

THE ROLE OF QUESTIONING IN THE CLASSROOM

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Abstract: The article is dedicated to the study of various researchers' viewpoints on the importance of questioning and elicitation techniques for creating and maintaining effective learning environments.

Key words: elaborate understanding, student-teacher interaction, stimulated students, motivation increase, error correction, free thinking, problem-solution.

Since Socrates, and probably before, teachers have used questions to stimulate thinking in the classroom. Appropriate questions help teachers and students learn from one another (Lathan, 1957 as cited from Wood; Carol, 2001). Reviews of research findings on questioning reveal that it is an effective skill "to stimulate student interaction, thinking, and learning" (Wilens, Ishler, Hutchison, and K. Indsvatter, 2000 as cited from Wood; Carol, 2001).

A teacher's questioning technique, correlating with enhanced achievement, should include a balance of convergent and divergent questions, probing questions, listening to student responses, redirecting student responses to other students, providing respectful feedback, and allowing for appropriate time after asking a question. Convergent questions serve the purpose of getting low-level cognitive information from students; divergent or open-ended questions are more likely to stimulate a discussion and foster an interactive and democratic classroom atmosphere (Wood; Carol, 2001).

Every day teachers ask dozens, even hundreds of questions, thousands in a single year, over a million during a professional lifetime (Wragg 2001). Questioning has been and is a dominant method of instruction in the classroom. Some say questioning is, in fact, the most important teaching technique in use today. The greatest attribute of questioning is that it stimulates thinking in the classroom (Filippone, 1998).

Research indicates that almost 40% of classroom time is spent in a question-response mode (Johnson, Markle, & Haley-Oliphant, 1987). Nevertheless, many teachers do not ask questions effectively (Gall, 1984). Ineffective or inappropriate practices include asking questions at only lower cognitive levels (Ornstein, 1987), directing a disproportionate percentage of questions toward limited number of students (Jones, 1990), or waiting only for a short time after asking a question and before reacting to the student's response - typically one second or less (Rowe, 1986). Questions too often flow in only one direction and become a way of maintaining

control rather than stimulating thought. For example, teachers are likely to ask at least 50 questions during a typical class period while it is unlikely that the students in the class ask even one question (McGlathery, 1978 as cited from Barnette, 1994).

Researchers, Rothkopf (1967) and Prase (1963), consider questions as an important form of instructional interaction as they act as motivational stimuli and have arousal and associative outcomes. Through asking questions the teacher has the ability to construct students thinking and ways of inquiry. Stevens (1912) stated that approximately eighty percent of a teacher's school day was spent asking questions directed towards their students. More contemporary research on teacher questioning behaviors and patterns indicate that this has not changed. Teachers today ask between 300-400 questions each day (Leven and Long, 1981 as cited from Brualdi, 1998). Teachers ask questions for several reasons (Morgan and Saxton, 1991 as cited from Brualdi, 1998):

1. The act of asking questions helps teachers keep students actively involved in lessons.
2. While answering questions, students have the opportunity to openly express their ideas and thoughts
3. Questioning students enables other students to hear different explanations of the material by their peers
4. Asking questions helps teachers to pace their lessons and moderate student behavior
5. Questioning students helps teachers to evaluate student learning and revise their lessons as necessary

As one may deduce, questioning is one of the most popular modes of teaching. Unfortunately, although the act of asking questions has the potential to greatly facilitate the learning process it also has the capacity to turn a child off if done incorrectly (Brualdi, 1998). Questioning is an integral part of scientific inquiry and the learning process. Students' questions can reveal much about the quality of their thinking and conceptual understanding (Watts and Alsop 1995, White and Gunstone 1992, Woodward 1992), their alternative frameworks and confusion about various concepts (MaskiH and Pedrosa de Jesus 1997), their reasoning (Donaldson 1978), and what they want to know (Elstgeest 1985).

In order to teach well it is widely believed that one must be able to question well. Asking good questions fosters interaction between the teacher and his/her students. Rosenshine (1971) found that large amounts of student-teacher interaction promote student achievement. Thus, one can surmise that good questions foster student understanding. However, it is important to know that not all questions achieve this.

