

## Researching classroom questioning

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### Abstract

The complexities of the modern society and interconnected world in which we live requires students who are able to problem solve and think critically. The research on which is article is based aims to explore how classroom questioning can help students guide their learning and model the spirit of inquiry to become lifelong learners. The research took place in an International Bilingual School of Madrid during sixth grade English lessons. It shows how developing effective questioning skills requires careful planning and practice, and how students can take hold and guide their learning when given the opportunity to actively participate in the learning process.

**Key words:** questions, questioning strategies, inquiry

### Resumen

La complejidad de la sociedad moderna y el mundo interconectado en el que vivimos requiere estudiantes con una buena capacidad de razonamiento crítico y resolución de problemas. Este artículo está basado en una investigación cuyo objetivo es explorar como las preguntas formuladas en el aula pueden ayudar a los estudiantes a convertirse en individuos con destrezas para continuar aprendiendo toda su vida, y como las preguntas pueden inspirar el espíritu de indagación. La investigación tuvo lugar en un colegio internacional y bilingüe de Madrid durante las clases de inglés de sexto de Educación Primaria. La investigación muestra como desarrollar destrezas efectivas para la formulación de preguntas implica una práctica y planificación detallada. Por otro lado, también señala como los estudiantes pueden hacerse cargo y guiar su aprendizaje cuando se les da la oportunidad de participar activamente en este proceso.

**Palabras clave:** preguntas, formulación de preguntas, indagación.

### Introduction

Two years ago, the school I worked at began implementing a new international program for primary students based on an inquiry approach. The inquiry approach is focused on using and learning content as a means to develop information-processing and problem-solving skills (Thirteen 2004). Therefore, it is essential for students to construct knowledge through active involvement. Implementing the new program also meant changing our views of traditional subject areas and understanding that interrelating subjects is necessary for a deeper understanding. This made me reflect on certain aspects of my teaching practices, especially on my role as a teacher. I realized that I was directing the students' learning process too much. When we used this new approach students were not able to take responsibility of their learning –or at least not at the level an inquiry approach requires. They were too used to focusing on content, the “knowing what,” instead of focusing on a real understanding of concepts, “knowing how”. My lessons needed to be more student centered. I knew that questioning was at the heart of inquiry learning, but haven't questions always been part of my teaching-learning process?

This has led me to investigate how I am using questions in the classroom. How do my questions develop student's abilities to inquire into problems and solve them? I needed to know if my questioning skills are good enough to model the spirit of inquiry.

Previous research on students and teachers questioning behaviors is extensive. It shows that teachers view questions as a central part of the teaching-learning process and that the amount of questions they use is very high (Suffolk LEA 2002: 5). Research that focuses on the specific questioning levels and skills that have an impact on students cognitive growth shows that teachers have been asking the wrong questions, focusing primarily on questions regarding the specific information the students possess rather than on questions to promote learning (University of Texas 2007:112). According to Benjamin Bloom's taxonomy published in 1950, there are six thinking levels: knowledge, comprehension, application, analysis, synthesis and evaluation. He believed that the three former levels require more complex or 'higher' levels of thinking than the latter. Applying his approach can increase the number of questions used that offer a productive challenge to student's learning. But teachers tend to use the same repertoire of questioning skills and the same patterns of questioning, lesson after lesson. I believe that students will best learn when they are presented with authentic problems to solve, with a challenge that requires problem solving (Bruner 1966). Therefore, students need to be able to identify what they want to achieve and take responsibility of their learning rather than being directed by the teacher. I think that developing questioning skills can help them do this. The objective of this research project is for me to improve my teaching practices and learn how questioning can help me use a more student centered teaching style.

## **The Study**

### **Context**

The project took place in a private bilingual school that implemented the Primary Years Programme, during sixth grade English lessons between March and June. The International Baccalaureate Primary Years Programme, for students aged 3 to 12, focuses on the development of the whole child as an inquirer, both in the classroom and in the real world. This Programme uses an inquiry approach because inquiry, in the broadest sense, is the process initiated by the learner or the teacher which moves the learner from his or her current level of understanding to a new and deeper one. This approach can be easily defined if compared to a more traditional one, in which learning is focused on the mastery of content and is more teacher centered. In a traditional approach to teaching, students receive the information given out by teachers, whom adopt the role of "dispenser of knowledge". On the other hand, in an inquiry approach to teaching, students are more involved in the construction of knowledge through their active involvement. It focuses on what students already know, so they relate new information they are learning with previous knowledge to deepen their understandings. The teacher adopts the role of facilitator. Lessons are question driven rather than topic driven and assessment focuses on the development of skills in addition to content mastery.

