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## **Executive Function: Instructional and Intervention Strategies to Close Achievement Gaps: A School Improvement Plan**

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**Executive Functioning: Instructional and Intervention Strategies to Close Achievement**

**Gaps: A School Improvement Plan**

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Northwestern College

A School Improvement Project Presented

In Partial Fulfillment of the Requirements

For the Degree of Master of Education

### **Abstract**

Strong Professional Learning Communities that provide students with inclusive instructional strategies and tiered interventions for executive functioning skills positively affects student learning and achievement. This school improvement plan establishes a school wide outline for staff development regarding executive functioning and implementation of instructional and Tier 1 and Tier 2 interventions through professional development, self-assessment and coaching. The plan addresses the need for professional development, inclusive and universal instructional strategies, intervention supports and resources and supports for classroom teachers. A review of literature was conducted to support the plan and examines how student executive functioning affects student achievement and learning, recognizes the importance of explicit time management, plan management, and organizational instruction, and delves into how instructional strategies and interventions close achievement gaps and improve student performance.

*Keywords: Executive Functioning, RTI, PLC, Intervention, Instructional Practices, Professional Development, General Education, Special Education.*

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## **Executive Functioning: Instructional and Intervention Strategies to Close Achievement Gaps: A School Improvement Plan**

As the academic and social rigor increases in high school, having well-developed Executive Functioning skills becomes critical. Executive function skills take time to fully develop, and they develop at different rates in different children (DiTullio, 2018). In addition, because of the human brain's plasticity and enormous capacity for learning, it is possible to improve the executive functions of students with deficits through classroom strategies and support. (DiTullio, 2018). Executive Function skills are a set of self-management skills. Executive Functions are those that allow one to plan, organize information in working memory, and develop and evaluate an appropriate action from this information. Executive Functioning is defined as those capacities that enable a person to engage successfully in independent, purposive, self-serving behavior (Semrud-Clikeman et al., 2010).

Response to Intervention (RTI) was designed to improve the academic performance of struggling students with and without disabilities and to provide practitioners with a more valid means of disability identification (Fuchs et al., 2014). For the purposes of this study, only Tier 1 and Tier 2 interventions will be discussed and implemented as part of the initial phases of this school improvement plan. Research synthesized by Burns et al. (2005) concluded in their field study that sites implementing RTI had both improved systemic and student outcomes, as well as large effects for both systemic (e.g., reductions in special education referrals) and student outcomes (e.g., increased reading scores).

A professional development plan will be created to provide Waterford Union High School staff and leadership with professional development, resources, and coaching to assist staff in developing a deeper understanding of the anatomy and physiology of Executive Functioning

and its impact on student achievement. In addition, the school improvement plan will look to assess student understanding of his or her own executive functioning skills, strategies to improve organization, time management and plan management in the academic setting. Student self-assessment data in the areas of planning, time management and organization will be used to identify the need for both Tier 1 (universal) and Tier 2 instructional and intervention strategies that can be implemented with fidelity into instructional practices to assist in closing achievement gaps at WUHS for students identified as special education and general education.

## **Review of the Literature**

In preparation for designing a school improvement plan centered around defining executive functioning, analysis of data from ninth grade students self-assessment of their own executive functioning skills using the The Executive Skills Questionnaire-Revised (ESQ-R), and design of Tier 1 and Tier 2 interventions, a review of published studies was conducted to identify research-based best practices and to design school improvement plan that encompasses professional development and Tier 1 and Tier 2 interventions that have the greatest impact on planning, time management and organization. This literature review focused on four subtopics: defining executive functioning, the RTI model, defining Tier 1 and Tier 2 interventions, criticism of Cog Med therapy and related interventions related to executive functioning and the gaps found in the research.

### **Defining Executive Functioning**

According to The Understood Team (2021), Executive Function is commonly defined as the cognitive processes that regulates an individual's ability to organize thoughts and actions, plan, focus attention, remember instructions, prioritize tasks, manage time efficiently, and make decisions. While one of the related problems regarding executive functions, is that there is neither a consensus on the definition of EF nor an operational definition, experts have widely accepted a definition defining EF as the ability to maintain appropriate problem-solving skills for future goal attainment (Welsh & Pennington, 1988, pp. 201–202).

