

ON QUESTIONING IN THE CLASSROOM

RATIONALE

No matter what you teach, where you teach or to whom you teach, the success of your teaching will depend more on the skill and judgment with which you ask classroom questions than on any other single factor. Questioning remains one of the fine arts of teaching, an art, as other arts, which can be acquired only through painstaking practice. Few beginning interns have a degree of skill in questioning; all have the necessary qualities on which to build. Given a sound base in skills, most, if not all, will develop the art with time and practice.

Questioning is crucial to every teaching situation. Where it is used primarily in given learning situations, it becomes the method of instruction. In the question and answer lesson, the teacher develops ideas and concepts by means of a series of questions. Pupil responses are followed by further queries. In the developmental lesson, the teacher asks a series of sequentially planned, thought-provoking questions designed to open a major topic or sub-topic for discussion. The teacher then asks more specific questions in order to extend or clarify pupil responses.

Questions can be categorized in a number of ways. Consider the following two levels of categorization: the general purpose or function of a question; and, second, the specific or immediate purpose of a question. Then some of the ways in which questions are framed bear on the effectiveness of their use.

GENERAL PURPOSES OR FUNCTIONS OF QUESTIONS

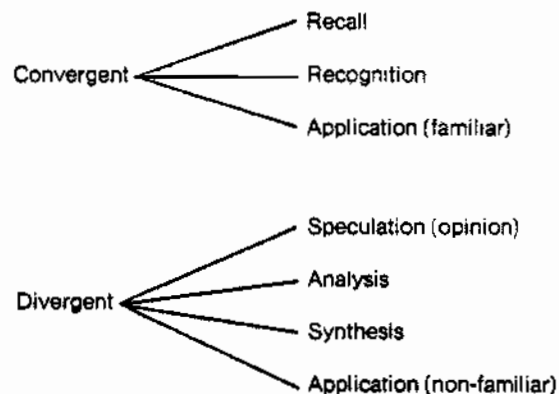
TEACHERS MUST

1. Ask many questions (worth answering)
2. Ask open ended questions whenever possible
3. Be positive about students' responses
4. Avoid outright rejection of responses
5. Try to incorporate students' responses in asking questions

Questions perform a number of broad functions in classroom usage. Among these are:

1. *Provocative*, in which the intent is to arouse interest, develop some sense of community, or elicit a further question from the pupils;
2. *Evaluative*, in which the intent is to test for achievement of objectives, produce feedback to the teacher, or test a pupil's preparation for the lesson;
3. *Developmental*, in which the intent is to develop new insights, ideas, attitudes, appreciations;
4. *Probing*, in which the intent is to stimulate logical or critical thinking or to promote deeper understanding; and
5. *Consolidating*, in which the intent is to summarize, draw together ideas, or achieve closure.

Operating within these general purposes, questions may be viewed as falling within two broad categories—*convergent* or *divergent*. Convergent questions, while superficially offering a variety of possible responses, tend to converge on a single, correct answer. Divergent questions, on the other hand, have a variety of satisfactory responses and call for a different set of behaviors on the part of the students. In general, the student behaviors associated with these two types of questions are:



While these behavioral expectations are not absolute, they do represent constraints on response modes with which the teacher must be familiar in order to achieve the skill base from which the *art* of good questioning can be developed. Thus, it is unlikely that convergent questions alone can serve the probing function, while divergent questions may confound the consolidating function.

SPECIFIC PURPOSES FOR QUESTIONS

In a particular teaching situation, the purposes of questions become more specific, still within the general framework of the functions noted. This specificity of purpose determines to a large extent the way in which a question should be framed. The list which follows is illustrative but not exhaustive:

1. To elicit a statement of relationship, differentiation, or comparison.
2. To elicit a fact or idea.
3. To make a classification.

4. To develop a hypothesis or conclusion.
5. To develop an explanation or analysis.
6. To elicit an illustration or example.
7. To elicit a further question.
8. To summarize or organize.
9. To propose a procedure.
10. To apply an idea or principle.
11. To change the frame of reference.

