

The Effects of the Word of Wisdom Meditation Technique on the Development of Executive Function Skills in Early Childhood Education

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Abstract: This theory-based paper examines the definition of Executive Functioning (EF) skills, their importance in the early childhood classroom and how to aid in their natural development. The Word of Wisdom meditation technique is considered as a viable alternative to increase the natural development of EF skills in early childhood.

Max, 5, has three best friends in his class; Dylan, Sam and Lucas,; all age 5. The four boys have the best of times, as well as the worst of times in each other's company. Sitting during circle time, Max and Dylan engage in a heated discussion, which ends with someone getting pinched. Consequently, the teacher is naturally interrupted from the day's lesson to address the boys. This is not the first time there has been an interaction of this degree between the four boys. The teacher has repeatedly worked with the boys throughout the year to help communicate their feelings to each other by "using their words." Moreover, she has worked with them on gauging when it might or might not be an appropriate time to sit next to your friend, even when they really want to. The boys' teacher often wonders when they can think to themselves, before they sit down, "This is not the time for me to sit next to this friend. We just can't control ourselves around each other!" Nicolas, age 5, is a brilliant child. He has achieved reading fluency at an early age, understands all concepts taught to him, is inquisitive and curious, and is the ideal student—except he can never get anything done! His is constantly distracted by his surroundings, the need to sharpen his pencil, go to the bathroom, read a book, talk to his friends, begin another task, and the list continues!

How do children develop the ability to make a decision that might be best for them, even though it might not be what they want to do at that immediate moment? When does the ability to resist an urge to say or do something at an inappropriate time develop? At what point would a child like Max develop the ability to say to himself, "I need to move away from Dylan, because he is distracting me." Or better yet, "I don't think I should sit next to Dylan during circle time because I am not able to control myself around him and his actions, I become distracted and the teacher gets upset because she is interrupted." When will Nicolas develop the ability to regulate his own actions in order to complete his work, regardless of the other surrounding interests and distractions? When will he be able to work to his full potential? Max's ability to manage his urges and Nicolas' ability to self regulate are part of the executive functioning skills that are established in the brain at birth and continue developing into adolescence.

Recent research has shown that the benefits in development of executive function skills in early childhood can promote school readiness and academic success (Blair, 2003; Dawson & Guare, 2010; Meltzer, 2010). One way which has not widely been researched, yet a valuable method, is that of meditation. The purpose of this paper is to demonstrate the importance and need to conduct further research in order to evaluate whether meditation could be a viable alternative method to implement in the preschool classroom. The meditation technique of Word of Wisdom (WoW) will be discussed in this paper as a method to aid in the successful development of executive function skills during early childhood. To date, there have been fewer

than five studies conducted using the WoW meditation technique. The literature reviewed below demonstrates a theoretical link between the current research on the development of executive function skills and the WoW meditation technique. There is a gap, and research is currently lacking, to prove that certain methods of intervention can be used to increase executive function skills. This paper attempts to suggest a method of intervention for further research that is relatively easy to promote and can be used for developing executive functioning skills to benefit the early childhood population.

Method

The theoretical link discussed in this literature review originated from the author's teaching experience in a preschool classroom. The vignettes used above are examples taken directly from informal classroom observations. The author recommended the WoW meditation technique as an intervention for one of the students mentioned in the vignette. This recommendation spurred the author to conduct a literature review to ascertain if there was a theoretical link between the development of EF skills and the method of meditation as an intervention. The author began first by conducting informal interviews of teachers and administrators who implemented the WoW technique in their classrooms. From the interviews, the author identified that the feedback given was identifying an aid in development of EF skills. Searches were conducted using keywords such as, executive function skills, self-regulation skills, development of, children's meditation techniques and Transcendental Meditation. These searches produced questions such as: How do EF skills contribute to school success and academic achievement? How do self-regulation skills contribute to fostering school ready behavior in the classroom? How can meditation, as an intervention method, be presented as a research based pedagogical method without the spiritual and religious connotations the word might arouse? How can the WoW technique be integrated into the curriculum to serve the early childhood population? As a result of the searches conducted the author was able to demonstrate a theoretical link between the development of EF skills and children's meditation as an intervention technique as well as discuss how to integrate meditation into the early childhood classroom.

What is Executive Functioning (EF)?

