**Executive Function Skill Curriculum Support for Student Engagement**

Cross Cultural Dynamics

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Addressing neuro-divergence through the lens of a diverse culture requires a community development approach that recognizes the unique needs and strengths of neuro-divergent learners. Executive Function Skill Curriculum Support in schools is paramount for fostering student engagement and success, particularly among neuro-divergent students; however, the current educational landscape often lacks a culturally diverse curriculum tailored to these students' needs. This deficiency underscores the importance of integrating executive function skill development with culturally relevant content, promoting a more inclusive learning environment.

**Start where people are:** It is necessary to understand the existing cultural context and perspectives regarding neurodiversity within the community. This involves engaging with families, educators, and community members to understand their experiences and beliefs.

Educator and Philosopher Paulo Freire explains a similar situation in his Pedagogy of the Oppressed: In Toward a Sociology of Education (2020). He discusses how genuine dialogue, essential for holistic education, necessitates critical thinking that transcends perceived dichotomies between individuals and their environment, viewing reality as an evolving process rather than a static entity. Freire explains that by embracing and incorporating such perspectives into curriculum design, schools can better support neuro-divergent students and foster a deeper understanding of diversity and interconnectedness among all learners. Genuine dialogue is impossible without the participants applying critical thought, thinking that sees people as connected to the world and its people and doesn't see a difference between them, and sees reality as something that changes over time instead of something that stays the same.

Although thinking it distinguishes itself from action, such thinking perpetually engrosses itself in temporality without regard for the potential dangers that may ensue (Freire, 2020). The paper explores the effectiveness of an Executive Function Skill Curriculum in promoting student engagement across diverse educational settings, particularly focusing on its application within a gifted school and revealing its impact on academic performance and socio-cultural dynamics.

The curriculum targets organization, time management, study habits, stress management, and screen usage to address the organizational and attentional challenges prevalent among gifted children. Drawing on research highlighting the significance of Executive Functions (EFs) in promoting goal-directed behavior and learning, the project seeks to demonstrate the impact of early childhood EF skill development on students' abilities to regulate impulsivity and make informed choices conducive to academic success. Children around four or five years of age have a significant increase in their capacity to block irrelevant information, recall and manage knowledge, and shift between tasks. EFs continue to grow and mature until people reach their mid-20s. EFs are also crucial for learning, and this proposal aims to introduce and demonstrate their importance in daily life (Arar, 2022).

According to Schmidt & Lee’s study titled *The Effects of Self-vs. Group-Selection on Engagement in a Graded Reading Activity (2021)*, “When students are engaged with learning, they can focus attention and energy on mastering the task, persist when difficulties arise, build supportive relationships with adults and peers, and connect to their school. Therefore, student engagement is critical for successful learning” (Schmidt & Lee, 2021, p.137). Extensive research consistently demonstrates crucial engagement in learning activities that significantly influence their academic performance across all levels of schooling. Innovative teaching methods that connect students and their lessons may substantially enhance their retention and foster active participation (2021).

**Introduce new ideas after established relationships**: Build trust and rapport within the community before introducing new concepts related to neurodiversity and executive function curriculum. This could involve hosting community gatherings, workshops, or support groups to foster connections and understanding. Once this has been established educators can then potentially acquire knowledge and insight from the outcomes of assessments.

Several randomized controlled trials have been conducted to evaluate the effectiveness of treatments that use test findings to tailor education to students' ability levels (Anderson & Nielsen,2020). These studies have consistently shown significant beneficial outcomes. Educators' preexisting assumptions of students may exhibit imprecision or prejudice. Student testing may facilitate the process by which instructors revise their preexisting views in light of new facts, enabling them to customize their instructional approaches to meet the unique needs of individual students. According to recent research, educational institutions that use standardized and comparable testing systems see enhancements in student academic outcomes. Still, assessments conducted by individual instructors do not exhibit any noticeable impacts (Andersen & Nielsen, 2020).