Teachers spend most of their time asking low-level cognitive questions (Wilén, 1991). These questions concentrate on factual information that can be memorized (ex. What year did the Civil War begin? Or who wrote "Great Expectations"?). It is widely believed that this type of questions can limit students by not helping them to acquire a deep, elaborate understanding of the subject matter (Brualdi, 1998).

High-level-cognitive questions can be defined as questions that require students to use higher order thinking or reasoning skills. By using these skills, students do not remember only factual knowledge. Instead, they use their knowledge to solve, to analyze, and to evaluate. It is believed that this type of questions reveal the most about whether or not a student has truly grasped a concept. This is because a student needs to have a deep understanding of the topic in order to answer his type of question. Teachers do not use high-level-cognitive questions with the same amount of frequency as they do with low-level-cognitive questions. Ellis (1993) claims that many teachers do rely on low-level cognitive questions in order to avoid a slow-paced lesson, keep the attention of the students, and maintain control of the classroom. Arends (1994) argues that many of the findings concerning the effects of using lower level-cognitive questions versus higher-level-cognitive questions have been inconclusive. While some studies favour asking high-level-cognitive questions, other studies reveal the positive effects of asking low-level cognitive questions. Gall (1984), for example, point out that "where emphasis on fact questions is more effective for promoting young disadvantaged children's achievement, which primarily involves mastery of basic skills, emphasis on higher cognitive questions is more effective for students of average and high ability..." (p. 41). Nevertheless, other studies do not reveal any difference in achievement between students whose teachers use mostly high level questions and those whose teachers ask mainly low level questions (Arends, 1994; Wilén, 1991). Teachers decide to ask low level cognitive or high level cognition questions in accordance with the needs and interests of students to help them understand the subject matter.

Why do teachers ask questions?

Reasons for teachers asking questions to their pupils in classrooms are often rather different from those in everyday conversation. Put another way the rules of talk in the classroom are different from those in other contexts. We question students not to obtain new knowledge for ourselves but to find out what the student already knows. This principle is stressed by Ausubel: "The most important single factor influencing learning is what the learner already knows. Ascertain this and teach him/her accordingly" (1978 as cited from Wragg 2001).

Other reasons for asking questions are to stimulate recall, to deepen understanding, to develop imagination, and to encourage problem solving. There are

also questions to do with classroom management such as, 'Have you got your books?' Turney *et al* (1973), in their first edition of the Sydney Micro Series, list twelve possible functions of questions (see below).

- To arouse interest and curiosity concerning a topic
- To focus attention on a particular issue or concept
- To develop an active approach to learning
- To stimulate pupils to ask questions for themselves and others
- To structure a task in such a way that learning will be maximized
- To diagnose specific difficulties inhibiting pupil learning
- To communicate with the group that involvement in the lesson is expected, and that overt participation by all members of the group is valued
- To provide an opportunity for pupils to assimilate and reflect upon information
- To involve pupils in using an inferred cognitive operation on the assumption that this will assist in developing thinking skills,
- To afford an opportunity for pupils to learn vicariously through discussion Tumey *et al.* (1973 as cited from Wragg, 2001)

Tumey's list is rather more comprehensive than that of most young teachers who are for the first time considering the way they ask questions. For example, in a study of 190 teachers in US elementary schools, Pate and Bremer (1967) asked teachers to provide reasons for asking questions. They found that the most common category was questions to check knowledge and understanding' followed by 'diagnosing pupils' difficulties' and 'recall of facts'. Only 10 per cent stressed the use of questions to encourage pupils to think. Significantly, there were no responses suggesting that questions may be used to help pupils to learn from each other, or that questions may be used to encourage pupils to ask their own questions. Yet when teaching is discussed amongst professional people encouraging pupils to talk and think is often stated as a high priority (Wragg 2001).

Types of questions

While forming questions, not only the level of the thinking skills that students will be required to use in answering, but also the types and/or amounts of responses the question will prompt from the students should be thought. Generally questions can be put in three types; convergent, divergent and evaluative questions.

