

THE ROLE OF QUESTIONING IN THE CLASSROOM

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ABSTRACT

Questioning is the strongest tool at a teacher's disposal as it teaches students how to think. Teachers ask hundreds of questions everyday many of which are concerned with recall of textbook information; few questions require students to think beyond a level of recall. Some questions are designed to clarify matters of classroom procedure. Questioning is naturally a two sided affair. Not only is it that teachers put forth questions but equally students are involved in the process through the responses they offer. This paper highlights the methods of effective questioning such as structuring pitching, putting forward ideas clearly and concisely, directing and distributing, posing and pacing, prompting and proving, listening to replies and responding, and sequencing. Along with these tactics various ways of preparing effective lines of questioning are discussed.

Key Words: Classroom, Questioning.

ÖZET

Soru sorma, öğrencilere nasıl düşünüleceğini öğreten, öğretmenin hizmetindeki en güçlü araçtır. Öğretmenler her gün kitap bilgilerinin hatırlanmasına yarayan yüzlerce soru sorarlar; bu soruların çok azı öğrencilerin hatırlamalarının ötesine geçen, onları düşünmeye sevk eden niteliktedir. Bazı sorular sınıf uygulamasının açıklanmasına yöneliktir. Bu sürece sadece öğretmenler soru sorarak değil, öğrenciler de verdikleri cevaplarla dâhil olurlar. Bu makalede yapılandırma, seviyeyi ayarlama, fikirleri açık ve net olarak ortaya koyabilme, yönlendirme ve hız ayarlama, fikir öne sürme ve kanıtlama, cevapları dinleme ve cevap verme ve sıralama gibi etkin soru sorma yöntemleri irdelenmektedir. Bu tekniklerin yanı sıra, makalede diğer başka etkin soru sorma yöntemleri de tartışılmaktadır.

Anahtar Sözcükler: Sınıf, Soru Sorma Teknikleri.

Introduction

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" (Wilén, Ishler, Hutchison", and Kindsvatter, 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 Bamente, 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; Wilen, 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 develop reflection and comment by pupils on the responses of other members of the group, both pupils and teachers
- To afford an opportunity for pupils to learn vicariously through discussion

Turney et al. (1973 as cited from Wragg, 2001)

Turney'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).

WHY DO TEACHERS ASK SPECIFIC QUESTIONS?

As well as thinking to oneself, 'Why do I ask questions in teaching?' it is also instructive to reflect on why a specific question is being asked and indeed why this specific question is being put to a particular individual or group. Brown

and Edmondson (1989) studied reasons given by forty teachers. The teachers who provided samples of questions they asked high-ability pupils cited 'gaining attention' and 'understanding' as their most frequent reason. Teachers of medium-ability classes reported more 'checking' and 'revision' questions, where as teachers of low-ability groups tended to stress 'understanding' and 'management'. Teachers of mixed-ability classes favored a wider range: 'understanding', 'gaining attention to move towards teaching point', 'management' and 'revision'. However, the results do not include mutually exclusive categories. The most common reasons were: encouraging thought, checking understanding, gaining attention, revision and management (Wragg, 2001).

Encouraging thought, understanding of ideas, phenomena, procedures and values 33
Checking understanding, knowledge and skills 30
Gaining attention to task, to enable the teacher to move towards teaching point in the hope of eliciting a specific and obscure point, as a warm-up activity for pupils 28
Review, revision, recall, reinforcement of recently learned point, reminder of earlier procedures 23
Management, settling down, to stop calling out by pupils, to direct attention to teacher or text, to warn them of precautions 20
Specifically to teach whole class through pupil answers 10
To give everyone a chance to answer 10
Ask bright pupils to encourage others 4
To draw in shy pupils 4
Probe children's knowledge after critical answers, redirect question to pupils who asked or to other pupils 3
To allow expressions of feelings, views and empathy 3

Reasons for questioning specific questions (percentages of responses in each category)

There were differences between teachers of different subjects. Among the secondary English teachers in the sample, the most common reasons given were to gain attention and for management purposes, whereas the mathematics

and science teachers gave priority to checking understanding and encouraging thought. Expressive arts and foreign language teachers gave more revision and checking reasons, whereas history and geography teachers provided more encouraging understanding and gaining attention reasons. The evidence suggests that the context is very important. Teachers' reasons for asking questions, not surprisingly, vary according to the subject or topic being taught, the class and the ability of the pupils (Wragg, 2001).