What are executive function (EF) skills and what role do they play in a student's academic career and academic success? EF skills are best described as the ability to get something done. These brain-based skills enable us to decide on what activities we need to complete and which ones we should save for later (Dawson & Guare, 2010). EF skills assist in regulating behavior by monitoring thoughts, regulating emotions, as well as focusing and keeping attention on the task at hand regardless of other surrounding tasks. EF skills also refer to the ability to draw on prior knowledge and to shift attention effectively (Brown, 2008). EF skills are critical to enduring successful early academic outcomes. A child might have a great deal of potential, but if he lacks the ability to direct himself to start and see a task through to its completion, his potential can not be reached. EF controls are important because they bridge the gap between the potential and the academic demands children face (Meltzer, 2010). All teachers can relate to how frustrating it becomes when the potential of children do not match their academic performance.

EF skills have been noted as important for many years. However, until recently, studies of EF processes have been limited to research conducted by neurologists and neuropsychologists (Meltzer, 2010). Currently, the domain of education has been interested in the benefits of EF skill development in children as current research has indicated that EF skills are a crucial

component of early development and long term academic success for students of all ages (Meltzer, 2010). In addition, the development of EF skills has been looked upon as a way to assist student achievement towards greater academic success given the increased pressures placed upon students in today's classrooms (Meltzer, 2010).

Specifically, recent research has indicated that in early childhood classrooms, self-regulation skills are critical to successful school readiness, which in turn leads to long term academic success in the subsequent grades (Blair, 2008). Self-regulation lies under the umbrella of EF skills and refers to the balance of emotional regulation in order to achieve higher cognitive processes (Blair, 2008). Effective self-regulation skills assist children in controlling their impulses and emotions, which leads to achieving a cognitive control over behavior, such as the ability to follow rules (Blair, 2008). Children who can self-regulate can control their behavior; which enables them a higher chance of academic successes (Carlton, 1999). Behavior difficulties, such as inability to follow directions, controlling attention, being sensitive to others' feelings and communication, have been cited as primary causes of expulsion rates and academic school failure (Blair, 2008). Early childhood programs that develop self-regulation and EF skills within children, and teachers who promote their use in the classroom can be effective in enhancing school readiness and future academic success (Blair, 2008). We see examples of EF skills being taught applied in the early childhood classroom with the recently publicized success of *Tools of the Mind*, an early childhood curriculum based upon the ideas of Lev Vygotsky. The curriculum is designed to foster children's EF skills (Institute of Education Sciences, 2008). Another example is in the Montessori Method, where children are taught at an early age to develop an inner discipline in order to regulate themselves (Ervin, 2010). See Table 1 as Dawson and Guare (2010) have defined the EF skills in a coherent, credible way as it relates to the child in the classroom.

EF Skills are Brain-based

What is the development process of EF skills and where does it take place? The number of changes in a child's brain from infancy to adolescence is significant (Dawson & Guare, 2010). EF skills are dormant in the brain when born. The acquisition of EF skills is similar to acquisition of language; given no trauma to the brain, the EF skills unfold in a similar manner to that of acquiring the full use of language (Dawson & Guare, 2010). The base for the development of EF skills is located in the frontal lobe of the brain (Dawson & Guare, 2010). The senses are the child's routes to the brain (Epstein, 2001). We can see this occurrence as it is in these first few years that the sensory and motor areas of the brain are most matured (Travis & Brown, in press). Sensory experiences, such as a 1.5 year old learning by accidentally putting his hand on a candle flame that it hurts and that he should not touch the flame, is an integral part of EF skill development. The child develops the impulse control after the sensory experience has occurred to not touch the flame. Before the experience occurs, it is the parent's responsibility to lend their EF skills of impulse control, such as "no!" to the child, because the child has yet to acquire this control.

The changes and growth that occur in the brain during early childhood parallel the development of the child's ability to act, think and feel, which are components of EF skills (Dawson & Guare, 2010). A strong link also exists between brain maturation and Piaget's cognitive stages of development (Epstein, 2001; Travis & Brown, in press). Biological changes occurring in the brain during maturation are similar to the biological bases on which the Piagetian stages are based (Epstein, 2001). The brain undergoes both rapid and slow growth spurts that are characterized by an increase of connections made during a child's life. These

growth spurts characterize significant changes in children's learning capacities (Epstein, 2001). Travis and Brown (in review) correlated an easy to read table associating brain maturation with Piaget's cognitive stages. The table can be extended to include EF skills. (See Table 2).