The three main components of EF as explained by Mann et al. (2015) are inhibition, working memory and shifting. Inhibition refers to the ability to suppress automatic actions, reactions or thoughts. Inhibition develops with age and experience and when a lack of inhibition

exists, impulsive behaviors may interfere with task performance and goal achievement. Working memory refers to the ability to hold information in the mind, and manipulate the information over brief periods. Shifting, or otherwise referred to as cognitive flexibility, is the ability to shift between operations, tasks, or attentional focus. Dias and Seabra (2015) acknowledge that these executive functioning skills are relevant for learning, a sense of self-efficacy, academic performance, social-emotional performance and self-concept.

Executive function is an essential component to learning, and deficits in goal-directed executive function may prevent academic success (Sibly et al., 2019). Historically, intelligence quotient (IQ) has been the basis for assessing the correlation between capacity and performance in the classroom. Executive function, however, differs from IQ as explained in Mann et al.'s (2015) research in that EF is a broad measure of one's global ability to function, while IQ is the measure of one's cognitive ability. Mann et al. (2015) suggests that IQ is less effective in predicting a student's success in school and Global Executive Composite (GEC) may provide a more holistic picture of a student's capacity and needs. Furthermore, Mann et al. (2015) explains that executive function is believed to be the foundation for success in roles such as student, worker, and parent.

Students with executive functioning delays are often inaccurately labeled as unmotivated, lack responsibility, or careless. Difficulties with academic performance may be present because of missing homework, task completion; poor test performance, lack of follow through or need for additional time. Researchers agree this invisible disability impacts academic performance and is associated with low GPA regardless of setting as a correlation between GPA and executive function according to Mann et al., (2015). The Behavioral Rating Inventory of Executive Function-Self report (BRIEF-SR) is the most commonly used standardized assessment used

across the quantitative descriptive multi-subject case studies and related research reviewed here. Data from the BRIEF-SR questionnaire is designed to assess an individual's perception of his or her own executive functioning skills. The BRIEF-SR generates an overall executive function score or Global Executive Composite (GEC), which is comprised of eight non-overlapping subscales of executive function: Inhibition, Shifting, Emotional Control, Task Completion, Working Memory, Planning, Organization, and Self-Monitoring (Mann et al., 2015). These scores can offer insights useful to the evaluator in identifying and improving practices in the areas of executive functioning. Mann et al. (2015) reports in their quantitative descriptive multi-subject case study that poor executive functioning was associated with low GPA regardless of setting and that a correlation between GPA and executive function exists.

### **The RTI Model**

Response to Intervention (RTI) is a three-tier approach that assists in the early identification and defining support for students with learning and behavioral needs. The RTI process begins with universal instructional practices and screening of all children in the general education classroom. Students identified as struggling learners are provided with interventions at increasing levels of intensity to accelerate their rate of learning depending on their unique needs. RTI was born out of the IDEA Act of 2004.

In research conducted by Balue et al. (2015) on implementation of the RTI model, findings indicated that over half of target schools had fully implemented RTI reading interventions ten years after the launching of the RTI model. In a more recent study by Berkeley et al. (2020), using quantitative data from district websites and qualitative data from interviews findings indicate that all 50 states are now actively implementing some degree of RTI

or multi-tiered systems of support (MTSS) interventions, terms used interchangeably in many districts.

While opponents criticize the inconsistent adoption and understanding of the RTI model across districts and argue that these inconsistencies can lead to a lack of student progress, proponents of RTI overwhelmingly agree that effective RTI implementation and instructional practices. Recent meta-analysis of RTI models research found large effects for both systemic (e.g., reductions in special education referrals) and student outcomes (e.g., increased reading scores) (Burns, Appleton, & Stehouwer, 2005). Furthermore, Burns et al. (2005) concluded in their field study that sites implementing RTI had both improved systemic and student outcomes.