Convergent Questions (Fact Questions)

Convergent questions are those that require one correct answer or a limited number of acceptable answers. This type of questions is useful for establishing facts or ascertaining answers to problems that have one correct answer. Convergent questions, for the most part, elicit short responses from students. In general, they are questions of fact and recall and are often low level.

Teachers use convergent questions if they use an inductive teaching style. Also the teacher may wish to use short-response questions as “warm-up” exercises with which to break the monotony of the traditional classroom. These warm-up exercises may follow a “rapid-fire” method, which would be most appropriate when the teacher is building vocabulary skills. Teachers in foreign language classes may use a convergent, rapid-fire pattern to help develop oral, vocabulary, and spelling skills among students. The use of a convergent, rapid-fire technique also allows for participation by all students. The use of convergent, rapid-fire technique focuses on specific learning objectives, skills, terminologies, or short responses. The use of this technique with short answers may be demonstrated in a math class, in which the teacher wishes the students to practice verbalized rapid calculation. A social studies teacher may want to use a pinpoint technique in identifying specific bits of information or facts.

The basic convergent pattern allows the teacher to “dominate” the thinking of the students by asking for short-length, low-level intellectual responses that involve a single answer or a limited number of logical answers. The convergent technique is an ideal application of “teacher-directed instruction” or direct instruction, where all students in class respond in unison to teacher-asked questions. Everyone participates.

An exception to this rule involves solutions for problems requiring application, or analysis. For example, if the math teacher asks “I have 400 feet of fence, and I want to enclose the maximum area in a four sided figure. What should the dimension be?”, This is a high-level question, but is still convergent in that only one answer to the problem is correct.

Examples of convergent questions:

1. What's 6×9 ?
2. Under what conditions will water boil at less than 100°C ?
3. What helps bread dough rise?
4. Where do relatively few people live in the deserts of any country?
5. What's the chemical formula for table salt?
6. Explain the “Big Bang” theory.

Divergent Questions (Interpretive Questions)

While convergent questions require one correct answer, divergent questions are just the opposite, in that many different answers are appropriate. The focus of divergent questions is broad. Rather than seeking a single focus the teacher evokes student

responses that vary greatly. Divergent questions also elicit longer student responses. Although often there will still be correct and incorrect answers, students have more freedom in responding to “free think” the answer to a divergent question. The “open-endedness” of these questions encourages students to consider many possibilities. When ideas are discussed and teacher wants to elicit a variety of responses from the students, divergent types of questions are appropriate.

Eliciting multiple responses. If the teacher wishes to elicit multiple responses, a multiple-response technique can be used. In this technique, the teacher asks a question that can be answered with multiple responses and calls on three or four students and then assumes a passive role in this mini-discussion. Such a technique teaches the students to conduct a classroom discussion and sharpens the listening skills of the students.

Accepting diversity. Questioning is one of the most effective tools teachers have for communicating that they value all students and welcome them in their classrooms. When the teacher asks a divergent question, s/he must expect a multiplicity of responses as well as some creative ones. If the teacher elicits diverse responses from the students, then the teacher has the professional obligation to those students’ responses. To reinforce appropriate response behavior, the teacher must demonstrate a high degree of acceptance for the response of each student. By doing so the teacher sends a powerful message to students; “I don’t care if you’re a boy or a girl, minority or nonminority, or high or low achiever; I want you in my classroom, I believe you are capable of learning, and I’ll do whatever it takes to ensure that you’re successful.”(Kauchak, D.P., Eggen, P.D. 2003; Orlich, D.C., Harder, R.H., Callahan, R.C., Kravas, C.H., Kauchak, D.P., and others. 1985).

The teacher who uses a divergent technique of questioning will soon discover that the students will respond in the higher-level thinking categories of the cognitive taxonomy- that’s “application, analysis, and synthesis”. The divergent method is appropriate for eliciting multiple responses from students. If this is the intention of the teacher, it’s important to inform the class that a set of multiple responses is desired and each student is wanted to cue from the other students’ responses. This means that the teacher does not repeat student responses for other class members. The rationale underlying the technique of not repeating is that if a student knows that the teacher will repeat the previous student’s response, then most students become conditioned to listening only for the teacher’s repetition of the response. If the teacher is sensitive to this technique –not repeating the student responses -, the students will realize that their responses are important.