How can Teachers Assist in the Development of EF Skills?

It is clear that EF skills are a crucial component of early development and long-term academic success. The ability for a child to develop the skills to plan, organize, prioritize, shift thinking, use working memory, control temper, start a task and see it to completion are just a few, among many, skills crucial to success in school. The skills are developed during the early childhood years and built upon as the child grows. It is clear that if a child exhibits weak EF skills in the early childhood years, it will lead to difficulty with productivity in the elementary, middle and upper school years (Meltzer, 2010). Additionally, a weakness in EF, called Executive Dysfunction (EDF), is a common trait among children diagnosed with ADD and ADHD. Clearly the skills mentioned above are lacking in a child diagnosed with ADD and/or ADHD. It is increasingly important to identify the challenges some children might have in developing their EF skills at an early age, so that an intervention can be applied to assist these children to develop strong skills necessary for the academic tasks that face them in their future (National Institute for Early Education Research, 2006).

Experts on EF are now detailing pedagogical plans to implement in the classroom to effectively assist children in developing their skills (National Institute for Early Education Research, 2006). For example preschool programs such as Tools of the Mind, the Montessori Method as well as teacher training programs work to train teachers to effectively develop EF skills in early childhood. An underlying theme in assisting children in developing their EF skills is to bring an awareness to children of how they learn, essentially schooling them on metacognition. It is important to look at other possibilities that could assist in the child's natural development of EF skills. Since the development of EF skills is a natural process that occurs during the child's development, it would make sense to find an approach that aided in the natural process of development, such as meditation.

Word of Wisdom (Wow) Meditation Technique

Fisher (2006) defines meditation as being mindful, receptive and reflective. There are many different meditation techniques, the one addressed in this paper is the Word of Wisdom (WoW). WoW is a meditation technique for children between the ages of 4-10. At age 10, children can learn the Transcendental Meditation (TM) technique. TM is a well researched and widely used meditation technique based on the ancient Vedic traditions of enlightenment from India (Yogi, 1969). The knowledge of TM has been passed down by Vedic masters generation after generation over thousands of years. Approximately 50 years ago, Maharishi Mahesh Yogi introduced TM to the Western world. TM practice involves a mantra (Vedic terminology for sound). However, unlike most meditations, the mantra holds no meaning to the mediator (Yogi, 1969). During the meditation, the mediator allows his/ her mind to move from active focused levels of thinking to silent thoughts (Travis, 2010). Unlike other meditations, the TM technique is not a process of concentration, but a process of effortless transcending using the mantra as a vehicle to transcend (Travis, 2009). While practicing the technique, the mediator's mind transcends from the conscious mind to deeper levels of consciousness (Yogi, 1969). TM is practiced twice a day, 15-20 minutes each sitting.

Over 300 research projects have been published verifying the positive effects of TM, including but not limited to decreasing of effects of stress and an increased intelligence (Travis, 2009). In addition, only positive side effects have been found with using this technique. In a

2009 randomly assigned study of 18 ADHD students aged 11-14, TM was found to be a viable alternative to medicinal treatment for children with ADHD, having a positive effect on task performance and increased brain functioning (Travis, 2010).

The WoW technique is based on the same ancient principles as TM; however, there are differences in its practice and design. WoW is practiced twice a day, once in the morning and once in the afternoon. The child is assigned a mantra and is taught how to silently mouth the mantra. This is done for about five minutes during each session and is practiced while the child's eyes are open. The child can be working on a simple task, activity or walking about. The younger the child, the more simple the task, for example walking, and the older the child, the more complex the task can be (See Image 1 and 2). The technique is appropriate for children as the encouragement of movement during the practice of the technique is in accordance with children's developmental needs to move (Dixon, 2003). WoW and TM are taught through standard courses of instruction available around the world by certified TM teachers. WoW consists of an initial presentation, personal instruction involving the assignment of the mantra and how to use the mantra and follow up meetings; the entire process spans a few hours during three to four days (Dixon, 2003).