### **Tier 1 and Tier 2 RTI Interventions**

Al Otaiba et al. (2014) explains that despite the ongoing lack of clarity surrounding RTI in the field, RTI has had a significant impact on service delivery models and instructional practices in schools. In their randomized controlled experiment comparing the efficacy of two Response to Intervention (RTI) models, Al Otaiba et al. (2014) concluded that analysis using multi-level modeling indicated an overall effect favoring the Dynamic RTI condition and growth curve analyses demonstrated that students in Dynamic RTI showed an immediate score advantage, and effects accumulated across the year. The research is clear. Response to Intervention highly qualified instructional practices, paired with screening, target interventions and comprehensive evaluation leads to improved student outcomes and closing of achievement gaps.

The RTI Intervention Network (Gorski) clarifies the three levels of intervention encompassed in the RTI model. Tier 1 requires fidelity with high-quality classroom instruction,

screening, and group interventions. All students in the general education classroom receive periodic screening to establish an academic and behavioral baseline and to identify struggling learners who may require additional support in Tier 1 and these interventions are considered universal.

Furthermore, in Tier 1, all students receive high-quality, evidenced based instruction that is provided by highly qualified persons to ensure that the student's difficulties are not due to inadequate instruction. According to Gorski (n.d.), students who are identified as "at risk" through tools such as a universal screener, state- or districtwide tests should receive supplemental instruction during the school day in the general education classroom. While the length of time for this step of Tier 1 can vary, generally supplemental instruction should not exceed 8 weeks (Allen, 2021). Students not showing adequate progress are moved to Tier 2 (Gorski, n.d.). Tier 2 in an RTI model involves providing small groups and more targeted intervention, typically in math and reading.

Students who continue to show too little progress at the Tier 2 level of intervention are then considered for interventions that are more intensive as part of Tier 3 (Gorski). Students who are not achieving at the desired level of progress with Tier 2 interventions are then moved to the third Tier of more individualized, intensive interventions. Tier 3 focuses on skill deficits and students who do not achieve the desired level of progress in response to these targeted interventions are then referred for a comprehensive evaluation and considered for eligibility for special education services under the Individuals with Disabilities Education Improvement Act of 2004 (IDEA 2004) (Gorski). Data collected during Tiers 1, 2, and 3 are included cyclical and used to make the eligibility decision for a referral to Special Education and should be used to target instructional strategies and interventions.

In their randomized controlled trial on RTI for first grade reading, Al Otaiba et al. (2014) found that immediately providing Tier 2 and 3 interventions to students who qualify, rather than Typical RTI, led to generally stronger reading outcomes by the end of first grade. In addition, Al Otaiba et al. (2014) found that RTI protocols have shown promise in preventing reading difficulties related to inadequate instruction. Researchers across studies agreed that the variation in how and when students receive supplemental intervention, the lack of clarity in understanding and defining RTI as well as the importance of data collection, highly qualified instruction and targeted interventions can be a bigger indicator to student outcomes in multi-tiered models of intervention.

### **Interventions**

Each type of executive function skill draws on elements of the others, and some students may need more support than others to develop these skills (Pengine, 2020). Several themes in the intervention models of executive functioning emerged throughout the review of recent studies. In their pilot study on promoting executive functioning in Brazilian Public Schools, Dias and Seabra (2015) found that executive functioning could be promoted using classroom intervention in public schools.

The first intervention model is coaching. Coaching is a model that was first introduced in the 1990's as an adjunct to the treatment of ADHD in adults (Richman et al., 2014). Richman et al. (2014) describe coaching as a promising service delivery model that promotes self-determination, is positive and collaborative in nature, fosters security while also providing freedom of choice versus directive, critical, or controlling counsel. Results from their mixed methods research design indicated promising practice with coaching that improves students' self-awareness, self-management skills, and subjective well-being. Despite its popularity, coaching

as an intervention model does not come without criticism due to its lack of empirical support. However, researchers have found that coaching has a statistically significant impact on retention/graduation rates of students, coaching has enhanced students' well-being or optimism to achieve their goals (Richman et al., 2014).

In their mixed method research design, Richman et al. (2014) explain the gaps that exist in investigating the coaching models impact on student success. Future research that uses randomized control groups, larger sample sizes, longitudinal data, and instruments that accurately measure executive functioning and academic success are areas identified as areas of need for further findings. Richman et al. (2014) utilized both quantitative and qualitative techniques in their research on coaching intervention to measure changes in the pre- and post-intervention survey scores. Qualitative interviews in the study offered a rich and detailed understanding of the students and their experiences (Richman et al., 2014). In their quantitative analysis, every student that was self-selected for the intervention group began with lower pretest scores than comparison group's students, and posttest revealed all intervention group students improved in every post-test measure with the expectation of one case (Richman et al., 2014).