In a study Wragg (1993), teachers asked in primary school them to identify three key questions and to discuss why they had chosen them. The questions that the teachers judged most successful very often provided a reason that contained a sense of looking ahead the intention behind the question was evident. The least successful questions seemed to be looking nowhere, or were focused almost entirely upon what the children knew already. Perhaps most importantly of all, in successful lessons, the key questions were related to the expressed aims of the lessons.

In another study (Wragg, 1993) involved recording more than a thousand questions asked by primary teachers. The questions asked were divided into three categories: *managerial* if they were to do with the running of the lesson (e.g. 'Who's finished all problems?'), *information/data* if they involved the recall of information (e.g. 'How many legs does an insect have?'), and *higher order* if pupils had to do more than just remember facts, for example, if they had to analyse, make generalizations or infer (e.g. 'Why is a bird not an insect?').

WHY DO PUPILS ASK QUESTIONS?

Children may ask a lot of questions, but not usually in school. Indeed, in one of Wragg's detailed analyses of questioning in twenty lessons, there were fewer than twenty questions asked spontaneously by pupils and most of these questions were not centrally concerned with thinking (Wragg 2001). Many questions asked by pupils to their teachers seem to be procedural such 'What time do we finish?', 'Should we put the date?', rather than to do with the thinking processes involved in the subject matter, such as, 'Why is the sky blue?' or, 'What happens if ...? Ten teachers remember a testing or penetrating question asked by a pupil but these sorts of questions do not occur frequently. Similarly, the questions asked by pupils to each other are often on procedural or social matters rather than to do with the subject content unless their teacher specifically encourages them to ask questions. Swiss psychologist Jean Piaget's well-known adage (Piaget and Inhelder, 1969) that, 'All logical thinking arises out of the manipulation of objects' could well be extended to, 'and the asking of questions'. (Wragg 2001). In addition to procedures and subject

matter, there are other reasons why pupils ask questions of the teacher or each other. Students' attention, affection, recognition of learning should be taken into consideration while asking questions.

STUDIES OF QUESTIONING

If you have been teaching for between five and ten years then you probably have asked from a quarter to half a million questions during your classes. Teachers with over fifteen years experience may have asked a million questions. Even student teachers spending, say, ten weeks in the classroom, teaching half a school timetable, may well ask some five to ten thousand questions. This rather startling conclusion is based on some remarkably stable evidence. It has been reported throughout the last century that teachers asked on average one or two questions every minute, sometimes more for certain activities. Most questions were to do with classroom management and the recall of factual information. Relatively few required higher-order thinking. Teachers of modern languages for example, may well ask several questions per minute during the rapid-fire oral phases of lessons, but most involve simple answers to uncomplicated questions in the foreign language. (Wragg, 2001).

In an analysis of typescripts of lessons early last century, Stevens (1912) reported that teachers appeared to ask four hundred questions per day; that 65 per cent of those questions were concerned with recall of textbook information; that learning consisted mostly of responding to teacher questions and that virtually no questions asked by pupils were concerned directly with learning. Twenty-three years later, Haynes (1935) discovered that 70 per cent of questions that teachers asked 12-13-year-olds required factual answers and only 17 per cent fostered pupils' thinking. In his 1970 review of teachers' questions, Gall (1984) noted that 60 per cent of teacher questions required pupils to recall facts in much the same way as that in which they were presented, and only 20 per cent required pupils to think beyond a level of recall, the remaining 20 per cent involved procedural matters such as classroom management. Other writers provide similar but slightly different percentages. Gaiton, Simon, and Kroll (1980) in their study of primary and middle schools report that only 12 per cent of teaching time was devoted to questions, 29 per cent was devoted to factual questions, 23 per cent to ideas, and more than 47 per cent to tasks of provision and routine management. Kerry (1989) analysed the questions teachers asked in 213 hours of lessons - in RE, French, history, mathematics, English, geography and music in five secondary schools. He found that 54 per cent were about management, 42 per cent involved information and only 4 per cent stimulated a higher order of thinking. This; 54 -