Concerning the methodology used previously, there simply was not common set of methods or techniques used by teachers. Neither a common curriculum framework nor collaborative planning time was provided by the school. Each teacher used the methodology they thought more appropriate, relying too much on text books.

Using an inquiry approach requires students to direct their learning, to have the appropriate skills to work independently through a series of difficulties. One of the major problems I encountered during this school year was that students were not able to take responsibility of their learning. They kept asking for help when presented with a problem instead of seeking explanations and alternatives. This led me to reflect on my own

teaching style and the different possibilities to help myself and, therefore, my students adapt to a new way of learning.

## **Data Collection**

### **Field Notes**

I observed my group in order to detect and take notes of any problem in the dynamics of the teaching and learning process. My field notes were reflected in a dairy as phrases, quotes or even quick sketches of a scene. My notes were incomplete and meant to raise further reflection. As I have already mentioned, my first impressions were the difficulty of both me and my students to adapt to the new inquiry based methodology used in our school.

The field notes showed that there was a clear necessity for me to make changes towards a more student centered approach. The record I kept of the different learning experiences that took place in class made evident that I was not differentiating the curriculum taking into account individual differences and needs. I was still teaching it in the same way to all my students to achieve sixth grade goals. I arranged lessons according to the four main skills: listening, speaking, reading and writing. The tasks planned to practice and develop listening, speaking and reading skills were structured so that the whole group would progress through the same content at the same time, ignoring abilities and learning styles. However, when time was dedicated to improve writing skills students were grouped according to levels. During writing tasks, students would work in centers<sup>1</sup> so I could dedicate time to the writing center. The reason to do so was that right from the beginning of the school year I noticed big differences among students when completing their writing work. There was a group of students who rarely asked for the teacher's help and finished their work on time. On the other hand, there were students who were able to cope with the task but asked for assistance quite often, and another group that was incapable of completing the writing task. Centers helped me adapt to the students individual needs, dedicating time to students who demanded more guidance. It also helped them achieve their specific goals without relying on the teacher so much, solving their problems and making decisions on their own.

In addition, the lay out of my classroom did reflect a learner centered environment. Desks were arranged in small groups, while the teachers table was set in one side of the room rather than the front. However, besides writing sessions and specific small group activities I was not taking advantage of the class' design.

Reflecting on my field notes and taking as example the writing lessons structured in centers, I learnt that the whole group instruction was limiting learning opportunities and disadvantaging some type of learners. Listening, speaking and reading tasks were structured to be led by the teacher for the whole class approach. This gave my students the idea that I was the dispenser of knowledge, an expert with all the answers which did not create the best environment for students to have an active role in the construction of their knowledge. During speaking activities, I noticed that the participation of low achievers or shy students was rather low. While the problem during reading tasks were different. Quite often, instead of using the dull reading comprehension texts of the student's book, we used authentic materials like small extracts from novels,

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<sup>1</sup> A physical area of the classroom where students work in small groups according to readiness, interest or learning profile.

newspapers and magazines or poems to practice reading skills. Students liked them and felt curious whenever we used them. But students approached these texts like the ones in their book. They seemed puzzled by what was expected from them. They were no longer asked to answer multiple choice questions or to focus only on the referential meaning of vocabulary and the text as a whole. My role was to lead them through the text and get them to explore different meanings collaboratively through dialogue. Students felt uncomfortable sharing their opinions, and I felt that they were still looking for the “right” answer and were afraid to get questions wrong.

This led me to analyze if the questions used in class were promoting a deeper comprehension of concepts and guided students towards further inquiry. On the other hand, it also led me to set forth individualized lessons to meet students’ specific learning goals, with an emphasis in student learner-centered instruction. By the end of this project, I began planning lessons in learning centers twice a week. Reading tasks were no longer a whole group activity, instead students met in small literary discussion groups to discuss a text. This gave them the opportunity to interact between each other instead of being led by the teacher.

### **Interview: students’ perception on questioning**

After reflecting on the notes, my study focused on the nature of the questions used in class. I wanted to know students own opinion on the matter, so I thought of six questions that would help me learn their perception on questioning. I first thought they could answer a small questionnaire, but realized that interviewing students would allow a casual approach and adjust to their answers. However, I knew it could be difficult to obtain students authentic and honest response due to the teacher’s position of authority. I decided to ask them to first answer the questionnaire, and then have a chat with those students who were willing to share their opinions a little bit more. I came to the interview with an idea of what to ask. I just wanted to build on students’ ideas to learn more. Eleven students out of twenty-three were eager to give their opinions.

