Very young children can think about their thinking.
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At our professional development workshops on the Habits of Mind we are often asked if very young children, especially Preps and Grade 1 children, can really understand and use the Habits. This is important questions because teachers want to make sure their efforts are effective and that their instructional strategies really work. Metacognition is perhaps the most complex Habit so let's look at it. We need not necessarily employ this particular term with preps but instead could refer to it as "thinking about their thinking". The exhortation "Put on your thinking caps." is a familiar attempt to get students aware of their thinking. So we pose the question "Can very young children understand and control their thinking processes?".

First, the research shows yes – in fact infants demonstrate metacognition at their level of thinking. This question has been studied ever since the term *metacognition* was introduced by Flavel. Preschoolers have demonstrated the ability to perform simple metacognitive tasks [Flavel, 1970], [Butterfield, 1987]. Furthermore, as they grow, children's knowledge base increases and so does their ability to monitor that knowledge [Schneider, 1985]. There continues to be evidence that young children can learn metacognition and that this ability facilitates subsequent learning [Bransford, 2000].

It is important to remember that the ability to think skillfully and to reflect on our thinking is not an innate human characteristic. These skills are developed by some but not all people. Research has shown that around 30% of the adult population does not engage in skilled metacognition [Chiabetta, 1976], [Whimby, 1980]. So if children can be introduced to metacognitive skills at an early age their learning throughout life will be enhanced.

Research aside, perhaps the best way to demonstrate children's understanding of metacognition is by an example. We offer one which came to us as a surprise and still remains a delight to remember. We were working recently with a cluster of schools in New South Wales and visited a small rural school classroom of prep, grade 1 and grade 2 children. Pat eagerly accepted the teacher's offer to teach a lesson in mathematics. She introduced a game that she had used often in her own classrooms. It is a mathematics game where counters are placed into and taken out of a closed container (in this instance Pat's pocket). She told the children "I'm putting in six, now I'm taking out two, now I'm putting in two groups of two" and so on. The children are expected to keep the calculation going in their heads until the teacher asks "How many counters are in my pocket?" After playing this game a few times we then asked the children a metacognitive question "What was happening in your brains as you got to your answer?". A five year old said, "I could see the counters in my brain going in and coming out. When you finished I counted how many were left". A grade one child told us, "I saw a number line in my head and kept moving on the number line". A grade two child explained that he remembered learning number facts and used those.

Because their teacher regularly focuses questions on thinking rather than solely on the correct answer, these children have come to understand that there are a number of different ways to solve a variety of learning tasks. Their teacher understood the importance of metacognition to learning and so these very young students were used to talking about **how** they learned as well as describing **what** they had learned."

There are two observations we can draw from this story. First, if children are guided to think about their own thoughts, they can then evaluate their own thinking and this is the first step to improving it. Second, an open classroom discussion about how a particular question was resolved allows students to see how other students approach the same problem and gives children the opportunity to increase their own range of thinking strategies. This argues for introducing the process of metacognition early so that children's thinking skills can develop with their learning from their earliest school days.

References

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