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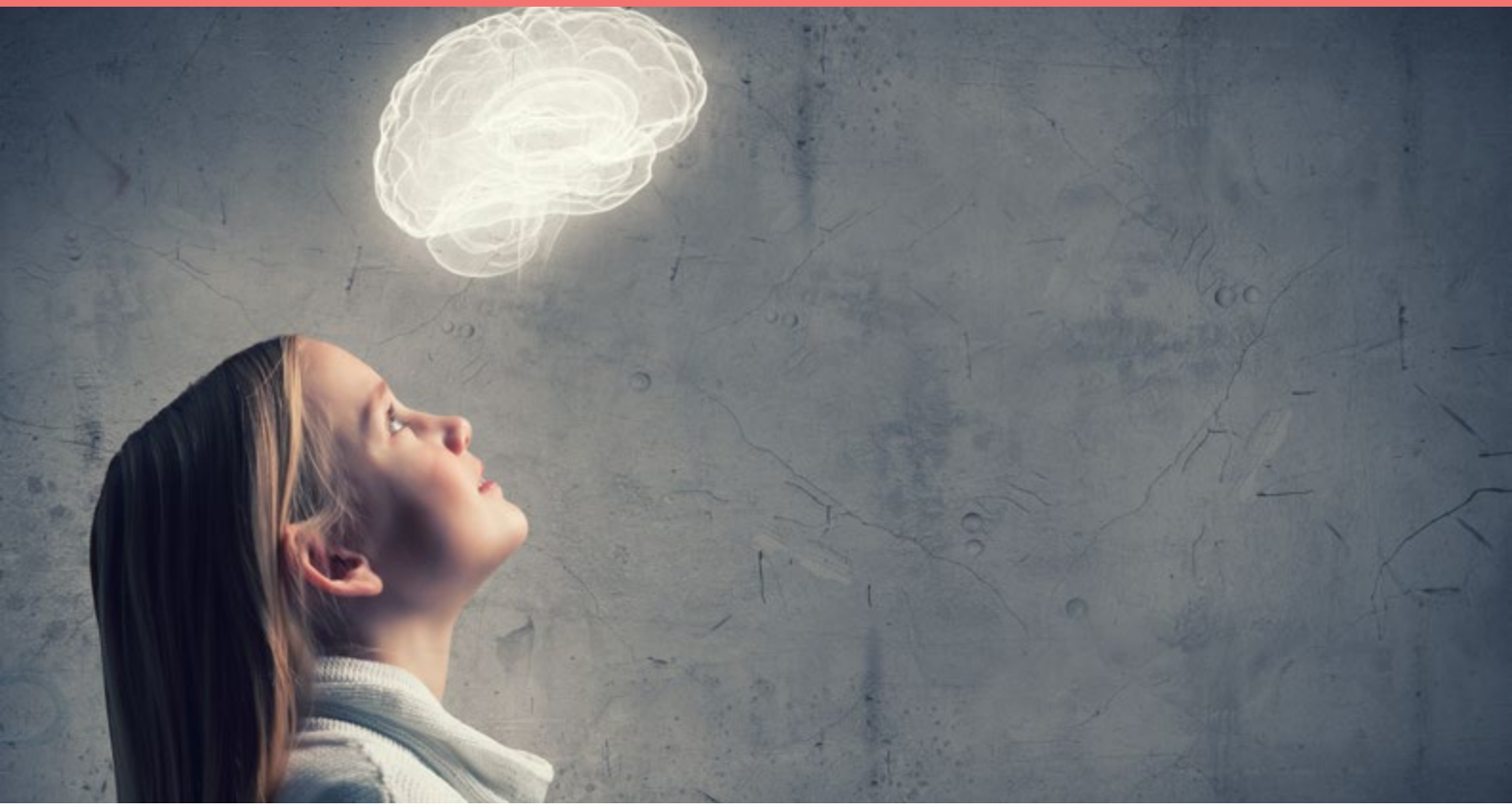
GOWRIE AUSTRALIA PUBLICATION **ISSUE 6 2017**



YOUNG CHILDREN AND METACOGNITION: THINKING ABOUT (AND TALKING ABOUT) THINKING

Desley Jones, Director of Ballymore Community Kindy, Brisbane

Metacognition can be defined as higher order thinking that enables understanding, analysis and control of one's cognitive processes especially when engaged in learning. This paper came about through the need to articulate the often-overlooked intentional teaching strategies that draw children's attention to their thinking.