The general conclusions I came to after studying students responses were directly related to the information generated from previous research on questions and questioning strategies. Students answers reveled that questions asked in class by the teacher are to recall specific information students possess. While the questions they ask are intended to solve doubts about the lesson content.

Most of the students felt free to ask questions when they do not understand the content, *I usually ask questions when I do not understand the teachers explanation*. Students that did not like asking mentioned that they were afraid of the teacher and friends reactions, *I’m afraid that my questions are too absurd; I think my questions are so silly that everybody will laugh; If the teacher is not in the mood I never ask questions*. In order to learn how the classroom atmosphere affects them when making and answering questions, I asked them how they felt when they got a question wrong. Their responses where balanced, some of them said that even if they felt bad, they got over it very easily; *I do not feel good but it depends on the type of teacher and classmates*. While other students said they felt very embarrassed, *I feel bad; in general the teacher tells you off or laughs. Only bad teachers do that...; I feel guilty because I have not studied enough*.

Students also thought that teachers ask more questions than students. Teachers questions focus on content rather than concepts, *to see if you know the lesson or to ask you to behave properly (Can you please be quiet?); sometimes they ask questions to catch you off guard*. However, students do recognize the benefits of

questioning in class and say that questions besides of helping them solve doubts, raise interest, motivate and involve them in the lesson.

## **Classroom Questioning**

### **Aim and Context**

The information I had gathered interviewing students confirmed the need of analyzing the questions that I was making in the classroom. I was especially interested in my questioning skills, the purpose of my questions, the phrasing I used and if the questions were thought provoking. Looking for this type of information, using an audiotape was the strategy that would best reflect the data I was looking for. Therefore, I audio taped a few lessons. After recording the first time, I realized that both the students and I needed to get used to being audio taped. At first, it was difficult to act naturally. Eventually, I ended up using two fragments of the recordings where questions play a central role in the learning process. The fragments last fifteen and ten minutes each.

The recording of the first fragment took place in a whole group activity that aimed to compare and contrast a series of photos that show how families in different regions around the world feed themselves. I did not prepare key questions in advanced for this activity. I did spend time searching and downloading the pictures form the Internet. I wanted to record this ‘not planned’ lesson to compare the results with the second one previously planned. The recording of the second fragment occurred during one of the frequent literary discussions planed for English reading lessons.

When analyzing the first recording the focus was on the questions made by the teacher, emphasizing on the type of question and the level of thinking they required from the students. While the second fragment was also analyzed from this point of view, I also centered my attention on the interaction process between the teacher and student, how I used their response and the waiting time allocated before calling upon a student to answer.

### **Findings from the questioning skills analysis**

To analyze the type of questions I used I followed Bloom’s Taxonomy of Learning Domains. It establishes three types or domains of learning: cognitive, affective and psychomotor. I have centered my attention on the cognitive domain that involves knowledge and the development of intellectual skills. This domain is divided in six major categories that can be thought of as degrees of difficulties: knowledge, comprehension, application, analysis, synthesis and evaluation. Each successive level requires a more complex cognitive process. Classifying the questions I used in class according to these categories, I was able to learn up to what extent was the students thought process being stimulated.

According to the classification of the questions in the first fragment there was not a balance between factual and thought-provoking questions. Factual questions usually raise issues concerning matters of fact and mainly require recalling information. Thought-provoking questions trigger thought process in the mind and guide students toward further exploration and deeper understanding . Only two out of the twelve required high order level thinking to be answered. Although the aim of the task was to get students to

compare and contrast what families from different places eat during a week, five questions are classified under the knowledge category instead of analysis. Questions under this category would help diagnose the pictures, to relate its content. Knowledge questions (*What type of food do the families with less money eat?*) only require the student to recognize or recall information. They are easy to formulate and the most common, so students rarely need practice neither to understand nor answer them. Under the comprehension category I classified a question that could easily have been classified under a high order thinking level just by phrasing it differently. Instead of asking *what can you say about the amount they eat?* I could have asked *what indicates that these families are or are not eating the appropriate food to be healthy?* Two more questions were classified under application, a low order level thinking category that requires students to select information they already know and apply it to solve the problem (*Do you think you can survive eating the same amount of food as the last family?*). Only three questions were classified under high order level thinking, analysis and evaluation categories that help achieve the objective of the activity.