WoW as a Tool to Aid in the Development of EF

What is the theoretical link between the development of EF skills and the WoW meditation technique? The WoW technique allows for the child to experience quiet conscious thoughts. Through the practice of WoW, the child is aided in developing from within by bringing awareness to one's self (Dixon, 2003). For example, the effects strengthen the child's mind by stabilizing their thinking process and having a calming and balancing influence on the mind and body (Alexander, 2003; Dixon, 2003). Essentially, the daily practice of WoW optimizes the natural growth process of children and their development (Alexander, 2003). The development of EF is a natural process that unfolds in the child's brain and has proven to be aided by teaching and bringing a cognitive awareness to children on how they learn. An approach that develops mental awareness within the child might be an effective tool to aid in the development of EF skills. Warner (2003) summarizes a study conducted in 1985, which examined the role of awareness in cognition and the impact on training for mental awareness in children. Mental awareness for the study, among others, was defined as working memory and attention capacities (EF skills). Two groups of children ages 5-11, were observed (n= 126); the first group participated in either the TM or the WoW technique (n=60) and the second group remained as the control. A series of measures were implemented based on Piaget's conservation tasks to assess the mental capacity of working memory and attention within the children. The results found showed that the children who practiced either the TM or the WoW technique experienced an enhanced cognitive development of these mental capacities and an increased mental awareness (Warner, 2003). This study proves that WoW has a positive relation to children's cognitive development.

How can WoW be Implemented in Schools and the Preschool Classroom?

How can meditation be incorporated into the curriculum to serve the early childhood population? The TM program for students over age 10 has been implemented in hundreds of schools around the world. In India, TM has been incorporated in public schools serving over 100,000 students in 16 states. The David Lynch Foundation currently provides funds to support the TM technique to be taught in 14 public schools in the United States; in these 14 schools, the faculty have also learned the TM technique (Albers, 2010). In New Zealand, they have implemented a Stress Free Schools program where the children are taught TM. TM is

incorporated into the curriculum briefly in the morning and the afternoon. The alternative at all of the schools offering TM is a Quiet Time program. The Quiet Time is available for students who do not wish to learn the TM technique. While the TM students are practicing their meditation in class, the Quiet Time students are sitting quietly. The teachers incorporate the method into the classroom time easily as it is simply 10 minutes in the morning and 10 minutes in the afternoon. Teachers have noticed marked improvements in children's behavior; they are more settled, with fewer behavior issues, the entire atmosphere of the school has changed with improved student achievement, and schools with high levels of violence have witnessed a significant decrease.

By contrast, however, few schools have implemented the WoW technique. In Fairfield, Iowa, the Maharishi School of the Age of Enlightenment implements the WoW technique for children ages 4-5 until age 10, when they learn the TM technique. The children are taught when they are of the age where "they can keep a secret" as the mantra assigned to them must be kept a secret. The price for learning WoW is included in the tuition cost at the school. All of the teachers employed at the school are TM practitioners; therefore, they understand the value of the WoW technique. The technique is easy to implement as it is done in a walking format at the school (See Image 2). The teachers facilitate the process where children walk around the halls of the school and the campus for five minutes in the morning and five minutes in the afternoon before dismissal doing their WoW technique. The teachers generally observe a shift in the children once they have learned the technique and usually comment that the child is more settled, more focused and has more refined memory retention (Bordow, 2010).

Concluding Thoughts

The purpose of this article is to demonstrate the need to research an alternative valuable method to implement in the preschool classroom to effectively assist young children in developing their EF skills. Other relaxing techniques that do not require as much training and are more cost efficient that might mirror the benefits of WoW could be breathing techniques, children's yoga and children's chanting. However, again little research has been done to prove the effectiveness of these techniques. We see the WoW technique successfully and easily incorporated into the curriculum at the Maharishi School of the Age of Enlightenment; could it be implemented in other early childhood programs?

It would be useful investigating further how WoW could successfully aid in the natural development of the young child's EF skills. Specifically, can the WoW technique aid in the development of self regulation skills in the early childhood classroom and assist in promoting school readiness and academic success in children? Referring to Piaget's cognitive stages of development, if the child practicing WoW would begin practicing during the pre-operational period (ages 2-7) and continue into the concrete operational period (ages 7-11), spanning the two developmental periods, would WoW help the transformation between the two periods?