Many aspects of children's education will be very clear and obvious to an onlooker; however there are other aspects of the curriculum which are subtle and perhaps not recognised by someone watching on. How we support children in developing the skills of metacognition or an awareness of their own thinking is one of these aspects. As adults working with young children, one of the most effective and yet often unrecognised strategies of teachers is to make their thinking, and the thinking of children, explicit.

Brain research demonstrates the important role of executive functioning and self regulation for children's overall personal development and academic success (Centre on the Developing Child, 2011). Executive function includes working memory, inhibitory control and cognitive flexibility. The close connection between executive function and self regulation is obvious when we consider that cognitive self regulation enables us to organise and sequence behaviour by controlling our attention and memory, using forethought and planning in approaching situations, being flexible in the face of problems, detecting obstacles to overcome and planning strategies that may be effective, and resisting impulses when necessary.

These skills form the basis of goal directed behaviour. They develop throughout childhood and are crucial for adaptive behaviour. Being able to regulate their own cognitive behaviour (as well as their emotional responses and behaviour) will contribute to children finding school a satisfying experience as well as to sustaining positive relationships throughout life.

One way in which we can support children in the development of executive function and self-regulation is through metacognition – "thinking about thinking". As educators of young children, when we make our own thinking explicit, and when we support children to think and talk about their cognitive abilities, we help them to establish a base for building abilities to understand, analyse and control thinking throughout their life.

What do some of these strategies look like?

- Group time, in particular reading books together, can be a considered strategy to assist children in developing the ability to regulate their attention. Before beginning stories it can be useful to do a breathing exercise and then to verbalise what the teacher and children will be doing. E.g. *"Now you will be able to look up at the book and think about the story as I read it"* and *"I will be able to think about the words that I have to read so that I say the right ones."* Explicitly identifying what to look at or what to think about is an important first step for young children.
- Listening and thinking activities such as 'Buzz Groups' or a 'What Is It? Bag' have a focus on the processes of attending, listening, and processing. We can help children prepare for these listening activities by incorporating activities such as *"close your eyes and make a picture of your kitchen in your mind. Can you see something in your kitchen with a plastic handle?"* Visualisation is an effective thinking skill for young children to become aware of, as is the use of private speech. Children will naturally use self-talk to regulate or guide their behaviour, emotions and cognitive strategies and we can capitalise on this in education. E.g. *"You could say to yourself 'I will keep in my mind that it has a round shape and I will also think about the room it might be in.' or 'now I need to stop and listen to the clues and then I can go to play outside'."* This self-talk can also be practised when sharing songs using the actions only – i.e. saying (or singing) the words in your head. Asking the children *"could you hear the words in your mind?"* alerts them to what is happening.
- Explicitly explaining where our attention is focussed helps children to regulate their attention. E.g. As a stories finishes, teachers and educators can invite the group to make comments on what they have listened to (an important thinking process in itself as it encourages the use of memory and connections with personal experiences). Inevitably someone may make a comment that is far removed (or totally unrelated to) what the book was about. In these instances, bringing the attention back by saying *"I know you would like to talk about that but at the moment my brain is still thinking about how they solved the problem of the missing cat. Did you want to say something about that?"* or *"keep that other idea in your mind and tell me about it when group time is finished"*.
- Encouraging children to give opinions, thoughts and comments; *what do you think about…? Why do you think…? What do you think will happen next?* This lets them know that their thinking abilities are valued as well as strengthening these skills. Being able to predict what might happen next in a story is a particularly useful skill for beginning readers and demonstrates how they are able to hold elements of information in their mind (working memory) as well as respond to a range of possibilities (cognitive flexibility).
- Wondering and pondering on things with children (a culture of enquiry) also builds on skills as adults and children learn to toss around questions and possibilities together, holding ideas and information in mind, drawing conclusions where possible and asking more questions when necessary.
- Listening and responding to others is a complex activity for young children and requires them to manage their awareness (noticing that someone has said their name), self-control (stopping what they are doing) to attend to what the person is saying (controlling attention), processing what has been said (requiring the use of their working memory) and then maintaining self-control and attention long enough to respond. Supporting children through these interactions takes time and patience on the part of adults but will help to build their cognitive abilities and to strengthen relationships with others.
- Children's interactions with one another are also complex, and their skills are still developing, so they regularly need adults to support and reframe the