**Involve the community:** Collaborate with diverse community members, including neuro-divergent individuals, families, educators, and local organizations, in the development and implementation of the project. Their input and perspectives are invaluable for creating meaningful and culturally relevant support systems. Once this collaboration has been developed, diversified learning methods can be structured to meet each child’s individual learning needs.

The Montessori educational model is one recognized contemporary systems-based approach to education.  The curriculum exhibits dynamism by imparting knowledge on the interconnectedness of several subjects. It allows every child to acquire developmental skills according to their needs, speed, and timing, sometimes in a non-linear sequence.  Child development is mainly driven by internal motivations rather than external incentives (Lilliard, 2021). In a 2018 study by Ariel & Karpicke, students utilize repeated retrieval practice ineffectively when managing their learning, even though it is a potent learning strategy for increasing long-term retention. Their present studies looked at the effectiveness of a modest intervention to enhance students' self-regulation of repeated retrieval practice. Students made judgments in two experiments regarding when to study, practice retrieval, or cease studying a set of foreign language word pairings. At the same time, they saw some students explicitly taught how to employ repeated retrieval practice. These instructions stressed the mnemonic advantages of retrieval practice over a less successful method (restudying). They also instructed students on how to employ repeated retrieval practice to enhance their performance—specifically, they should adequately remember a translation three times throughout learning. Compared to a control group that received no training, this minor intervention fostered more effective self-regulated retrieval practice and greater translation memory (2018). Students who received this intervention also showed the potential for long-term improvements in self-regulated learning: they spontaneously employed repeated retrieval practice to acquire new content one week later. These findings provide a potential first step toward establishing recommendations for teaching students to manage their learning more efficiently via repeated retrieval practice (Ariel & Karpicke, 2018).

Maria Montessori’s book *The Absorbent Mind* (2011) discusses her approach to education, particularly regarding eliminating awards and using punishments in the classroom. Montessori believes focusing on corrections rather than punishments is crucial for a child's development. She argues that traditional methods of punishment, such as marking zeros or humiliating children, do not lead to improvement but rather demoralize and discourage them. Instead, Montessori emphasizes the importance of providing children with opportunities for self-correction and growth through experience, practice, and freedom, within a structured environment. Analyze a child who has undergone the instructions above. Mathematical exercises that serve as illustrations include multiplication problems in conjunction with the sum, a multiplication. A table is provided to serve as a mechanism for error control. Without engaging in this practice, achieving certainty regarding one's accuracy is unattainable. Therefore, as an alternative to depending on the instructor for rectification, the Montessori Method promotes the child's acquisition of the ability to monitor and correct errors independently. Montessori continues that this error management is more aesthetically pleasing than the activity in and of itself concerning the practice of reading. The child is involved in a move that requires them to match written notes with the corresponding specimens. Furthermore, errors concerning the child's progress can be effectively managed using cards with their names printed beneath. The appeal resides in the endeavor to ascertain the accuracy of his claims (Montessori, 2011).

**Identify and involve local leadership, both existing and emerging**: Recognize and empower leaders within the community who can champion the needs of neuro-divergent learners. This includes established figures and emerging voices, ensuring diverse representation and perspectives. Educating educators is necessary work for school administrators and leaders in education.

As a school administrator for gifted education, the awareness that students have become less motivated and are not taking autonomous initiative in their work is increasingly evident. Likewise, intrinsic instructional goals have advantages for teachers who desire to help students become autonomous and intrinsically motivated. Executive functioning challenges can be experienced by individuals with various disorders, including autism spectrum disorder, ASD, oppositional defiant disorder, bipolar disorder, Tourette's syndrome, traumatic brain injury, and learning difficulties. As these students are increasingly included in general education classrooms, instructors must be knowledgeable about evidence-based strategies to support them effectively. Implementing executive function interventions should involve systematic instruction of metacognitive strategies relevant to the curriculum. The acquisition of strategic skills requires scaffolding, modeling, and deliberate practice. Instructors should incorporate students into the process to enhance strategy use. Children and adolescents must understand their cognitive aptitudes and deficiencies and actively address and ameliorate them. Identifying learning styles helps young students understand their strengths and weaknesses, enabling them to identify situations that require appropriate techniques (Childers, 2020). These disorders are not evident within some educational methods, such as the Montessori Method, as the curriculum and classroom are set up to normalize and support students.

