, regardless of the accuracy

Rationale:
Wait-Time is an important factor in successful SI sessions. Extensive research has demonstrated that the quality and quantity of students' verbal responses increases significantly if SI Leaders regularly utilize at least 15-20 seconds of wait-time. **Wait-time 2** seems to be even more significant than **Wait-time 1**. So, once again, if SI Leaders resist the natural temptation to jump in too quickly to answer or rephrase, student learning improves. Increased wait-time allows the brain more opportunity to consolidate information, which allows for deeper processing of information. According to de Jong and Ferguson-Hessler[2], deep-level knowledge is associated with comprehension, abstraction, critical judgment, and evaluation. Deep-level knowledge "has been thoroughly processed, structured, and stored in memory in a way that makes it useful for application and task performance."

Research findings[3]:

For Students:

1. More students answer
2. More accurate answers
3. Answers are more elaborate, reasoned, and supported
4. Students listen to each other more
5. More speculative responses
6. More questions asked
7. More participation by poorer students
8. Increase in use of logical consistency in responses

For SI Leader:

1. Asks fewer questions
2. Connects questions better
3. Asks more higher-order questions
4. Demonstrates greater flexibility
5. Expects more from poorer students

[1] Rowe, M. B. (1974). Wait-Time and rewards as instructional variables, their influence on language, logic, and fate control: Part 1—wait-time. *Journal of Research in Science Teaching, 11*(2), 81-94.

[2] deJong, T. & Ferguson-Hessler, M. G. M. (1996). Types and qualities of knowledge. *Educational Psychologist, 31*(2), 105-113.

[3] School Improvement in Maryland. (2003). What have we learned about good instruction? Retrieved March 11, 2003, from: http://www.mdk12.org/practices/good_instruction/projectbetter/thinkingskills/ts-83-85.html

WAIT-TIME

When Students Don't Respond:

SI Leaders may worry about what to do if no one responds. After waiting 15-20 seconds with no responses, they may want to try one of the following[1]:

- Repeat the question
- Rephrase the question
- Simplify the question
- Ask a student to attempt to rephrase the question
- Break down the question into its component parts
- Make the question more specific
- Ask students what it is about the question they do not understand

After each alternative, wait 5-10 seconds.

What can you, as an SI Leader, do if no one answers a question?

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How do you respond to students who get frustrated waiting for a response?

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[1] Lorsch, N. and Ronkowski, S. (2003). *Teaching tips for TAs: Wait-time*. Retrieved July 23, 2003, from University of California, Santa Barbara website: http://www.id.ucsb.edu:16080/ic/ta/...html *Leader Resource Manual*, UMKC pg.87-88

CHECKING FOR UNDERSTANDING

Definition:
The learning strategies that SI Leaders use in their sessions are designed to promote student-to-student interactions. We cannot automatically assume, however, that the students are gaining understanding from their interactions. Instead, we must check for understanding by asking the students to confirm that they have learned the content.

Rationale:
The most common method of checking understanding is to ask the students a closed-ended question like, "Do you understand?" This question can be answered with a simple yes or no. This is not effective because students are sometimes uncomfortable admitting that they still do not understand a concept, especially if considerable time has just been spent on it during the session. Instead, questions that check for understanding should be open-ended and require higher-order thinking skills.

It is essential that students can explain the discussed topic in their own words so the Leader knows that students understand before proceeding to the next topic. If there is any doubt that the students did not "get" it, the concept should be discussed again. The Leader should make sure that the students get a chance to demonstrate their understanding so that demonstrating understanding becomes part of the SI sessions. This will improve student preparation and learning.

Possible Ways to Check for Understanding:

1. Always maintain eye contact with the students during the session. By making eye contact, you will likely see when a student is confused.
2. Ask a student to summarize the concept just covered. If s/he struggles, ask the group to help him/her.
3. Ask for a volunteer to write the main points of the discussion on the board.
4. Ask a question that requires the student to understand in order to answer correctly. For example, if you just covered the difference between the logical rules of inference, disjunctive syllogism and modus ponens, ask the group, "So I can use Disjunctive Syllogism on this argument, right?" when you cannot, based on the discussion. When they reply, "No, of course not," ask them *why not*.
5. Once in a while, intentionally make mistakes on the board. The students will catch you if they understand. If no one notices, probe the group about the content on the board until they discover the mistake. (Frequent use of this strategy may confuse students.)
6. Ask the students to rephrase the question you asked originally or the summary another student gave.
7. Ask for real-life examples or applications of the concept.
8. Ask for a similar problem, metaphor, or analogy.