42 - 4 percentage split in secondary lessons is an astonishing measure compared with the 57 - 35 - 8 finding in primary school classrooms reported above (Wragg, 1993).

The evidence on frequency of questions is not a good guide for pupil achievement. Correlations between question frequency and achievement are weak. Indeed, one study (Dillon, 1981) argues that excessive questioning makes pupils dependent and passive and that the teacher who asks too many questions causes anxiety in students.

THE TACTICS OF EFFECTIVE QUESTIONING

Socrates destroyed the arguments of his opponents by asking them a series of questions, thus exposing the inconsistencies in their thinking. To him, liberation was the final step in education; if the students, through questions, learned to reject habit and prejudice. Thinking about effective teaching goes back a long way in history and Socrates is one of many thinkers in classical Europe, China, India and elsewhere who spoke and wrote about teaching practices. In China, in the fifth century BC, Confucius also sought the liberation rather than dependency of his pupils. In his teaching the wise man guides his students but does not pull them along; he urges them to go forward and does not suppress them; he opens the way but does not take them to the place; ... if his students are encouraged to think for themselves we may call the man a good teacher (Wragg 2001).

Questions are only as good as the answers that they elicit so it is important to consider not only the types of question that teachers ask but also the tactics involved in asking those questions. One obvious purpose of effective questioning is to minimize teachers' and pupils' errors by focusing on a particular fact, issue, skill, belief. Activity 6 invites you to reflect on the extent to which you agree or disagree with the following list of 'errors' (Wragg 2001):

- Asking too many questions at once
- Asking a question and answering it yourself
- Asking questions only of the brightest or most likeable pupils
- Asking a difficult question too early in the sequence of events
- Asking irrelevant questions
- Always asking the same types of questions (e.g. closed questions)
- Asking questions in a threatening way

- Not indicating a change in the type of question
- Not using probing questions
- Not giving pupils the time to think
- Not correcting wrong answers
- ignoring pupils' answers
- Failing to see the implications of pupils' answers
- Failing to build on answers

Among the key methods involved when asking questions are (Wragg 2001):

- 1 Structuring;
- 2 Pitching and putting clearly;
- 3 Directing and distributing;
- 4 Pausing and pacing;
- 5 Prompting and probing;
- 6 Listening to replies and responding;
- 7 Sequencing.

Structuring (Signposting)

Structuring consists of providing *signposts* for the sequence of questions and the topic. The structuring may be a brief exposition of the topic, a review of a series of questions and explanations based on a previous lesson or a statement of objectives.

'Pitching' and putting questions clearly

The 'pitch and put' analogy here is like a short golf course where you chip the ball onto the green as close to the hole as you can get it and then roll it in with your putter. 'Pitching' in general conversation also refers to estimating the right intellectual level of the people you are teaching so to neither bewilder or patronize them.

Undirected questions often lead to chorus answers and lack of control. Hence the importance of directing questions when appropriate, by name, gesture, head movement or facial expressions. Distributing questions around

the group rather than concentrating on one or two willing respondents not only involves more pupils but also reduces the risk of losing attention and class control. Some teachers often subconsciously favor the approach of asking mainly knowledgeable pupils, if only because their answers come more quickly or seem more rewarding. One method of distribution is to ask every pupil in the group in turn, something which teachers we have interviewed and observed during research projects did not usually favour. Alternatively questions can be distributed randomly around the class. Certain parts of the room can get ignored by a new teacher and also by experienced practitioners. Children sitting along the sides of a classroom may be overlooked when the teacher is standing in the centre at the front. Groups of pupils at the back may be ignored if a teacher is seated at a desk. It is worth considering where your blind spots are when distributing questions; otherwise most may be addressed to children sitting in a V-shaped classroom.

