

Metacognition is a Human Super Power

To Promote Focus and Attention

A Brief Review of the Literature on Metacognition



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Metacognition is a critical human capacity that allows individuals to take charge of their own thinking process by *thinking about how and what to think* (Chekwa et al., 2015; Merriam-Webster, 2021). Metacognitive training can equip children and adults to “drive their own thinking bus” and use mental resources in a way that improves both the physical structure and the practical efficacy of the human mind. Metacognition can improve the awareness of self-efficacy of teachers and parents to be effective teachers of children. Children, in turn, may increase their ability to control their emotions and behavior, learning, and ability to focus and direct their attention as a result of Metacognitive processing. Metacognition improves the human mind in so many ways that it is like a true Human Super Power.

Metacognition is a master capacity that helps humans take charge of their own thinking processes. Darling-Hammond (as cited in DePaul, 2021) explained two different types of Metacognition. She explained that one type deals with *thinking about what is known* while the other type involves managing *how to go about learning* (Depaul, 2021). Humans are able to evaluate their own efficacy as thinkers both before and after engaging in a thinking activity (Fleming & Dolan, 2012). In this way, humans can become acutely aware that they are thinkers, evaluate what they already know, determine what else they need to learn, and decide how to use mental and other resources to go about learning even more. Metacognition may occur in different domains and be specific to that type of processing (Vo et al, 2014). For example, young children who used Metacognitive analysis were able to predict their efficacy in performing mathematics tasks, but this type of Metacognition only helped with math-related thinking and evaluating (Vo et al., 2014). Evidence points to specific Metacognitive processes that can help children with literacy learning and success (Wodzinski & Just, 2014; Yang et al., 2011). The research indicates that a different type of Metacognition is involved in processing and evaluating other types of thinking, such as with reading and literacy, mathematics and reasoning, or behavior and emotions (Vo et al., 2014). Children, therefore, may need to learn how to practice Metacognition to support different domains such as focus and attention; mindfulness; emotional processing, behavior and self-regulation; and categories of academic learning.

Parents can take advantage of the tremendous benefits of Metacognition to become more effective in teaching and raising children. For example, parents can use the power of Metacognition to evaluate their own knowledge and efficacy (Fleming & Dolan, 2012). This provides parents with a pathway to ongoing self-evaluation and improvement in the way they raise children. In addition, parents can train their children to practice Metacognition in order to

improve the way their children think, process emotion, learn new things, and make decisions about how to behave and respond to the world.

Training in Metacognition can help children better evaluate their ability to perform tasks (Fleming & Dolan, 2012). Two important capacities that can be promoted through teaching Metacognition and a related capacity called Mindfulness to children are Focus and Attention (Hussain, 2015). Research has uncovered how Metacognition can help the wandering mind redirect itself and get back on track (Fox & Christoff, 2014). Metacognition is even being used in educational settings to close learning gaps and improve student learning success (Chekwa et al., 2015).

Brain imaging points to the Prefrontal Cortex and the Hippocampus as contributing to Metacognitive processing (Zhu et al., 2019). One area of the brain that is heavily involved with Metacognition is the Prefrontal Cortex (McCaig et al., 2011; Shekhar & Rahnev, 2018; Vaccaro & Fleming, 2018). Different types of Metacognitive thinking can lead to changes in the white matter of the brain in specific regions of the brain (Baird et al., 2015). Functional magnetic imaging of brains of individuals who are engaged in Metacognitive tasks revealed changes in the microstructure of the Prefrontal Cortex, where higher order thinking takes place, and in the Hippocampus, where the brain processes emotional responses (Allen et al., 2017). Barquero et al. (2014) identified the probable brain structures associated with using Metacognition for literacy.

The brain is neuroplastic, meaning that it can change itself through learning and lived experiences. Metacognition is a capacity that can improve the way the brain performs in many areas, and can help with anxiety, emotional control, and even reading. Neuroplastic changes in the brain in connection to Metacognition can improve the way children's brains think and learn, making Metacognition a true Human Super Power. For example, the volume of certain areas of

the Prefrontal Cortex of the brain increase through Metacognitive training (Allen et al., 2017). Children demonstrated an increase in Metacognitive learning and control while engaging in motor learning (Jokic & Whitebread, 2014). Metacognition is also documented to improve symptoms associated with anxiety and other mental disorders (McEvoy, 2019).

Metacognition has been research in connection to improved thinking and learning of children and students. Other exploration of Metacognitive processes has focused on the role of educators. Investigation of Metacognition for teachers revealed that Metacognitive training improved the teacher's concept of Metacognition and improved their concepts and beliefs about their self-efficacy to teach science to students (Yildiz, H., & Akdag, M. (2017). This research provides hope that parents can also increase their confidence and attitudes about self-efficacy to teach Metacognition and other positive capacities to their own children.

Metacognition always plays a big role in the ability of individuals to determine what they know and how well they can perform (Fleming & Dolan, 2012). Investigation of Metacognition in connection to confidence and self-efficacy revealed something parents have always known: Know-it-alls really do not know as much as they think. A large study of fMRI analysis of Metacognitive ability showed that higher self-confidence is associated with lower Metacognition (Molenberghs et al., 2016). Individuals who over-value their own ability to think and make decisions are generally not using their metacognitive abilities as much as more cautious and effective thinkers who tend to use more of their Metacognitive ability in order to make accurate determinations about their own self-efficacy (Molenberghs et al., 2016). Parents can take this research to heart when encouraging their children to stop and think things through to avoid making rash decisions without having all the facts.

Metacognition is a Human Super Power that allows the thinker to take charge of the thinking process. Training in Metacognitive processes can help children, educators, and parents alike. In fact, anyone with a thinking brain can benefit from learning how to practice Metacognition. Focus and attention are critical processes that are challenging for young children and individuals diagnosed with Attention Deficit Disorder [ADD] and Attention Deficit Hyperactivity Disorder [ADHD]. Children can improve their capacity to focus and direct their attention by learning how to use Metacognition. Parents and children alike can employ Metacognitive strategies to evaluate performance and plan effective ways to learn more and be more effective in the world. Parents can intentionally incorporate Metacognition in their own lives and train children to use Metacognitive processes to improve focus and attention as well as emotional processing and self-regulation. Metacognition can even help alleviate the symptoms associated with anxiety and other mental health disorders. As new research unfolds, parents, educators, and mental health professionals alike are likely to find even more benefits that can be gained by utilizing and teaching children to employ Metacognition for personal efficacy, learning, emotional processing, self-regulation, and focus and attention.

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