Each of the above specific purposes represents a step (or steps) for a sequence of events aimed at achieving instructional goals. Questions require planning! While it is clearly impossible to plan in advance all of the questions for a particular teaching situation, the key questions must be prepared in advance. Only by question planning will the teacher achieve clarity and non-ambiguity—a mark of effective questioning.

FRAMING EFFECTIVE QUESTIONS

If one were able to plan carefully in advance for each question to be used in a teaching situation, the process would run something like this. First, the general function of the question would be considered: "*What kind of a movement am I engaged in at this point in the lesson?*" (e.g., arousing interest, probing, etc.) "*What kind of a response mode is appropriate to the function?*" (e.g., recall, application, synthesis, etc.) Finally: "*What specific vehicle, or what specific response, will serve the immediate purpose and facilitate movement toward the desired instructional goal?*" (e.g., a classification, a fact, a proposed procedure, etc.) While one probably does not actually think within this formal framework when planning questions or when formulating questions "*on one's feet*," this is the process which, when coupled with an adequate choice of words and sentence structure, produces effective questions.

Model I. The general lesson movement is an inductive process, moving from a set of specific observations of what happens when certain chemicals are combined, to a generalization regarding the results of combining other similar chemical substances. From the general purposes noted earlier, this situation would seem to imply the need for mainly convergent but some divergent questions: (1) elicit observations, facts, (2) classify, (3) develop conclusion.

Model II. In a general evaluative situation (preparation for a test) the broad purpose might be either or both consolidating and evaluating. Depending on the level of information being evaluated, both convergent and divergent questions might be appropriate. This might, in turn, call for: (1) eliciting facts or concepts, (2) eliciting statements of contrasting or comparison, (3) classification, (4) eliciting an illustration or example, (5) summarization, (6) application, and (7) eliciting further questions.

Examples:

To elicit a statement of comparison: "*How does the use of executive powers by recent presidents compare with that exercised by Lincoln during the Civil War?*" To elicit a fact: "*What are the three basic parts of any cell?*"

SOME CHARACTERISTICS OF EFFECTIVE QUESTIONS

LEAR AND DEFINITE

- "Why has war been called a necessary evil?"
- "What are some factors that influence the growth of teeth?"
- "Did Korea pose an additional challenge for the U.N.? How?"
- "How are crystals affected by exposure to atmosphere?" (pointed arrow)
- "What is an embargo?" "How does it develop?"

VAGUE

1. "How do you feel about the war?"
2. "How do teeth grow?"
3. Avoid "What about" questions ("What about Korea?")
4. "Tell us about crystals?" (buckshot)
5. "What is an embargo and how does it develop?"

EFFECTIVE QUESTIONS ARE:

- purposeful (aimed at a specific purpose)
- clear (pupils understand what is asked)
- brief (stated in as few words as possible)
- natural (stated in conversational English)
- thought provoking
- of limited scope (only one or two points in a reasoning chain)
- adapted to the level of the class (keep pupils in mind)

VOID QUESTIONS THAT ARE:

- yes-no (one word responses) ("Is the world round?")
- Elliptical (vague—"What about the United Nations?")
- tugging ("Come on, think of a third reason!")
- guessing (this encourages speculation rather than thought—"How long do you think man has been on earth?")
- leading (tends to give away the answer—"How do vitamins help to build strong bodies and make up deficiencies?")
- vague (lack of direction—"Tell us about lenses?")

QUESTIONS WILL BE MOST EFFECTIVE WHEN THEY ARE:

- planned
- logical and sequential
- not addressed to the entire class
- posed so pupils have time to think
- balanced between fact and thought
- distributed widely
- not repeated
- asked in conversational tones
- designed to elicit sustained responses

CONSIDER THE FOLLOWING QUESTIONS

- (1) "Are you *free* to vote as you wish in the Soviet Union?" (fact)
- (2) "Is *freedom* to vote as one wishes a good thing?" (value)
- (3) "Are any of our actions ever really *free*?" (concept)

- (1) "Did the Greeks think it *right* to keep women in an inferior position to men?" (fact)
- (2) "Do you think it *right* to keep women in an inferior position to men?" (value)
- (3) "Can one ever be certain about what is *right*?" (concept)

In (1) and (2) it is clear what is meant by "*free*" and "*right*". There are no logical problems, no problems of meaning or use. However, in (3) these problems do arise.