Another part of the strategy of directing and distributing questions is monitoring the body language of the pupils. By looking at pupils you can often identify those who wish to contribute, those who are *not* attentive, and those who are puzzled. This then raises the question of whether teachers should only call on pupils whose hands are up. In our research studies of teacher attitudes towards questioning most have been opposed to this approach, wanting the option to nominate those who are not expressing willingness to respond as well.

Pausing and pacing

Student teachers often ask more questions than they receive answers (Brown, 1978) and they sometimes answer their own queries. This failure may often be due to lack of pauses or absence of 'wait time' (Rowe, 1978). She analysed eight hundred tape recordings of lessons and found that teachers asked between three and five questions per minute, but allowed only a second or less for a child to respond before asking someone else, answering the question themselves, or rephrasing the question. When she persuaded teachers to extend the *wait time* to three seconds or more, not only after the teacher's question, but also after the child's response, she found that the quality and length of pupils' answers improved. Her findings are discussed in the companion book in this series *explaining in the Secondary School*. The testimony of experienced teachers and the studies reviewed by Tobin (1987) also show that pausing briefly after a question and after an answer encourages more pupils to answer, to provide longer answers, and to ask questions. Some of these findings may be because teachers who use pauses also tend to use a wide variety of questions and vary the pace of questions. Pauses act as signals for pace. Drill questions can be asked quickly, whereas more complex questions

require longer pauses. After all, if you want pupils to think before giving their answer, then you need to give them the time to do so. Sometimes deeper questions might even be asked at the end of a lesson, so that pupils have a long time to think - until the next lesson on that topic, 'Why do you think that ... is the case? I'm not going to tell you the answer now, so think about it before tomorrow's lesson'. It is very intriguing.

Prompting and probing

Prompts and probes are follow-up questions when the first answers are inadequate, or inappropriate. Prompts contain hints (e.g. 'think back to what we learned about... '), while probes require more precise or detailed answers ('tell me a bit more about... "Can you give me an example...?', 'What do you mean exactly by ...?') Clues to the answer may be contained in the question. Three forms of prompts are:

- Rephrasing the question in different, perhaps simpler words that relate more closely to the pupil's knowledge and experience
- Asking a sequence of simple questions that eventually lead back to the original question
- Providing a review of information given so far and then asking questions that will help the pupil to recall or see the answer

Probing questions are probably the most important policy for developing the thinking of pupils. More examples are given below:

- Does that always apply?
- Can you give me an example of that?
- How does that fit in (relevance)?
- You say it is X, which particular kind of X? What are the exceptions?
- Why do you think that is true?
- Is there another view?
- What is the idea behind that?
- Can you tell me the difference between the two?

Probing questions may be related to the encouraging/threatening dimension of questioning. If they are asked in an encouraging way, then they can provide a challenge and can even be fun. If asked in a threatening way, they can inhibit thinking and de-motivate learning. Probing questions if used insensitively can lead to management problems. Intensive teacher questioning aimed at only one pupil can lead to pupil disruption even if the line of questioning is gentle. In other words, drawing out a full answer from one pupil may cause other members of the class to lose interest. Sometimes pupils may benefit from being able to consult each other especially with more thought-provoking questions. Gall and Artero-Boneme (1994) describe the *Heads together* approach which involves putting pupils into mixed ability groups of four. From time to time the teacher asks these groups rather than individuals, to delve into the question asked and put their heads together to produce their best answers.

Listening to replies

Our capacity to listen diminishes with anxiety, so it is not surprising that sometimes teachers may not listen carefully to the responses of pupils and so do not respond appropriately to their answers and comments. Four types of listening may be identified:

Skim listening is little more than awareness that a pupil is talking and is often done when the answers seem irrelevant, when you want to get on with what you are doing, or are thinking of other matters.

