Lions College

2007-2008 Action Research

ASKING THE RIGHT QUESTIONS IN THE RIGHT WAY

Hung Lok Man
Lai Sui Ching
Lam Ka Fung
Lam Sui Ming
Wong Choi Ha, Amanda
Wong Hin Wah
Yeung Kim Ting
INTRODUCTION

Background

Questioning is a major element of communication within any classroom. Researchers indicate that questioning is second only to lecturing in popularity as a teaching method and that classroom teachers spend anywhere from 35 to 50 percent of their instructional time posing questions (Walsh & Sattes, 2005). This is nothing bad because timely and well-phrased questions can capture students’ attention, arouse their curiosity, focus upon important points, or even occupy a student’s thoughts after class has ended.

Teachers use questions for a variety of purposes, including focusing of attention, motivation of students, development of thinking, nurture of insights, review of lessons, checking for understanding, and evaluation of learning. Fulfilled these purposes questions greatly facilitate teaching and learning, but in practice this is not necessarily the case, as the questions that teachers ask may turn students off to learning if done incorrectly. Asking the right question in the right way has been called the essence of good teaching as it can act as the bridge between teaching and learning. What differentiates good questioning from that which is unproductive emerges as a real issue.

Research Question

What makes a productive question? What makes questioning effective? The action research sets out to analyze teachers’ questioning practices in order to identify key components of successful questioning, enabling those involved and their colleagues as well to reflect and improve on their questioning techniques with the goal of facilitating effective teaching and learning.
LITERATURE REVIEW

“To question well is to teach well”. Of the many skills that are required for effective teaching and learning, one core skill is questioning (Ross, 1860). A question is “something that someone asks you when they want information”, or “an issue that needs to be discussed and dealt with”, according to *Macmillan English Dictionary for Advanced Learners* (Rundell, 2002, p.1155). In the classroom context, questions may be implicit or explicit, being expressed as “Tell me more” or “What comes next in the pattern?” Teachers’ questions influence students in three areas – attitudes, thinking, and achievement.

Attitudes influence how students participate and achieve. Students with positive attitudes tend to look more favourably on a subject, teacher, or method of teaching. Students with negative attitudes often link them to a subject, school experience, or teacher and tend to resist and perform poorly. From his research, Wilen (1991) concludes that teachers’ uses of questions play an important part in shaping students’ attitudes. As well, some classrooms reveal that students who are involved more often in higher-level questions feel a more positive experience and form a more positive attitude (Altermatt et al, 1998).

Taba (1962) discovers that teachers’ questions influence students’ levels of thinking. Teachers expect students to think at a certain level, compose and use questions for the expected level, and then await responses from students that match their expectations. Divergent thinking is important for problem-solving tasks and for learning that requires creativity. Gallagher and Aschner (1963) report that a mere 5 percent increase in divergent questioning can encourage up to a 40 percent increase in divergent responses from students.

Questions can make the difference between learning from meaningful manipulation of materials and meaningless messing around. This belief is based on a process-product model of classroom learning, in which specific teaching behaviours provide useful student learning experiences. The product of this process is student achievement. This model suggests that “increases in the quantity and quality of student behaviours should result in concomitant increases in student achievement” (Tobin & Capie, 1982, p.3).

Higher-order divergent questions seem to stimulate greater academic achievement (Riley, 1986). Raising the cognitive level of teacher questions is all well and good, but it makes a difference to students’ achievement only if advanced questions are followed by wait-time, probes, and redirection, (Tobin, 1984).
METHODOLOGY

Sample

The study involved 7 staff members; and their responsibilities for the school and the research were varied; 1 head teacher-librarian being the research consultant, 2 subject chairpersons for English Language and Chinese History being the research leaders, 3 subject teachers of English and 1 of Chinese History being the teacher researchers. All of them were qualified and experienced teachers who had worked in the profession for 9 years at least and 18 at most. They taught at a variety of different forms, including S.2, S.5 and S.6, and different groups, including students of high, average and low ability.

Data Sources

To maximize the validity of the research, a triangulation of methods was used. Data were collected by the research leaders related to types and uses of questions in the classrooms of teacher researchers through examinations of lesson plans, observations of lessons, and interviews at pre-observation and post-observation conferences.