Working memory training is another intervention model that has been widely studied in regards to executive functioning. Cog med or "paying attention in class" intervention is an experimental, school-based executive function training (Van der Donk et al., 2013). In their randomized controlled trial with school-aged children, Van der Donk et al., (2013) studied the short- and long-term effects of working memory and executive function training in the schools, or Cog med approach. Their study consisted of two parts, the first a randomized control trial with students using computerized working memory training. The second part of the study worked to determine which specific characteristics are related to non-response of "paying attention in class"

intervention (Van der Donk et al., 2013). Findings are statistically significant for the randomized controlled trial for the primary outcome measures of both interventions discussed. (Van der Donk et al., 2013).

In addition to coaching and working memory interventions, diverse interventions that can be targeted in Tier 1 and Tier 2 intervention models. These include using evidenced based instructional strategies, targeted screening, professional development, computerized training, non-computerized games, aerobics, martial arts, yoga, mindfulness, social/emotional instruction, and targeting strategies and curriculum to focus on essential learning standards and student skill development in executive functioning.

Successful programs involve repeated practice and progressively increasing the challenge to executive functions. Children with more significant executive function skill deficits benefit most from targeted, repeated practice. Diamond and Lee (2011) explain there are six approaches for improving executive function in the school years.

The first, computerized training (Cog Med- Pearson Education, Upper Saddle River, NJ) was repeatedly found successful (Diamond & Lee, 2011). In a double-blind, randomized-control trial with multiple training and transfer tasks, one group of 4-year-olds was trained on working memory (using Cog Med), one on nonverbal reasoning, another on both, and a control group on both but remaining at the easiest level and findings indicated that those trained on working memory improved more on working-memory transfer tasks than did controls, and those trained in reasoning improved more on reasoning transfer tasks than controls (Diamond & Lee, 2011).

A second intervention found to be successful is Hybrid of computer and non-computer games is a hybrid of computer and non-computer games. Finding from this type of intervention when studied in a random trial for children 7 to 9 indicated improvements transferred to untrained measures of speed and reasoning training, but were specific, and those trained on reasoning did not improve on speed, and those trained on speed did not improve on reasoning relative to baseline (Diamond & Lee, 2011).

In three studies of sustained exercise in children, aerobic exercise was found to robustly improve prefrontal cortex function and executive functioning as a third intervention strategy. A fourth intervention strategy, martial arts and mindfulness practices emphasizes self-control, discipline (inhibitory control), and character development. After mindfulness training, greater executive function improvements were found in 7- to 9-year-olds with initially poorer executive functions than those with initially better executive functions compared with controls, and children with initially poor executive functions showed executive function improvements overall in the components of shifting and monitoring, bringing their scores up to average (Diamond & Lee, 2011).

Classroom curricula is a fifth intervention strategy found to be effective in improving executive function. Curricula infused into the classroom that infuses strategies, intervention and instructional practices around impulsivity and inattention to self-discipline, independence, order-lines, and mindfulness have been found to be effective Tier 1 and Tier 2 practices for improving executive functioning. Finally, add-ons to classroom curricula, such as professional development to improve screening, instructional practices, pedagogy, and differentiation practices are found to be effective in improving student executive functioning.

In a randomized- control trial with Head Start classrooms in Chicago, teachers provided better managed and more emotionally supportive classrooms than those of control teachers after teacher training was provided on behavior management and supportive classrooms. Executive functions (attention, inhibition, and experimenter-rated impulsivity) of 4-year-olds in the targeted classes improved over the year and significantly more so than did executive functions of controls (Diamond & Lee, 2011).

### **Professional Learning Communities (PLC's)**

Waterford Union High School administration and staff continuously work to become a high performing PLC. PLCs provide an environment that encourages professional development, collaboration and innovation among teachers (Brown et al., 2018). Research suggests positive school reform occurs when teachers participate in authentic PLCs, with improved student achievement as a by-product (Wilson, 2016). Closing student achievement gaps related to executive functioning skills utilizing interventions and instructional practices are dependent on high performing PLC's, whereas groups of educators are committed to working collaboratively in an ongoing process of assessing lagging skills and utilizing data from common formative assessments to improve teaching and learning practices.

