

An evaluation of strategies used to elicit children's ideas



**ASSIGN
BUSTER**

I carried out my school experiences in a year six class. This means that the children aged either ten or eleven. There were thirty children in the class of ranging abilities and backgrounds. The classroom was set out not in table groups, like all the other classrooms in the school, but in rows. This meant that group work was often restricted. The class were taught science two times per week and during my block placement they were focusing on revising key topics for their SATS exams. For example green plants and teeth.

In ' Science 5-11 a guide for teachers' it states that ' Elicitation is the process of classifying and finding out the children's ideas. ' Finding out children's ideas before starting a new topic is an essential part of primary teaching. Knowing and understanding what children already know will enable the teacher to build upon that knowledge. Building upon existing knowledge is known as the constructivist approach. Piaget said that ' when children encounter a new experience they both ' accommodate' their existing thinking to it and ' assimilate' aspects of the experience.

It also enables teachers to see what misconceptions children may have, enabling the teacher to decide which aspect of the topic that they need to focus on. In ' Primary Science Teaching Theory and Practice' they say that ' Once children's ideas have been elicited and the teacher has recognised their misconceptions and partial understandings, decisions need to be made about how to challenge these ideas and help children to develop a more scientific understanding. ' Also it can help the teacher to see in depth, individual children's knowledge compared other children's.

The first method that I both used and witnesses being use on various occasions was hot-penning. This method is where a topic is given to the children and they are then asked to write down or tell the teacher all of the information or any words that they know or associate with that topic, in no necessary order. I found that this particular method worked really well in my classroom situation as the children contributed really well when presented with this method of eliciting ideas. In one lesson that I taught to the whole class on plants I chose to use this method.

I found that many children knew lot more than they thought that they did and were happy to share their ideas with the whole class. One of the main difficulties that I came across with hot-penning was ensuring that all of the children contributed. For some of the less confident children it meant that they didn't get a chance or were not confident enough to put their ideas forward. Another problem that using hot-penning created was knowing whether the children actually understood what they were saying.

For example when carrying out this method to discuss green plants, one child put their hand up and said photosynthesis, this technically showed knowledge of green plant. However, later when speaking to the child, I discovered that they had no understanding at all of what photosynthesis was. They merely remembered the word and called it out. If I had not questioned the child further I would have been under the impression that they had full understanding of photosynthesis. The second method of eliciting ideas that I will discuss is concept cartoons.

Concept cartoons are images and questions that are displayed to the class which cover main ideas. The children then need to discover which of these ideas is correct. I saw this method being used three times during my placement, once with me taking the whole class for the lesson. Concept cartoons were very visual when put up on the interactive whiteboard, helping the children to engage in the learning. Concept cartoons gave the children ideas to discuss between them before deciding which was right. This encouraged group and paired work.

I felt that this was a good way to make sure that everybody got involved in the learning and everyone had a chance to share their ideas. In 'Primary Science Teaching Theory and Practice' they discuss how 'Talking about concept cartoons is a fruitful way for children to begin to debate their ideas.' I found that cartoon concepts were not always the most effective way of eliciting ideas as they often focus on one small aspect of a topic, meaning that if you only used one cartoon concept per topic, you would only be able to get limited responses and ideas from the children.

Also I found that cartoon concepts were often worded in a confusing way, meaning that the children were often confused. However, the children did respond well to this method, enjoying the visual images, and taking time to discuss the cartoon in pairs or groups as well as with the whole class.

Discussion is another way of discovering what ideas and knowledge that children have. Discussion can either take place between the children where they can explain and share each others ideas and also learn from each other.

Discussion can also take place between a child and the teacher, where the child can be prompted about their knowledge and ideas. This type of discussion can also mean that the child can also benefit from the teachers ideas. This type of discussion that I saw most in my placement was whole class discussion, where the class had a chance as a while to share and discuss their ideas. I felt that this strategy generally worked really well as children were happy to share their ideas and to hear other people's opinions. For example when discussing photosynthesis, not everyone could remember everything about the topic.

However, after a class discussion everyone was much clearer about the process through sharing each others ideas. In ' Science 5-11 a guide for teachers' they also say that ' The social constructivist approach emphasises the importance of talk and discussion both among children and between children and the teacher. ' This means that discussion can help children to build upon existing knowledge. Similarly to hot-penning, one of the main difficulties of using discussion as a method of eliciting children's ideas is ensuring that the whole class contribute.

Again, the less confident children are not willing to offer input as they fear getting the answer wrong or being laughed at by their peers. This means that depending on the type of children in the class, the teacher would have to decide who discussion should take place between. Choosing whole class discussion for a more confident children and paired discussion or small group discussion for less confident children. Otherwise only some children will input ideas and other children's ideas may not be heard at all.

Through carrying out these methods in eliciting ideas I was able to identify various misconceptions that children held. For example when looking at forces, before carrying out an experiment, some children thought that the smaller the parachute as the longer it would take to land. After discussing this with the children I found that they believed this to be true as they thought that the larger the parachute, the heavier it would be, meaning it would fall faster. Discussion with children helped me to understand where this misconception had come from.

Once the children had conducted the experiment they no longer had this misconception. In 'Science 5-11 a guide for teachers' they argue that 'children will develop their existing ideas when they encounter new evidence, which could be in the form of new physical experiences or new ideas from others...' Another misconception that I found children had, was whether or not all plants needed the same things to grow. When using the hot-penning technique to elicit ideas this was brought up and discussed with the children to deal with their misconceptions.

I also found that some children had misconceptions about living and non living things and how they could decide upon which was which. A concept cartoon was used to discuss this concept, helping the children to deal with and overcome the misconceptions. I believe that of the three methods that I have discussed, discussion is the most effective. This is because discussion allows a deeper understanding to show through, rather than just random words relating the topic being written on the board like when hot-penning.

Hot-penning may gather lots of information quickly however, it is not always clear whether the children understand what they are saying or not. Similarly, with cartoon concepts, I do not believe them to be as an effective method of eliciting ideas. The concepts are up on the board for the children to see, but without discussing them children are often unclear about which of the concepts are being shown to be true. I therefore, believe that discussion is the most effective of the three for eliciting not just children's ideas, but also their understanding.

There are various other methods of eliciting ideas that I saw used on my placement. Firstly annotated drawings, this was used when looking at the inside of a plant. The children were able to show their ideas through drawing and annotating the parts of the plant. However, I did not feel that this method was entirely effective, as many children were just copying each other and not looking at the plant properly. Questioning was another method that I saw used regularly to elicit children's scientific ideas. This strategy worked well, as it made the children think about what they already know to try and answer.

I also witnessed children creating their own information books to show their science knowledge and ideas through a written product. I believe this strategy was effective as children were able to work by themselves to create their own piece of writing featuring only their own individual ideas. All of the methods that I saw used in science to elicit ideas worked in different ways to discover what existing ideas children have, but all of them helped towards gaining a better understanding of each science topic.