Survey listening is trying to build a wider mental map of what the pupil is talking about. The listener filters out extraneous material and identifies the key points or misunderstandings of the pupil. This tactic is particularly important with pupils who are learning fresh subject matter. At its core is the capacity to understand how children think and talk.

Search listening is actively searching for specific information to an answer or to a series of answers. Although it is important to search it is also important not to overlook other answers or responses as they may reveal more than the original question did.

Study listening is a subtle blend of search and survey listening. It goes beyond the words that the pupils use to their underlying meaning and uncertainties. It simply is not possible given the demands on teachers' awareness to 'study listen' to one's pupils all the time. What is more important is to be aware of the level of listening which you are currently using.

Responding

Responding is the move you make after a pupil answers or comments. Responding moves are in a sense the linchpins of a lesson because they establish, in the eyes of the pupil, the tone of the lesson by signaling the teacher's enthusiasm, excitement, interest, boredom, or indifference to what pupils have to offer. They are therefore important mechanisms in sequencing and structuring a lesson, whereby new information is introduced, the topic is changed, discussions are moved on, and the lesson is moved back on course. Responding moves are some of the most difficult areas for newly qualified teachers to master. Some of the more common responding moves are shown opposite. Effective responses include giving reinforcement and feedback to pupils. It is also associated with conveying enthusiasm and generating interest. There is a risk for beginners. Grateful for any response, they might, unwittingly, react positively to every answer, regardless of its merits. Reinforcement and feedback eventually become meaningless, as pupils realize that not all answers can be wonderful, so the structure and sequence of the lesson may be lost. The risk for experienced teachers is to respond in a mechanical way. Automatic smiles and uncritical approval lose the effect on pupils that more discriminating responses would achieve (Wragg, 2001)

PREPARING QUESTIONS

As a preliminary to preparing questions, it is useful to consider these two questions:

1 What *can* I ask the class?

2 What *should* I ask the class?

A useful approach to 'What can I ask the class?' is to brainstorm the questions. Think of a topic you are likely to teach and then take a blank sheet of paper and write down on it as many questions as you can within five minutes - do not worry about the appropriateness or quality of the questions at this stage. Once you have done this, you can begin to sift through the questions and arrive at those you will ask the pupils. Inevitably this leads you to consider what your objectives are and what the class might already know.

Using key questions

Many teachers use a number of *key questions* to structure and provide links in their lessons. For example, in a lesson we observed on 'prejudice' three of the key questions were, 'What do you understand by the word *prejudice*?', 'Which individuals or groups are likely to experience prejudice?' and, 'How does prejudice show itself in everyday life?'

Different age groups like teenagers and the elderly, ethnic and religious minorities, conformity and non-conformity, emotional bias and the nature of evidence. It was excellent 'citizenship' material in what was ostensibly an English lesson. Sometimes teachers do not seem to use key questions well. A few appears to think that 'key' questions are any questions they ask. On many occasions the first key question asked by teachers was a 'What... ?' question, although 'How?', 'Why?', 'Do you think... ?', 'Which... ?' were also used. It can be tempting to say that 'What?' questions get poor answers and 'How?' questions are thought provoking. In fact, 'What' questions produce both poor (i.e. unanswerable, dull, and pointless) and good (stimulating, enjoyable, and multi-faceted) responses. 'How?' questions can also be either thought provoking or pointless. It is the *content* of the question and its appropriateness to the audience and the subject matter not its form that usually determine success. The same can be said for the key questions in a lesson subsequent to the opener.

Timing

Key questions need not be asked at the beginning of a lesson. Indeed, they can be used to summarize what the children have just learned, so be wary of asking your key questions too early. Never be afraid of asking thought-provoking questions at the right time, nor of spontaneously thinking up a key question during a lesson in the light of its development.

Level

Earlier we mentioned some points regarding levels of questioning, the proper language register, and thought processes appropriate to different circumstances. Here are further questions we have witnessed with comments on their level.