(In general, teachers tend to interrupt their students before they fully explain their positions.)

Some examples of divergent questions:

1. How does the environment affect human behavior?
2. How are the plays *Julius Caesar* and *Hamlet* alike?
3. What are the responsibilities of the President of Turkey?
4. Give me one of the most significant dates in the world history?
5. What kinds of evidence would you seek if you were an opponent of the “Big Bang” theory?
6. What would happen if a school had no rules?

As it has been said before that convergent questions are low-level or divergent questions are high-level is not true always. Both convergent and divergent questions can be created at both ends of the knowledge-evaluation continuum (Thomson, S.J., Benson, S.N.K., Pachnowski, L.M., Salzman, J.A.2001:162)

Evaluative Questions

These questions can be under the title divergent questions but the basic difference between a divergent question and an evaluative question is that evaluative question has a built-in evaluative or judgmental set of criteria. An evaluative question asks one to think about his or her own values or experiences. Such questions sometimes ask a reader to consider how s/he would act in a situation similar to one character in the story finds himself or if s/he has had a similar experience (Moeler, V.C., Moeler, M.V. 2000: 30). When a question *why* something is good or bad is asked an evaluative question is being raised. Sometimes answers to evaluative questions won't have value, but like divergent questions the teacher must accept student responses to encourage students to provide evaluative responses.

A major component in the evaluative questioning framework is that the teacher systematically helps students develop a logical basis for establishing evaluative criteria. When an illogical response is given to an evaluative question by the student, the teacher must provide a specific set of criteria from which students may develop their own criteria. In this manner, students will understand why they hold value judgments or opinions.

Not all the time, convergent questions need to be low-level or divergent questions high-level. For example, in the classroom students may face this kind of question. “Based on the evidence you have just heard, is the suspect innocent or guilty?” To respond this, students will have to analyze all of the arguments they have just heard, and evaluate the credibility of the witnesses. In the end, there are two possible responses that they can make. Although it's a convergent question, it's also a high-level question.

Elements of effective questioning

Effective questioning depends on two essential factors. The first is clear and precise goals. The goals may not be written in a plan book, and teachers may have to modify them during the lesson if students' current understanding requires it, but

effective teachers, nevertheless, begin their lessons knowing what they want their students to accomplish. The second is effective representation of content, which also depend on clear goals. Expert teachers use content representations that help students reach goals, and they guide their students to the goals through their questioning. There are essential questioning strategies of effective teaching. They include:

- Questioning frequency
- Equitable distribution
- Prompting
- Probing
- Wait time (Kauchak, D.P., Eggen, P.D. 2003:66; Jacobsen, D.A., Eggen, P., Kauchak, D. 2002)

Questioning Frequency

Questioning frequency refers to the number of questions that teachers ask over a period. Hamilton and Brady (1991), and Henderson et al. (1996) suggest that research indicates that effective teachers ask more questions than do those who are less effective (Kauchak, D.P., Eggen, P.D. 2003:67). As asking more questions is an effective strategy, knowing when to ask questions is also important. Asking many questions may cause students to be passive and to be in a not thinking position. Dillon (1987) has suggested times which are not suitable for asking questions (Açıkgöz, K. İ.2003: 254-255). These times are:

- Starting the discussion; when teacher asks the questions the activity doesn't progress as deep discussion, but it becomes answering the teacher's question session.
- Explaining a point; instead of asking a question, there should be a short explanation.
- When students have difficulty completing their utterances, asking questions will block the communication.
- Trying to get the answer determined before will disturb the student independence and creativity.
- Responding a student's question with a question may cause the student feel s/he does not have right to ask questions.
- Trying to motivate student by asking questions may cause them to be ready for a question instead of listening what's going on in the class.
- Asking student's personal feelings or thoughts may cause them to stay quiet.