Data Analysis

The data was analyzed and evaluated based on criteria of a questioning strategy for the whole class introduced by Tobin (1984), as suggested by Figure 1. The criteria are as follows:

a. balance – what types of questions teachers ask;
b. invite – how teachers involve students in questions;
c. wait – how long teachers pause after asking questions before requesting responses;
d. feedback – how teachers handle students’ responses
**Figure 1: A Question Strategy for the Whole Class**

**Step 1:** Ask – Present a question with purpose and challenge

**Step 2:** Wait – Give students 3-5 seconds to consider a response

**Step 3:** Call on – Ask one student to respond

**Step 4:** Wait – Repeat, rephrase, or redirect the question

**Step 5:** Wait – Give students 3-5 seconds to elaborate

**Step 6:** React – Give feedback and/or redirect the question
FINDINGS

An analysis of the content of the questions and the manner in which they are asked in the classroom of four teacher researchers clearly illustrates that questions facilitate teaching and learning very little and hardly serve as an effective teaching strategy due to deficiencies in respect of balance, invitation, wait-time, and feedback.

Balance of Questions

In all the classrooms visited, teachers pose questions in large quantities and at frequent intervals. One teacher asks as many as 55 questions in a single lesson of 70 minutes while another questions once every 58 seconds. About 65 percent of the classroom questions are devoted to recall questions that are intended to “elicit stored data from prior knowledge or experiences”, about 30 percent used for classroom management, and about 5 percent used for analytical questions which “require distinguishing, grouping, explaining”, as well as application questions which “require theorizing, stating examples, judging, imagining and extrapolating” (Jensen, 1995, p.152-153).

Teachers appear to function primarily at the low cognitive level in the questions they ask, whether the lessons are being taught to students at the junior or senior secondary levels. For example, “What year did the First World War begin?” or “Earlier I said what the definition of ‘auction’ is?” These questions demand little of students and require little more than rote memory and recall, providing students with no opportunity to analyze, summarize, and evaluate. Though the memory level of thinking is widely believed to be basic to all higher thinking processes, low-order questions like memory or fact ones should not predominate, for it contradicts the notion of the inquiry mode of learning which enable students to explore their own feelings, develop their own responses and make their own judgments.
Observations made in the classrooms show several different ways teachers decide whom to call on to respond to the questions and the impacts of the decisions.

Some teachers in the junior classrooms develop in their students a habit of “hands up”, that is to say, students putting up their hands if they think they know the answer. The teachers seem to create an open class atmosphere as a forest of eagerly waving hands can be seen in reaction to a question posed. This also allows their lessons to retain a level of pace, leading to the teachers believing that learning is taking hold. However teachers may become over-reliant upon “hand-raising” volunteers to answer questions. The classrooms of the teachers, therefore, become places where some students can hide.

Others usually ask questions, name students and ask them to respond. It allows teachers to involve a greater number of individuals, and when used carefully can help to motivate students in their learning. A good example is found in a junior classroom. The teacher has discussed a point with a student in an activity prior to the questioning and knows he has the correct answer, the teacher then asks him the question pertaining to that issue and publicly praises him for the useful answer. Such an approach is especially useful when teachers can give praise to individuals who lack confidence. However, teachers tend to call on students whom they perceive as high achievers more frequently than on students they perceive as low achievers. Usually, when high achievers hesitate to answer, they are given chances to think and try again. Low achievers often receive no chances to respond again, even they get chances to stand up. In this case, high achievers receive more opportunities to get involved in questioning. Low-achieving students who indeed need more opportunities, feedback, and encouragements are ignored.