DuFour et al. (2020) emphasizes the importance of collaborative time for teachers during their contractual day to meet, collaborate and assess learning and teaching practices. Collaboration amongst special education teachers and general education teachers within PLC's is essential to closing the achievement gaps between general education students and student is identified as special education. Quasi-experimental research by Moulakdi & Bouchamma (2020) regarding the impact of student learning in elementary school PLC's indicate a significant improvement in the students' results between the pre- and post-testing.

Executive Functioning deficits affect student success and learning. Results of a randomized control trial completed by Al Otaiba et al., (2016) revealed that immediately providing tiered interventions, rather than waiting for students to fail, led to generally stronger reading outcomes, suggesting there is no reason to delay intervention. Professional Learning communities support successful and inclusive instructional and intervention strategies. A focus on goal-oriented collaboration to improve teaching and learning standards are key in implementation of school improvement plans. Louis, Kruse & Raywid (1996) argue that when schools attempt significant reform, such as a school improvement plan, efforts to form a school wide professional community are critical.

## **Need for Plan**

### **District Information**

Waterford Union High School is a comprehensive high school serving approximately 1100 students grades 9-12, and is located in western Racine County in southwest Wisconsin. Waterford Union High serves as a feeder high school from four separate local districts in southwest Racine County, including three 4k-8 buildings, and a 6th-8th grade middle school. The high school has a 16-1 student to teacher ratio on average. A full range of courses from college preparatory to remedial is offered at WUHS, with a strong emphasis on college preparatory consisting of honors courses, advanced courses, and Advanced Placement (AP) courses. The school community is 92.6% white students, 4.3% Hispanic/Latino, .9% black, and .8% Asian. Students identified as English Language Learners are .5%. Students who are considered economically disadvantaged are 9.4% of the student body while 9.5% of the student population are identified as students with disabilities.

### **District Need**

The state of Wisconsin identifies the students' achievement score average as 59.8/100, and while Waterford Union High School exceeds the state average with an overall achievement score of 74.4/100, there continues to be significant gaps in performance between students who are economically disadvantaged and/or are identified as students with disabilities. Based on data from the 2018-2019 school year, students 42.3% of the general school population at Waterford Union High School scored as “proficient” in English Language Arts, while only 19.4% of students with disabilities scored “proficient” in ELA and 30.1% of students identified as economically disadvantaged scored “proficient” in ELA. In the area of Math, 37.4% of the student body at Waterford Union High School scored “proficient,” while only 8.3% of students

with disabilities scored “proficient,” and 28.6% of students who are identified as economically disadvantaged scored “proficient.”

While Waterford Union High School has a strong emphasis on college preparatory, the achievement gap continues to widen for students who are identified as having a disability and/or are identified as “economically disadvantaged.” During the 2014-2015 school year, the school target group points-based proficiency rate was .466 for students with disabilities and in the 2018-2019 school, this proficiency rate slipped to .382 for ELA, a rate of change of -0.014. In the area of Math, a -0.012 rate of change was identified for students with disabilities. While not as significant, findings were similar for students identified as economically disadvantaged in the area of ELA and Math. A rate of change of -0.004 was identified for economically disadvantaged students in the area of ELA and 0.001 in the area of Math. This data identifies the need to close achievement gaps for students with learning disabilities and students’ identified as economically disadvantaged as compared to the schools general population.

As Waterford Union High School works to become a high performing PLC, in which leadership also works to clarify and implement clear RTI protocols, it is imperative that direct instruction and universal instructional strategies are utilized to assist students in developing the lagging skills related to executive functioning. These lagging skills were assessed and further identified using the ESQ-R, a self-report assessment instrument that students completed to help them (and their teachers) understand their executive skill strengths and challenges. Lagging skills in the area of Executive functioning, such as plan management, time management, and organization have led to greater gaps in achievement due to missing work, poor test performance, lower grades, and a greater rate of failures for students. Students identified as special education or economically disadvantaged at Waterford Union High School have been placed in lower

classes or are required to take a remedial summer course to obtain required credits for graduation. However, this model does not support identification of lagging skills in the area of executive functioning for these students or provide a model for PLC have to support direct instruction for development of these essential skills in English, Math or career and college readiness.