Equitable Distribution

Equitable distribution describes a questioning pattern in which all students in the class are called on as equally as possible. Equitable distribution runs counter to two common teaching patterns. First, in typical classrooms, about two third of all teacher

questions are undirected, meaning that students who volunteer are allowed to answer, and those who are not allowed to remain passive. This practice detracts from achievement because the involvement of students who don't volunteer decreases (Kauchak, D.P., Eggen, P.D. 2003). As it's stated in the same book taken from Gage and Berliner (1988), in a review of the literature in this area, experts concluded that teachers should call on volunteers less than ten to fifteen percent of the time. The researchers suggested that 85 percent to 90 percent of all teacher questions should be directed to students who don't volunteer! Equitable distribution communicates that the teacher expects all students to attend and each student will be able to and assisted to answer. If teachers practice equitable distribution as a day-to-day pattern, student involvement and learning can dramatically increase. When the students know that they are certain to be called, the level of attention becomes high. In cases where students "drift off", the teacher intervenes immediately. An example of this kind of interaction –only a segment –can be seen below. (José is the teacher.)

José: How do we know it (the bottle) was heated?... Ginny?

Ginny: I, er, I didn't hear the question (answering sheepishly).

José: What did I do with this bottle, Ginny (holding up the bottle with the red balloon)?

Ginny: You put it in the coffee pot.

José: Yes I did, Ginny. Good. And how do we know the coffee pot was hot? ... Rosemary?

The simple sequence served two important functions. First it got Ginny back into the lesson, and second, it contributed to a positive classroom climate. Ginny knew that José has caught her not paying attention, but he didn't criticize her. Instead, he simply rephrased his original question and went on. This sequence communicated that José was on her side, wanting her to contribute and learn. This helped to create a positive climate (Kauchak, D.P., Eggen, P.D. 2003).

Like above example, Grossier (1964) has noted at least three situations where it makes sense to call on the student before asking a question (Good, T.L., Brophy, J.R. 1984):

1. The teacher wants to draw an inattentive student back into the lesson.
2. The teacher wants to ask a follow-up question of a student who has just responded.

The teacher is calling on a shy student who may be "shocked" if called on without warning.

In lesson on questioning techniques teachers are suggested to employ the research supported practices to foster higher student achievement. That's why it is aimed to be the asking the right question in order to receive right answer. For this the teachers or the 'askers' should settle the structure in a clear way, wait for the student to think and

judge on the question for a while after asking, help them lighten the ambiguity if/s/he has, encourage the students to answer in some way. The efficiency of the answer based on the efficiency of the question. To maximize the productivity of the students, the teacher and all the audio - visual classroom materials should be careful of what to ask and how to ask. Because asking is the best way of communicating with the pupils and make them involved in the lesson.

REFERENCE LIST:

1. Arends, R.; Learning to teach. New York, NY: McGraw-Hill, Inc., 1994
2. Barnette, Jack; And Others; Evaluation of Teacher Classroom Questioning Behaviours, ED 377186, Washington DC.1994
3. Bloom, B.,Englehart, M., Furst, E., Hill, W.,& Krathwohl, D. (1956). Taxonomy of educational objectives: The classification of educational goals. Handbook I: Cognitive domain. New York, Toronto: Longmans, Green.
4. Brnaldi, Amy C. (1998). Classroom Questions. ERIC Clearinghouse on Assessment and Evaluation Washington DC. 1998
5. Chin, Christine; Student-Generated Questions: What They Tell Us About Students' Thinking ED 454236 Washington DC. 2001
6. Ciardiello, A.V. "Teacher Questioning and Student Interaction: An Observation of Three Social Studies Classes." The Social Studies, 1986
7. Collins, A., & Stevens, A.L. Goals and strategies of inquiry teachers. In R. Glaser (Ed.), Advances in instructional psychology: Vol. 2. Hillsdale, NJ: Erlbaum, 1982.
8. Dillon, J.T. Teaching and the Art of Questioning. Bloomington, IN: Phi Delta Kappa Educational Foundation, 1983.