actions, thoughts and language of others. When educators take the time to do this, e.g. *"Bill come back for a moment, I think Jim wanted you to know that he wasn't happy that you walked over his castle. Let's work out what we can do about this."*, we not only support relationships and self-regulation but we also expose children to differing perspectives thereby contributing to the development of their Theory of Mind – the ability to understand and predict another person's mental processes, including their intentions, emotions, motives, thoughts. When we interpret or reframe thoughts and behaviours, e.g. *"I think Ed was running up and bumping you because he wanted to play"* we build children's cognitive flexibility – the ability to respond to differing demands, priorities and perspectives.

- Imaginative play has been identified as a highly effective way for preschool-aged children to build executive function skills (Nagel, 2012). During play children hold complex ideas in mind, develop rules to guide actions, inhibit impulses that don't fit the roles in play and regulate one another's behaviour. Such play also supports an acceptance of different perspectives, as adults actively demonstrate their valuing of varying ideas and abilities when they listen to and assist children to represent their ideas in play. These play experiences offer opportunities to draw attention to past experiences and encouraging children to access their prior knowledge. E.g. *"Let's think back to when you went camping, where did you sleep, what did you eat, what was different from being at home?"* Challenging the children, *"let's see if our brains can think of a new idea or a game we haven't played yet"* can also be an effective strategy and implies that new ideas can be generated.
- Imaginative play regularly presents a range of problems to solve. E.g. *how to share the blocks so that everyone has some for walls, how to make a tree for the dinosaurs to sleep under, how to attach fairy wings to the babies, what to do if someone wants to come into the game.* It is empowering for children to know that they can solve problems for themselves – both practical problems and social problems. Social problems are particularly complex as they need to take account of differing perspectives and there are usually no "right answers".
- The actual process of problem solving in small or large groups, for whatever purpose, provides authentic opportunities to build cognitive and social skills as children are exposed to different perspectives and have practice in talking and listening to others. As adults, it also allows us the opportunity to scaffold children's deeper level thinking as they ponder on actions and reactions. E.g. *"If I have all the blocks how will this make ...feel?"* and to facilitate a sense of community as we work through issues together.
- Avoiding an over reliance on "rules" is also a strategy to be given serious thought. This is not the same as having no expectations in terms of behaviour. Rather it means that children are encouraged to think about and verbalise why they do or don't do certain things. Being able to articulate that it won't be a good idea to run and jump off the forts because someone might be walking beside it and you may not see each other, shows much greater thinking ability on the part of a child, than saying "because it's the rule." Understanding the reasoning behind desired behaviour has greater significance for children's developing relationships, self-regulation and cognition than mere compliance. (Nagel, 2012).
- Making thinking explicit is also supported by considering the words we use with children. Children quickly become adept at using the vocabulary of thinking – brain, mind, hippocampus, concentrating, focus, attention, distracting, planning and deciding to mention a few. Discussing our brain (or mind - interchangeable terms at this age) and what it can do can become part of everyday conversation. E.g. *"I think our brains will think of a way to solve that. What will we try first" or "let's put that into the part of our brain where the memory is".*

If our goal is for children to see themselves as accomplished thinkers, then we need to take the time to consider our own thinking and what happens for us when we think, and then share these experiences with children. In this way, we will take them some way along the road to refining their own thinking abilities.

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