What is the color of the snow? This question was so ridiculously easy for the 12-year-olds of whom it was asked in a geography lesson that no one replied, thinking that there must be a catch. Some teachers we observed asked only questions that everybody in the class could answer. Repeating these questions, as a few teachers tried, does not work at all well.

How could you design a home for these owls? This question was too difficult for the class because they had too little information either about owl or bird habitats. The children floundered and couldn't sort out what was required. The question needed supporting by relevant information first, or breaking down into separate components.

"What is the deference between a wing and an arm?" This looked like a mind-boggling question, but in fact it worked well because the class was able to identify several differences and the teacher then was able to help the children classify them.

The best key questions often contained a sense of looking ahead, of helping the lesson to move on. The least effective questions seemed to be going nowhere or only back to what the pupils already knew. Some suggestions for the use of key questions are encapsulated in the mnemonic IDEA.

I identify the key questions in relation to your objectives for the lesson.

D Decide on the level and order (timing) of the questions.

E Extend the questioning. Think of supplementary and subsidiary questions to ask.

A Analyze the answers that you are likely to receive and the responses that you might give.

Question Classification Systems

To aid the use of questioning strategies there are question classification systems. The most popular system for classifying questions is Bloom, Englehart, Furst, Hill, and Krathwohl's (1956) taxonomy, known as Bloom's Taxonomy. This taxonomy has proven to be a valuable tool in designing, conducting, and evaluating classroom instruction (Mansion, 1970). In order to determine the accuracy of children's cognitive activities the teacher can use the taxonomy. Bloom's Taxonomy has six levels of cognitive processing. They are knowledge, comprehension, application, analysis, synthesis, and evaluation. To examine issues concerning questioning it is best to divide Bloom's Taxonomy into lower-order and higher-order questioning (Marzano, 1993). Lower-order questions derive from the knowledge and the comprehension levels of Bloom's Taxonomy. The other levels of Bloom's Taxonomy belong to the higher-order questions. (as cited from Fiiippone, 1998).

Below are the six question categories as defined by Bloom:

KNOWLEDGE

1. Remembering
2. Memorizing
3. Recognizing
4. Recalling identification
5. Recall of information

- Who, what, when, where, how...?
- Describe

COMPREHENSION

1. Interpreting
 2. Translating from one medium to another
 3. Describing in one's own word
 4. Organization and selection of facts and ideas
- Retell...

APPLICATION

1. Problem solving
 2. Applying information to produce some results
 3. Use of facts, rules and principles
- How is... an example of...?
 - How is ... related to..?
 - Why is... significant?

ANALYSIS

1. Subdividing something to show how it is put together
 2. Finding the underlying structure of communication
 3. Identifying motives
 4. Separation of a whole into component parts
- What are the parts or features of ...?
 - Classify... according to...?
 - Outline/diagram...
 - How does ... compare/contrast with...?
 - What evidence can you list for...?

SYNTHESIS

1. Creating a unique, original product that may be in verbal form or may be a physical object
2. Combination of ideas to form a new whole
 - What would you predict/infer from...?
 - What ideas can you add to...?
 - How would you create/design a new...?
 - What might happen if you combined...?
 - What solutions would you suggest for...?

EVALUATION

1. Making value decisions about issues
 2. resolving controversies or differences of opinion
 3. development of opinions, judgements or decision
 - Do you agree ...?
 - What do you think about ...?
 - What is the most important...?
 - Place the following in order to priority...?
 - What criteria would you use to assess...?
-

Closed questions are expected to elicit a closed set of responses (e.g., "Where were you born?" "Did you sell your house yet?"). In contrast, open-ended questions leave open the nature and length of the response (e.g., "What did you do on your trip?"). According to Barnes, the use of these two question types influences students' participation. By being asked closed questions, the student is normally expected to reproduce information or reasoning. To help the students grasp the subject and think aloud open ended questions are very useful. Closed questions are the cause of passive participation where as open ended questions provide active participation. Chaudron (1988) also describes the role of teachers' questions as an important means of gaining learners' attention, promoting verbal responses, and evaluating progress, but states that questions alone may not always promote a great amount of interaction (Godfrey, 2001).