One teacher develops a simple strategy to actively engage all students in answering all questions in the classroom. She asks questions of the entire class before selecting who should answer. Teachers frequently call on a student to answer a question before posing the question, so most students never formulate a response. However, when the teacher poses questions before calling on a student, all students are more likely to pay attention to the question and mentally prepare a response. Giving both high and low achievers a chance to think and answer, involving as many different types of students as possible, volunteers and non-volunteers, the teacher can ensure a greater level of on task behaviour throughout the classroom.
Wait-time

In the lessons observed, all teachers make the commonest mistake of classroom questioning – lack of wait-time – the amount of time they pause between asking a question and getting an answer. Observations suggest that teachers usually require students to respond almost instantaneously, allowing as little as 1 second for them to process the question and think through their answers. It seems that teachers feel it necessary to fill the void of silence. When no reply is forthcoming, teachers repeat or rephrase the question, follow up by asking yet another question or diverting to another student in order to sustain the pace of the lesson. A few teachers even end up answering their own questions. Questioning then serves no useful purposes to involve students and its potential for improving thinking and facilitating learning cannot be fulfilled.

Wait-time can be regarded as think-time. Research on classroom questioning and information processing indicates that students need to comprehend a question, consider available information, formulate an answer, and begin to respond, and all of these steps take time, at least 3 seconds. In classrooms where wait-time is increased to 3 to 5 seconds, significant impacts follow, students give longer responses, answer more frequently at higher cognitive levels, demonstrate more confidence in their answers (Toblin, 1984). An increase in wait-time sets an atmosphere more conducive to productive questions on higher thinking levels. Wait-time gives students opportunities to think, create, and demonstrate what they understand and it proves to be a technique which develops higher thought processes and makes questioning a more powerful teaching tool.
Feedback on Responses

Neutral acknowledgements of students’ responses are especially prevalent among teachers. Teachers frequently repeat the answers given by students and use minimal responses such as “right” and “well done” in order to acknowledge students’ responses. By offering such feedback, teachers actually inform students that they actively listen and endorse the ideas. However, students never profit from such feedback. Further, they learn not to listen when teachers keep giving feedback of this nature. Educators have characterized the typical classroom intellectual climate as “bland” and “unchallenging”, and the preponderance of simple acceptance reactions from teachers undoubtedly contribute to this “lackluster atmosphere” (Good & Brophy, 2000). Feedback usually functions to close or terminate a student’s answering in this way, interfering with and even shutting down student thinking.

Properly used, feedback can become a teaching tool, not just for the responding student but for the class at large, keeping the vehicle of learning and thinking on track. No doubt teachers should reinforce in a positive way student responses in order to encourage future participation but probes and redirection are expected to follow shortly. Probes help to prompt better answers or more complete responses by inviting the responding student to extend, expand, or elaborate upon the initial answer. Redirection involves posing the question to someone other than the initial respondent as a means of increasing the number of student participants in the dialogue. Effective feedback helps to engage students in a conversation that emerges from the response, to use the response as a springboard for thinking, functioning to facilitate learning and encourage thinking.
CONCLUSIONS

Consistent with previous research in the literature, questioning affects every aspect of the classroom – participation, interest, attitude, thinking, learning and achievement. Effective questioning is an important tool that can be used in every classroom for engaging students’ interest and stimulating their thinking, increasing both their joy in learning and their academic achievement.

The findings support the conclusion that the potential of questioning is usually underused in the classroom as teachers’ questions are neither emotionally nor intellectually stimulating. As teachers, we need to open up opportunities for intellectual inquiry and effective learning through the types of questions we ask and the ways we ask the questions. Old habits may have to be changed. Teachers’ awareness of the art of posing classroom questions, together with sharpening questioning skills have the potential for increasing students’ classroom participation and achievement. Posing both lower-order and higher-order questions, involving all students in all questions, expand wait-time, and provide effective feedback have considerable promise for making a difference to teaching and learning in the classroom.
RECOMMENDATIONS

Peer Review

Different methods can be used for assessing one’s current questioning techniques and enhancing one’s questioning effectiveness. Peer review, which provides a forum for observation, analysis, and reflection, is highly recommended. Not only can it provide you with an opportunity to apply questioning skills in an informal and non-threatening atmosphere, your peers, while rating your questioning effectiveness in Figure 2, may learn more about their own teaching through active participation and exposure to these skills as well.