In (3) is there a clue in the question to indicate it is a question of concept?

NOTE THE FOLLOWING:

- (1) "Are any of our actions ever really free?" (concept)
sounds similar to
- (2) "Are any of our actions ever really capable of blowing up the world?" (fact)

- (1) "Can one ever be certain about what is right?" (concept)
sounds similar to
- (2) "Can one ever be certain about tomorrow's weather?" (fact)

THINK ABOUT

What would you accept as an answer to questions of concept (1)?
In (2) factual information is required (knowledge of the H-bomb; question of techniques and instruments of meteorology).

AVOID QUESTIONS OF THIS TYPE

1. "What have we learned today?" (be specific)
2. Don't point to the board and say, "What do we see here?"
Better—"What tense is used in this clause?" (be specific)

GENERAL SPECIFICATIONS FOR QUESTIONING

The teacher:

1. engages the attention of the students.
2. consciously utilizes questions which convey clues about what kind of answer is expected and which are *appropriate* to the desired response.
3. utilizes a range of questions; e.g., questions calling for speculation, analysis or judgment, etc., as well as those requiring simply recall.
4. involves the entire class actively if possible but at least in consideration of both question and response.
5. accepts and uses (if possible) the students' answers, including reasonable variants on the desired response, without "putting them down."
6. allows time for a student to think through a response before giving the answer.
7. accepts student responses which are outside the area of desired responses.
8. makes clear to the students the direction in which the questioning is leading.
9. employs student responses in framing further questions.
10. plans key questions in advance, so that ambiguity, lack of clarity and poor choice of words are minimized.

TEACHERS MUST AVOID

1. Changing the question in midstream
2. Repeating the question (before students have had time to respond)
3. Answering his own question
4. Repeating students' responses
5. Accepting nonverbal responses—questions

QUESTIONING SUGGESTIONS FOR SPECIFIC CATEGORIES WHICH CAN BE USED IN YOUR CONTENT AREA:

DEFINING:

The following examples require the students to give the definition, meaning or use of a term:

1. What is the (Marshall Plan) (Conscription) (Thymus)?
2. What is the symbol for (Infinity)?
3. _____ means what? -or- What does _____ mean?
4. What does " r^2 " mean in a formula?
5. How would you define _____?

DESCRIBING:

The following examples ask what (is) (was) occurred, has been going on, etc... In each case, the student is asked to describe something in the past or present.

1. What happened at Three Mile Island?
2. What can you tell me about the present government of _____?
3. What can you tell us about this (rectangle) (curve)?
4. What is the relationship between the radius and the circumference?
5. What are some of the physical and chemical properties of copper?
6. What is the size of this angle?
7. The area of the (triangle) (square) (circle) is _____?
8. What did you find out about (parallelograms)?
9. What do we do to find the volume of a pyramid?

EXPLAINING OR EXPLANATION:

Questions beginning with why? or How? generally ask the student for evidence in the form of laws, rules, theories or facts to account for something or an explanation. There are different categories of explanations and some more suited to specific subject areas.

Casual explanations generally are applicable to the physical sciences. The teacher asks about an effect, outcome or a condition and the student explains it or why it occurs.

1. Why does Iron rust?
2. Why does hot air rise?
3. Why is the _____?

Applied to the social sciences, a casual explanation is indeed difficult.

1. Why did the Republican Party lose the 1976 Presidential Election? (Consider what could be accepted or the theory, laws and facts to support the answer.)

Casual explanation should be avoided in mathematics, biology, English and social studies.