The ESQ-R self-assessment was utilized as a pre-measure rating of students self-identified executive functioning difficulties to assist PLC's identify lagging skills, assist in developing a clear path for RTI intervention and direct instruction moving forward into the 2021-2022 school year. Students self their level of ability in areas such as time management, organization and planning using a rating scale of 0-3. As a general rule of thumb, the scores in the 2-3 range can be considered a relative weakness, while scores of zero and one can be considered a relative strength. Data collected from the ESQ-R in spring 2021 indicated that organizational skills were the greatest concern for students enrolled in 9th grade, with an ESQ-R overall rating of 2.088, indicating an area of weakness. While plan management self-assessment scores for 9th grade students were 1.14, and time management scores were 1.25, the impact of poor plan management and poor time management is cyclical in the area of developing organizational strategies and transferring them across the school day.

During the 2020-2021 school year, steps were taken to provide intensive support, training, professional development, and time for collaboration so that staff at Waterford Union High are able to build sustainable and high performing PLC's. Great strides were made during the 2020-2021 school year towards developing a common language around PLC's, developing emergent common formative assessments based on defined essential learning targets. However, further work is needed in the area of assessing student learning through evaluation of the

common formative assessment data, developing a deeper understanding of executive functioning skills and how lagging skills can affect learning, as well adapting teaching to provide equity in learning for all types of learners.

In order for Waterford Union High school to close the achievement gaps between general education students and students in economically disadvantaged or special education categories, professional development must focus on a deeper understanding of executive functioning, how it impacts learning, and instructional strategies or intervention strategies that can be utilized in the general education settings. Furthermore, a deeper understanding of Tier 1 and Tier 2 interventions that can be applied by universal design in the general education classroom and/or in built into student intervention time is necessary to assist students in not only better assessing their own executive functioning abilities but to practice and develop better organizational, time management and/or plan management skills.

### **Goals for School Improvement Plan**

Waterford Union High School exists to provide students the opportunities to acquire the existing knowledge, skills, and experiences to become successful and responsible adults. WUHS works to cultivate a culture of equity and excellence by creating sustainable curriculum and instructional practices that lead to high quality learning for each student through PLC's.

Administration works to build the capacity of our educators to meet the unique challenges and opportunities of teaching and learning in a dynamic and evolving environment with diverse learners. In order to close the achievement gaps at Waterford Union High School it will be vital that PLC's have the knowledge and skills to provide curriculum, instructional strategies that integrate organizational strategies, time management and plan management strategies, Tier 1 and Tier 2 interventions in the least restrictive environment. In order to achieve the goal of fostering a cycle of continuous instructional improvement through the use of data, collaboration and instructional support, teachers will be provided with a continuous cycle of professional development related to deepening understanding and instructional practices related to executive functioning and Tiered interventions building wide as well as within PLC's.

In addition to providing ongoing professional development for staff, it is the goal of Waterford Union High School to narrow achievement gaps with respect to socioeconomic status and increase the achievement of students with special needs and learning differences by utilizing instructional practices and Tier 1 and Tier 2 interventions in the least restrictive environment. By developing staff and instructional practices within the classroom, students are able to practice organizational, time management, and plan management skills fluidly in the classes, translate the skills across subject areas, and receive support from staff in the least restrictive environment.

### **Plan Implementation**

Waterford Union High School began the 2020-21 school year with three days of professional development to introduce and develop PLC's. As the teams became more fluent in utilizing common language, creating common formative assessment, utilizing data from assessments to adjust teaching and learning, the district leadership teams continued to assess the achievement gaps between students with disabilities, learning differences and students in low socio-economic groups. This assessment prompted identification of executive functioning skills as an area of further need in regards to professional development for staff, focused interventions and instructional strategies for all students in the general education setting, as well as focused interventions for students whose performance is reflective of challenges with executive functioning as evidenced by student self-assessment on the ESQ-R.