Teacher Questioning and Questions

Woolfolk (1998) suggests categorizing questions into divergent questions, which have many possible answers, or convergent questions, which have one right answer. Cotton (1989) found the majority of researchers conducted similar dualistic comparisons about questioning and Cunningham (1987) provides a more extensive list of questions for teachers to ask based upon the cognitive level of student responses (Ilaria, 2002).

Another view of questions is to categorize them in a hierarchy. The most widely used hierarchy is Bloom's taxonomy where questions are labeled from simple to complex cognitive objectives (Woolfolk, 1998). Wolf (1987) suggests a different hierarchy which focuses solely on what he considers challenging questions from observations in this classroom. (Ilaria, 2002). A third view of questioning is its relative importance in the role of effective teaching. This more current research shows that communication and questioning are part of a larger equation as regards to effective teaching (Glenn, 2001). In order to achieve effective teaching sessions the teacher should ask more process questions through asking for explanations rather than for a single answer.

WHAT IS A BAD QUESTION?

When children are hesitant to admit that they do not understand a concept, teachers often try to encourage them to ask questions by assuring them that their questions will neither be stupid or bad. Teachers frequently say that all questions have some merit and can contribute to the collective understanding of the class. However, the same theory does not apply to teachers. The content of the questions and the manner in which teachers ask them determines whether or not they are effective. Some mistakes that teachers make during the question and answer process include the following: asking vague questions (ex. What did you think of the story that we just read?), asking trick questions, and asking questions that may be too abstract for children of their age (ex. asking a kindergarten class the following question: How can it be 1:00 P.M. in Connecticut but 6:00 P.M. in the United Kingdom at the same moment?). When questions such as those mentioned are asked, students will usually not know how to respond and may answer the questions incorrectly. Thus, their feelings of failure may cause them to be more hesitant to participate in class (Chuska, 1995), evoke some negative attitudes towards learning, and hinder the creation of a supportive classroom environment (as cited from Brualdi, 1998).

Questions Frequently Asked about Questioning

Should all children be asked a variety of question types, or should we try to match the "levels" with their abilities?

According to Woolfold McCune-Nicolich (1984), teachers should ask questions based on the lesson's objective, student's age, ability, and socioeconomic background while encompassing different types of questions. Ward and Tikunoff (1976) suggest a mixture of higher and lower-level questions which keep the lesson's objectives and the needs of the student as priorities. These researchers recommend this approach for classes of mixed abilities. For students with behavioral or learning problems, Greenfield (1984) suggests that the teacher adapt techniques for each learner and either decrease or increase the questioning process to accommodate the task being undertaken with the success rate of the learner (as cited from Supon & Pat, 1994).

What are some good examples of methods utilizing higher-order questioning techniques?

After reviewing the literature, William, et al.(1991) come up with five techniques that are effective in employing higher-order questioning skills. These are (1) wait-time, which allows students a few seconds to think before responding to the question, (2) open-ended questions, which assist the students in developing intellectual inquiry skills, (3) involving all students, so that a collaborative vision emerges with the teacher making a deliberate attempt to include everyone, (4) student conversations, so that students can share their opinions and (5) having students elaborate. Further, educators suggest teachers ask such questions as "What if... How would... Why...?" To promote deeper thinking (Ramsey, et al., 1990, p. 421; Swicegood and Parsons, 1989, p. 4 as cited from Supon & Pat, 1994).

How often should higher-level thinking questions be asked in a classroom?

Ramsey, et al. (1996) points out that teacher are not asking enough higher-order levels of questions. Their work indicates that the highest percentages of teachers continue to use lower level cognitive skills and, in essence, continue to "require only recitation of memorized material..." (p. 420). Teachers should use higher-level questions daily and within each lesson they teach. They can begin by reviewing

and becoming familiar with the taxonomy, deliberately taking the time to plant several higher-order questions and refraining from answering their own questions (as cited from Supon; Pat, 1994).

CONCLUSION

In this research review 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 also 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.

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