Impaired executive function skills can hinder the integration of gifted students, students with Autism Spectrum Disorder (ASD), High Functioning Autism (HFA), or Attention Deficit Hyperactivity Disorder (ADHD) in conventional classrooms (Cohene, 2019). Researchers have debated these individuals' specific executive function profiles, leading to efforts to separate them. The three essential executive function processes are inhibition, shifting/cognitive flexibility, and planning/working memory (2019). ASD is associated with cognitive flexibility issues, leading to rigidity and repetitive behaviors. Poor cognitive flexibility preserves stereotypical behaviors and self-control issues, hindering daily life adaptation. Effective planning and working memory are essential for setting goals, prioritizing tasks, and initiating responses (Cohene, 2019). Students with low EF skills often have trouble making friends because their peers and teachers do not understand what is happening, potentially making it harder for people to get to know each other in the classroom. Teachers should determine how to help students with HFA/ADHD fit in with their peers. A student's ability to get along with others in class could improve if they learned ways to deal with and lessen the effects of their lack of EF skills.

**Encourage interdependent relationships rather than dependent or independent relationships:** Foster a sense of collaboration and mutual support among all stakeholders involved in the project. It is important to work together as a community to meet the diverse needs of neuro-divergent learners.

If teachers knew more about students' lack of EF skills, they would be ready to teach differently by scaffolding and incorporating those methods into their regular lessons. If students with normal development knew about these problems caused by poor EF skills, they might be more willing to talk to and connect with students with HFA/ADHD in the classroom (Lima, 2021). The development of Executive Function assistance within a curricular format has the potential to effectively enhance class content standards and provide help to all students. Using a curriculum that leads to improved performance is a growing necessity to support a growth mindset and strengthen executive function deficiencies.

Incorporating an executive function skills curriculum can enhance students' academic success by incorporating strategies, techniques, and overall preparedness for learning, employing structural functionalism. This intervention seeks to tackle the executive function skill deficiencies in the educational system, with the objective of revolutionizing education systems by fostering stability and growth within curricula while bolstering student achievement. The research underscores the significance of shared values for fostering autonomous functioning within society. It sheds light on the sociology of education and the interconnectedness between society and education. It proposes that educational institutions embrace transformational management models and leadership styles to address these challenges effectively.

**Keep the program simple:** When deliberating whether to develop a specific curriculum or seek an existing one, an online platform for schools caught my attention. Following numerous phone conversations, emails, and online Zoom calls, I received a trial sample curriculum and experienced the course as a student. *ExQ for Schools* is a patented digital technology crafted to cultivate the mastery of Executive Function directly through lessons and teaching methodologies centered around games, error analysis, and metacognitive reflection. Demonstrating its proven efficacy, the program met, if not surpassed, the criteria I had envisioned for our gifted students who required this intervention.

In the context of this project, these interventions may be implemented by incorporating them into the age-appropriate online curriculum within a school environment for 6th-8th grade students. The curriculum results of the project will be assessed in terms of effectiveness through the use of pedagogical strategies by online instructors and online platforms and monitored by on-site teachers. These strategies aim to facilitate students' acquisition of skills related to monitoring essential information, planning and monitoring progress, and organizing resources to support the students in independently managing their academic pursuits and effectively managing their social interactions. The individuals will formulate goals, establish a hierarchy of tasks with specified timeframes, and develop strategies to mitigate procrastination effectively. Students will understand the importance of working memory in terms of academic and personal accomplishments and acknowledge several strategies that might enhance memory function. The students will experiment with various memory strategies and, after that, assess their efficacy. This online ExQ Program is a complete toolkit designed to assist students in developing critical Executive Function skills such as mental flexibility, memory, and focus.  ExQ will help students optimize their learning. ExQ will support the primary objective of students learning how to learn. A thorough assessment will be given at the beginning of each student's ExQ training. The assessment will identify each student's strengths and weaknesses and help them set short-term and long-term goals for their learning through videos, diaries, vision boards, graphing, and documenting progress.