The yearlong improvement plan includes a combination of self-assessment surveys, professional development, resources, coaching, collaboration in PLC's, and instructional and intervention strategies that is defined in the Appendix A. During the district call back days, the WUHS Leadership team will provide whole group professional development on executive functioning skills. The first task for all staff to complete, will be a digital self-assessment rubric (Appendix B) to establish a baseline of an individual teacher understands of EF. These rubrics will be scored and data collected in a linked spreadsheet. The WUHS leadership team will use this information to identify teacher knowledge of EF and RTI, as well as to develop specific learning targets for individuals and teams as they are supported through individual inclusive coaching and within PLC's.

The second task will be to have staff engage in a Kahoot! Quizlet on executive functioning skills. This task will allow staff to engage and interact with the content in real time

as well as for the presenters to provide feedback and examples related to student impact and performance in the classroom related to executive functioning (Appendix C).

Following the Kahoot!, staff will watch a brief 2-minute YouTube video in the whole group setting titled *What's Executive Function—and Why Does it Matter?* (Appendix D) by Edutopia to assist in defining executive function skills and their impact on learning prior to moving into PLC work.

On day three of teacher call back, WUHS will provide a brief overview refresher to staff using a whole group Google Slides presentation on RTI (Appendix E). This presentation will clarify the RTI process at WUHS, and discuss how Lunch and Learn and interventions times can be used to provide Tier 2 intervention. In addition, day three will include examples of instructional and intervention strategies that can be provided, resources, and collaborative documents for PLC's to determine what whole group instructional strategies and/or student specific intervention strategies may be most applicable to their content area or students.

This discussion of executive functioning will provide a focused consideration as teams receive support throughout the three days of professional development in their PLC's for defining essential learning targets, common formative assessments, instructional strategies, and interventions or enrichment are considered in light of student learning following CFA's. PLC teams will be provided with support by members of the WUHS leadership team to assist in developing instructional practices and Tier 1 or Tier 2 interventions that can be infused in the general educational lessons daily for fidelity and carryover on day four of call back. Support for PLC teams will include a planning chart for Tier 1 and Tier 2 intervention strategies that can be utilized based on identified skill deficit (Appendix F).

WUHS will also provide PLC's with a sample homework planner (Appendix G) and provide instruction and examples for teachers to infuse this practice into their daily lesson plans for student engagement and development of organization, plan and time management skills. This practice will serve students in self-reflection, planning, time management and organization as well as provide students who may struggle with these EF skills with an organizational process that can be carried over into other subject areas. Students will be able to receive feedback and support on the planning process for short term and long-term classroom homework and expectations in the general education setting with fidelity.

With baseline data provided for current 9-12th grade students during the spring of the 2020-21 school year, an additional step that will need to be taken is to ensure that incoming freshmen take the ESQ-R. This self-assessment will be planned for incoming 9<sup>th</sup> graders during advisory time in September of the 2021-22 school year to obtain baseline data of their understanding and assessment of their own executive function skills.

Once students are in session, PLC's will receive ongoing coaching from the WUHS leadership team within the weekly PLC collaboration time for reflection of practices, problem solving, collaboration, coaching and review of CFA's to assess student needs or modifications to teaching strategies that specifically address the targeted EF skills. In addition, monthly lesson plans will be provided via email and a shared google drive folder with staff in order for them to instruct students in skills sets such as time management and organization during student advisory time (Appendix H).

On Monday January 4th, time will be allocated for further, mid-year professional development that continues the conversation regarding executive functioning skills and learning is impacted, as well as intervention and instructional strategies that have been utilized

successfully or may need further development for reflective practices. This mid-year PD will be in the form of a learning module, titled *An In-Depth Look at Executive Functions* by LD@school online resource (Appendix I). This module will be completed, as a whole group PD session with breakout times in PLC's to complete the post learning self-assessment.

In the spring of the 2021-22 School year, all students will repeat the ESQ-R during the designated advisory time in March 2022. The WUHS Leadership team, led by the district School Psychologist will review results and collect data to determine areas of need and growth in student self-assessment of EF skills following the monthly lessons in EF and daily instructional strategies. In addition, staff will repeat the EF self-assessment rubric, and patterns of growth in understanding and implementation of strategies for EF will be evaluated by WUHS Leadership team members.