The exact phrasing of questions also encourages the development of higher thought process. The only questioning word I use is what, forgetting to ask why and how. Questioning words set the purpose of the question and makes the message clearer to the listener. I ask, *do you think there is any relation between the type of food the families eat and the amount of money they spend?* twice. If I had phrased it differently using the questioning word how (*How does the money spent relate to the type of food the families eat?*) besides of clearly stating the aim to achieve, it would not have been a leading question that gives away the answer. Other questions were also poorly phrased. Two of them begin with *what can you say...* or *what about...*, making them too vague. The last two questions, *do you think you can survive eating the same amount of food as the last family?* and *Is it necessary to eat the amount of food the first family eats?* are both yes or no questions that only draw one word from students. Adding the question word why would have encouraged a lengthy response and sustained answer.

In the second fragment, questions were more effective than in the first fragment. On the one hand, there is a balance between factual and thought provoking questions. On the other hand, the phrasing is clear and sets the purpose of the question. The first six questions were classified under a low order thinking level while the last six under a high order thinking category. This means that students were given the opportunity to create and develop an understanding from a simple insight of the text to a complex one. There is one question, *Which is your favorite character?* that does not require a lengthy response, but immediately after answering students are asked to explain why? What, how, why and which are the questioning words used. These words improved the phrasing, making the message clear for students, while they also modeled good questions. Obviously, planning beforehand is necessary to obtain good results.

The interaction process between teacher and student is simple and straightforward. I asked a question and waited for students to raise their hands and answer. Instead of using a classroom management technique that permits an even distribution of questions among all the students, I wait for them to voluntarily share their ideas. This can lead to a spoilt choice of a respondent. I also offer little encouragement to comment on the answers of classmates to stimulate critical thinking. I only did this twice (*Raquel what do you think? - Does somebody agree with Clara?*), one in each fragment. Another questioning strategy I do not take into account is providing thinking time and pauses between questions. Wait time increases extended answers, as well as the amount of students willing to share their ideas. I usually let the first student, who wants to share his response, do it. The pace is established by the 'fast' students that want to participate in class.

After analyzing the recordings, I knew my questioning skills needed to improve.

## Conclusions

Questions need to be carefully planned in order to move learning forward. Like any other good teaching practice developing questioning skills needs careful practice as well as viewing the teaching and learning process as a whole, where teachers understand that their teaching style will determine the way students learn.

The research has shown I was using more of a teaching centered approach, where most of the learning experiences took place in whole group activities led by me. Students were neither given the opportunities to take responsibility of their learning, nor to organize their thinking to achieve certain goals. The teaching style was inadequate to achieve that objective as a teacher. Class time was dedicated to present and practice content rather than actively engage students in building knowledge. In order to improve this I will introduce more activities that require working in centers, where the teacher only supervises students' work instead of leading it. To build knowledge students need to inquire, explore on their own so they can connect what they already know with what they are examining or researching so they can keep questioning what they are learning about. I believe it is better if the teacher provides tasks that structure the inquiry to help students obtain specific outcomes and achieve specific goals.

The questions and questioning skills I used were also inappropriate to help students move their learning forward. The research also showed that previous planning of questions compared to improvising in class, help ask better questions that make progressive cognitive demands. Planning lessons carefully has to become a priority to obtain successful classroom practice (I know that finding time for planning does not only depend on me, but now I am certain that the time spent planning is as important as the time spent teaching). I need to know in advance where I want the topic to go so I can plan appropriate questions. That is, key questions should be identified according to the learning intentions as well as the order and time when they should be made.

However, creating an adequate environment for students to develop high order thinking skills is not only a matter of asking questions, but also of managing the classroom dynamics by moderating discussions and modeling their learning. The interaction I established among us was not very inclusive. All students have to be encouraged to participate in a classroom discussion. I have decided to avoid "hands up" signal by using other classroom management techniques to evenly distribute questions around the classroom. It will also help me provide thinking time for students to process their thoughts and to give all type of learners the possibility to come up with an answer. Using incorrect answers is also a good opportunity, whenever students give a wrong answer teachers should point out the mistake, but also use it (questioning the student again about his own answer) to lead students towards a better answer instead of asking someone else.

Besides from learning about my questioning skills and how to improve them, I can conclude that there must be a coherent relation between the way teachers instruct and what they want their students to be able to do. I was expecting my students to take hold of their learning but at the same time I was acting as the dispenser of knowledge. I was only focusing on the teaching part of the teaching and learning process. In fact, this research project centers on my role as a teacher. In a future study I need to learn how does improving my questioning skills, as well as the management of the classroom dynamic affect my students'

development. If modeling effective questioning makes them realize that questions are a valuable learning tool, up to what extent does it help students question things in the classroom direct their learning and develop independence.

Developing this research project has been an enriching experience that forced me to reflect on my teaching practices and to try to improve them, answering my own question about learning.

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