Although there is a large amount of published research on TM, there is little published and conducted research on WoW. WoW could be proven to be an alternative tool and method to improving functioning in early childhood. In addition, if teachers were trained in this technique, they would not only value the importance of the WoW technique for their students, but also receive the marked benefits of the TM technique themselves; among a few benefits are decreased stress, increased calmness and increased effectiveness of teaching. Schools should consider investing in this technique and implementing it into their schools. Funding could be provided through grants from foundations such as the David Lynch Foundation, school fundraisers, private donations and tuition. Mahareshi Mahesh Yogi (1963) states, "It is essential that one should be

well trained in the art of thinking. All the efficiency of any kind of action depends on the ability of the mind....” EF skills, being brain based, are a crucial component of early development and long term academic success by enabling productivity and efficiency of thoughts and actions (Meltzer, 2010).

Further research on WoW with younger children would be worth investigating to see if the technique could be a valuable aid in the development of a child’s EF skills, the development of a child’s awareness of their actions, development of self-regulation of emotions to manage behavior leading to enhanced cognitive processes and ultimately school readiness and academic success.

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Table 1: EF Skill and its definition correlated with examples of children's behavior in the classroom.

EF Skill	Definition	Characteristics in classroom
Response Inhibition	The child's ability to think before acting, resist urges to allow time to evaluate before acting on a situation.	Annabelle accidentally gets pushed in the line, she pushes back forcefully saying, "don't push me!" If she had waited before she reacted she would have seen that she was accidentally pushed because the other child was trying to move out of the way to make room for the teacher to pass through the middle of the line.
Emotional Control	The child's ability to manage and self regulate emotions.	Leo is playing on the playground kicking a ball. He kicks the ball to a group of boys sitting on the slide. The boys, not seeing where the ball came from pick up the ball and begin to play with it. Leo runs over and screams and cries at the boys.
Sustained Attention	The ability for the child to stay on task, regardless of surrounding distractions.	A child is interrupted during his work when the two children sitting next to him begin to talk about the Wii game. He stops to doing his work to fully join the conversation.

Task Initiation	The ability for the child to begin a task without procrastination.	Every day the first thing Juliana is supposed to do in the morning is to write the date on her calendar. However, every morning she does everything else, says hello to her friends, goes to the bathroom, sharpens her pencil and her friend's pencils...
Flexibility	The ability for the child to face "bumps in the road" and overcome those bumps.	A child begins to do his arithmetic exercises and gets to a sum greater than 9. He is stumped as to what to do next. He must draw from his working memory his prior knowledge on the subject.
Goal Direction	The ability for the child to follow through an initial goal already set to its completion, again, regardless of surrounding distractions.	A child is asked to help the teacher and collect the lunchboxes to put them at the dismissal line. During his task he notices a lizard in the garden. He then sets off trying to catch the lizard, leaving half of the lunchboxes at the lunch table and the other half at the dismissal line.

Table 2: Relation between age in years, Piaget's cognitive stages for early childhood, and brain maturation characteristics

Age in years	Piaget's cognitive stages	Brain maturation characteristics (Travis & Brown, in review)	Example of EF Skill (Dawson & Guare, 2010)
0-2	Sensory-motor	Myelination of sensory and motor areas.	EF skills are dormant at birth. (Which is why parents lend their EF skills to their children). As the child learns through sensory experience the skills unfold. For example the toddler developing impulses control (Response Inhibition) after sensing the pain from touching the flame.
2-7	Pre-operational	Maximum	The internalization of speech (Emotional

		number of connections made.	Control) is an example of a skill developed at this age. The child first learns a language nonverbally and holds the information in their head that acts as a framework on which the young child makes decisions and controls their behavior. As the child learns how to verbalize their language they are no longer as reliant on the adult, they become more autonomous. They can now use their own words to communicate. With increased communication comes basic self-control over the use of language to accomplish needs.
7-11	Concrete Operations	Pruning begins around age 10	This initial self-control of language soon facilitates the development of more complex EF skills such problem-solving strategies, self-monitoring and self –instruction.

Image 1: Example of a girl age 7 practicing WoW technique while conducting a simple task, drawing. She has been practicing for a few years.



“I like my WoW because I like to color and I get to relax and get time to myself. Since I started I feel much more relaxed before a test or something, it isn’t scary to me anymore.”

Image 2: A group of children practicing the WoW technique at the Maharishi School of the Age of Enlightenment.

