Eliciting and interpreting individual students' thinking

What does the pedagogical practice of eliciting and interpreting the thinking of each student consist in?

The practice of eliciting and interpreting the student's thinking is founded in a culture or learning that promotes deep thinking, curiosity and imagination, and arises from the conviction that learning is the consequence of thought. The deeper and more frequent the student's reasoning is, the deeper their understanding of the contents will be. This practice has three objectives. On the one side, it allows the teacher to obtain information on the level of understanding that his or her students have regarding the subject at hand; it also aims to make students aware of their own understanding when they share with others and make visible what they are thinking, all the students in the classroom benefit when one of them, or the teacher, makes his or her reasoning visible. The process of externalizing an argument through speaking, drawing, writing or using any other means, implies making explicit the ideas and assumptions which otherwise would remain hidden inside their heads; and that paves the way towards deep understanding. Through questions, protocols, thinking routines and well- planned activities, the teacher thrives in making students aware of what they have learnt and what still confuses them. It is about dedicating a moment to think about thinking. The third objective of this practice and a very important one, is to create devices that stimulate thought, that invite to think, to create, to question.

In a few words, then, the practice consists in finding out how the students are thinking and reasoning, and to stimulate them to think. This implies designing a method that helps students externalize their thinking, for the teacher to analyze them with more attention, to delve deeper and develop an interpretation of their level of understanding. This supposes a permanent task in order to establish a place where students feel safe and confident to share their ideas and thought processes. In such an environment, the teacher guides the students to make explicit their own reasoning so that they themselves become interpreters of their understanding. Generating a good learning environment is fundamental for the appropriate achievement of this practice, avoiding having students feeling judged when the teacher asks questions and motivating them to explore their own reasoning process calmly.

In this sense, it is important that the tone of voice, gestures and attitude of the teacher, when implementing this practice, transmit acceptance and openness, allowing for learning to be seen as a positive and motivating challenge, and mistakes as an opportunity which nurtures this process. This does not mean by any means, that we have to take everything children say as a fact, on the contrary, the goal is to advance with precision, clarity and meaningfulness of the learning process; scaffolding, asking again, bringing forth new information, correcting.

What is not Eliciting and interpreting the thinking of each student

○ To expect students to explain identical reasoning to solve the same problem. On the contrary, a correct elicitation values different roads that lead to a same answer, as it happens, for example, in the resolution of mathematical problems.

○ To assume that all students feel confident to openly discuss their internal processes.

○ To ask questions trying to "trick" students, or to ask questions that have a right or wrong answer. In this scenario, to elicit thinking would be to ask a student to explain the mental process that he or she would develop to arrive at an answer.

○ To presume that only the teacher is capable of eliciting the thinking of his or her students. A teacher that has modeled this practice enough, teaches his or her students to mutually help themselves to make their thinking more visible. This is achieved by instilling thinking routines and habits.

○ To dedicate one class a week to eliciting the reasoning of what has been learned in previous days. This practice should occur in each class for it to make sense. There can be moments dedicated to activities that are exclusively of this kind, but the regular practice will consist in making simple questions which incorporate themselves naturally within each class.

○ To gather previous knowledge and to consider it the same as the practice of "eliciting and interpreting each students' thinking". In the first case, the goal is to know what the students have in their minds as to connect it in a significant way to the new material. In the second case, the goal is for the student to go about "showing" how he or she learns and what he or she thinks in order to keep going deeper and making new connections.

Strategies

- To ask questions such as:
  - What did you do first?
  - Explain to me why you wrote _____ in your answer.
  - Explain to me the steps you followed to arrive at this answer.
  - What did you think about/remember before answering? Establishing thinking routines (Source: www.visiblethinkingpz.org). Thinking routines are structured formats of questions with different objectives to foster the student's thinking. They can be developed in small groups, with the entire class or individually; written or orally; timed or in a flexible format.

Teaching strategies to Elicit and interpret each students' thinking

To describe: Students answer "What do you see?" and then "What makes you say that?". Everything being described must be founded on evidence. It is ideal to describe objects, concepts, art pieces, poems, graphics, etc.

To elicit and promote curiosity: Students answer “What do you think you know about this subject?” “What questions do you have about this subject”? “What things could you explore about this subject?”

To reason in pairs: The teacher formulates a question to the entire class, gives time for each student to think out an answer, and then asks them to sit in pairs and to discuss their answers.

To reflect on changes in thinking: Students answer “I used to think that _____, whereas now think that _____.” It is ideal as a closure for a subject in which the students' ideas have likely been changed as a result of the lecture or of the reading of some text.

To analyze a subject: Students answer four questions, according to each cardinal point: East-“What gets you enthusiastic about this subject?” West-“What bothers you about this subject”? North-“What things do you still not know about this subject?” South-“What follows ahead regarding this subject?” It is ideal to conclude a unit.

To connect ideas to previous knowledge: Students answer three questions: “How does this new material connect to what you already knew?”, “How does what you have just learned expand upon what you already knew?” “What challenges does it pose to what you already knew, what you have just learned?”.

To explain and observe: Students analyze an event or object, answering: “I observe that it has/there is _____” and then “This is/happened this way because _____”. It is ideal to analyze the reasons which explain something.

To connect ideas: Students elaborate a mental map. For that, they first write a list of all the ideas that occur to them regarding the subject at hand. Then, they arrange these ideas hierarchically on a piece of paper: on the center, they place the most important ideas and on the edges the ones that are least important. They finally establish links drawing a line between the ideas that relate to one another and develop even further the ideas that were already written down.

References

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