**Train trainers who train others:** ExQ trains teachers to be an integral part of students' success, building the capacity within the community by training local educators, advocates, and leaders to become trainers, creating a sustainable ongoing support and education model beyond the initial project. Through 10 lessons, students will strengthen skills through mini-video lessons, online games, and goal setting. Each lesson will focus on the seven assessment areas: self-awareness, organizing and planning, focus, working memory, mental flexibility, problem-solving, and prospective memory. Each student will learn how to learn best and support these skills. Each lesson includes a personalized three-part to-do list, which includes challenging cognitive games related to the seven domains of Executive Function. The second part focuses on coaching by reviewing mistakes and learning from them. The third part, M-E-T-A training, is centered around metacognitive training, which aims to enhance self-efficacy by guiding students through the WHY of learning and prompting self-devised strategic thinking. This meta-approach is designed to help students overcome challenges and improve their overall performance.  Students will be encouraged to practice building skills with commitment and focus. Students will also reflect on goals set and create future videos. The duration of this curricular intervention is 10 weeks. Students will use school chromebooks and headphones. This intervention costs $275 per child and will be funded by the school for a trial group of 5 children. Selection of students will be based on instructor feedback to assist those children who would get the most advantage from this program. Every student must have Chromebooks and headphones available.

**Conduct training on location**: By bringing training sessions directly to the community

at The Lewis Center for Gifted Learning Potential, teachers can support the students needs and provide services and equipment which is necessary. The difficulty of this intervention lies in the fact that students must successfully finish all ten-week sessions. Completion is essential for assessing the efficacy of the intervention and its outcomes in terms of effectiveness. Additional sessions may be required to ensure the precision of results. If the initial trial is successful, the aim is to implement this program annually with middle school students. The teacher's responsibility is to support and encourage students, fostering their perseverance and reflection on their growth.

For the practical application, the project plan will include:

* Conducting needs assessments and cultural audits to understand the specific challenges and opportunities related to neurodiversity within the community.
* Co-designing an executive function curriculum with input from neuro-divergent individuals, families, educators, and cultural experts.
* Implementing teacher training workshops and ongoing support sessions focused on understanding neurodiversity, adapting instruction, and fostering inclusive classroom environments.
* Establishing peer support groups and mentorship programs for neuro-divergent learners to develop executive function skills and build social connections.
* Hosting community events, such as cultural fairs or inclusive sports activities, to celebrate neurodiversity and promote acceptance and understanding.
* Developing partnerships with local organizations, businesses, and government agencies to advocate for policy changes and allocate resources to support neuro-divergent learners.
* Evaluating the project's impact through ongoing feedback mechanisms, participant surveys, and academic assessments and continuously using this data to improve and refine support strategies.

By following these principles and implementing a cross-cultural strategy tailored to the needs of neuro-divergent learners, we can foster a more inclusive educational environment that honors diversity, promotes equity, and empowers all students to succeed.

Unlike Montessori's approach, it becomes evident that traditional education methods may not effectively engage neuro-divergent students who do not learn in conventional ways. Therefore, it is necessary to find ways to incorporate methods and curriculums that support these students in all areas of their academic journey. Developing an executive function skills curriculum is essential to cater to the needs of these students and promote their academic and personal growth. The mission of educating is a crucial aspect of today's discourse, with the Biblical Prophet Jonah serving as a prime example of how one can transform one's natural tendencies and redefine one's life to serve Christ's work. (Winter & Hawthorne, 2009). Global evangelism is a complex project that requires a methodology that adheres to Scripture and is grounded in rigorous research practices. However, if the methodology is incorrect, it can lead to less accurate and clear messages, causing confusion and varied outcomes. The legitimacy of the methodology is also a topic of disagreement, both from a technical standpoint and concerning the principles outlined in Scripture (Rommen, 1996). Ultimately, incorporating an Executive Function Skill Curriculum can significantly impact student engagement within diverse educational environments, underscoring its positive influence on academic achievement and sociocultural interactions.

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