Figure 2: Peer Review Rating Guides

<table>
<thead>
<tr>
<th>PEER REVIEW RATING GUIDES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Directions: Respond to each of the statements below by writing next to the statement the number which most closely corresponds to your observation.</td>
</tr>
<tr>
<td>1 = very inadequate</td>
</tr>
<tr>
<td>2 = inadequate</td>
</tr>
<tr>
<td>3 = adequate</td>
</tr>
<tr>
<td>4 = very adequate</td>
</tr>
</tbody>
</table>

A. Skills in Asking Appropriate Levels and Types of Questions
   i. Questions were at appropriate level for the material being covered.
   ii. Questions followed a logical pattern.
   iii. Questions served a purpose.
   iv. Questions required students to think at various intellectual levels.

B. Skills in Eliciting and Handling Student Responses
   i. Adequate wait-time was allowed after posing questions.
   ii. Active listening skills were demonstrated when interacting with students.
   iii. Student responses were reinforced.
   iv. Effective feedback was provided.

C. Strengths:

D. Weaknesses:
Analysis of Response Patterns

Support and assistance in refining your questioning skills can be provided by your peers once in a while. Analyzing your student responses on a day-to-day basis on your own enables you to take prompt actions and form a plan for self-improvement. Some common response observed in students’ responses are indeed useful indicators suggesting the use of ineffective classroom questioning and the need for immediate remedial action, as suggested by Figure 3.

The list is by no means exhaustive and there are no hard-and-fast rules about what to do to remedy the situation, but here are some points to consider.

*Figure 3: Strategies for Dealing with Common Student Response Patterns*

<table>
<thead>
<tr>
<th>Response Patterns</th>
<th>Plan of Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>No student response</td>
<td>1. Allow for sufficient wait-time</td>
</tr>
<tr>
<td></td>
<td>2. Call on non-volunteers</td>
</tr>
<tr>
<td></td>
<td>3. Reword the questions</td>
</tr>
<tr>
<td></td>
<td>4. Be sure you are heard and understood</td>
</tr>
<tr>
<td>Consistently incorrect, vague or off-target student responses</td>
<td>1. Formulate questions prior to class and anticipate the range of possible student responses</td>
</tr>
<tr>
<td></td>
<td>2. Reword or rephrase the questions</td>
</tr>
<tr>
<td></td>
<td>3. Avoid asking vague questions</td>
</tr>
<tr>
<td>One-word student responses</td>
<td>1. Avoid questions beginning with words which tend to elicit one-word responses or “yes/no” questions</td>
</tr>
<tr>
<td>Cutting off student responses</td>
<td>1. Listen actively to student responses</td>
</tr>
<tr>
<td></td>
<td>2. Maintain eye contact and reinforce student contributions</td>
</tr>
<tr>
<td>Same students answering all the time</td>
<td>1. Avoid depending upon the same few students to answer questions all the time</td>
</tr>
<tr>
<td></td>
<td>2. Tactfully thank students for their continuous contributions, and ask for other students</td>
</tr>
<tr>
<td></td>
<td>3. Call upon non-volunteers in a friendly non-threatening manner</td>
</tr>
</tbody>
</table>
Guidelines for Classroom Questioning

Based on the foregoing findings from the research on classroom questioning, the following recommendations are made:

- Incorporate questioning into classroom teaching and learning practices
- Ask questions which focus on the salient elements in the lesson
- Ask a combination of lower and higher cognitive questions
- Phrase questions clearly and appropriately
- Pose questions before calling on students
- Allow at least 3 seconds of wait-time
- Encourage students to respond in some way to the questions asked
- Balance responses from volunteering and non-volunteering students
- Acknowledge correct responses from students and use praise specifically and discriminately
- Probe students’ responses to have them clarify ideas, support a point of view, or extend their thinking
- Redirect questions to other students to make questioning a teaching tool for the class


REFERENCES


The 2007–08 season was Olympique Lyonnais’s 49th season in Ligue 1 and their 19th consecutive season in the top division of French football. They were the defending champions having won the title the past six consecutive seasons. As of 8 March 2008. Note: Flags indicate national team as defined under FIFA eligibility rules. Players may hold more than one non-FIFA nationality. Note: Flags indicate national team as defined under FIFA eligibility rules. Players may hold more than one non-FIFA nationality.