Barriers to successful implementation could include factors such as teacher buy-in. While most teachers have fully embraced and engaged in the PLC process, a handful of staff have been reluctant to engage in the process within their PLC's and find all the changes to be overwhelming and unnecessary, as WUHS has been a high performing district historically. However, what these teachers fail to understand is that in order to close achievement gaps, DuFour et al (2020) explains that it is not enough to just write mission statements or goals. In order to become a high performing district for all types of learners, the goals and daily work teachers do, must include a collective commitment to working towards the established goals.

A growth mindset is an essential skill set in 21st century education for educators and students alike. Additionally, providing sufficient time for WUHS leadership to support all of the PLC's in developing a common language and skillset to address instructional and RTI Intervention practices within their PLC's and in practice in the classroom could be a barrier, as

PLC's teams and members continue to be in different phases and understanding of the PLC process. Developing a broader and more comprehensive understanding of RTI interventions, and the need for infusing these Tier 1 UDL strategies into daily lessons could be more challenging for some staff than others could. Finally, a barrier that has existed at WUHS historically is general education teacher buy-in that they are responsible for the teaching and learning of all students, including special education students.

### Assessment

Data will be collected at the beginning of the school year utilizing the staff self-assessment using rubric (Appendix B). The results from this survey style self-assessment will be used to determine the specific needs present as a whole for individual teachers. The results of this survey will be used to drive professional development priorities, coaching needs, and to develop staff understanding of EF as well as instructional and intervention strategies that are to be utilized in the classroom environment.

As administration works to build the capacity of our educators to meet the unique challenges and opportunities of teaching and learning with diverse learners, the staff self-assessment rubric (Appendix B) will be repeated in May of -2022. By repeating the self-assessment, administration and WUHS Leadership teams will be able to compare and contrast data for individual teachers and PLC's. This data will be collected in a spreadsheet and a chart that reflects growth in learning and ongoing needs will be compiled. This data will be used to drive further needs for professional development. A successful professional education plan to determine if this objective was met, will be indicated by 90% of staff self-assessing themselves as "proficient or advanced" on the self-rating assessment versus "little knowledge or emerging."

Additional data will be taken to assess student growth in March of 2022 by repeating the ESQ-R student self-assessment to determine student growth in the areas of time management, plan management and organization. Success will be measured by an overall score of <1.5 in the area of organization, with a Fall 2021 ESQ-R overall rating of 2.088 in this area. Time management and plan management scores were relative strengths as self-assessed by 9<sup>th</sup> grade students, however further success would be indicated by maintaining self-assessment scores

under two in these areas as student's understanding and awareness of these skills improve through direct instruction.

All data from teacher and student self-assessments and surveys will reviewed by WUHS Administration and Leadership Teams. In addition, student achievement gaps will be monitored annually using the State of Wisconsin's school report cards, published annually. The data from teacher self-assessments, student's surveys, and achievement gaps will be compared and contrasted through charts summarizing fall 2021 data and spring 2022 results following a yearlong improvement plan. The results will be shared with staff during the call back days at the beginning of the 2022-2023 school year as well as with the WUHS school board summer of 2022.

Data collected from the rubric and self-assessment responses will help guide what future steps need to be made to continue to provide support, coaching, instruction and interventions in the understanding of EF skills, their impact on learning, instructional and intervention strategies, as well as targeting learning needs of students with learning differences in the areas of EF.

### **Conclusion**

Following the work of WUHS leadership led professional development for staff and instructional and intervention strategies for students, the goal of the research site it to increase staff's depth of knowledge regarding EF, and to improve instructional and intervention strategies in the student's least restrictive environment. The focus of instructional strategies and interventions, which have the biggest impact on student success, will be in the areas of time management, plan management and organization. This daily reinforcement and practice of skills will allow students to develop and transfer these EF skills between subject areas as well as develop strategies for vocational, life and post-secondary success.

In the 2021-22 school year, professional development regarding RTI interventions and executive functioning will assist the PLC's, and district as a whole in closing achievement gaps with special education students, students with learning differences, and for students identified as low-SES. Baseline data for incoming freshmen will be provided using the ESQ-R self-assessment by October of 2021. Teachers will infuse instructional strategies into the classroom daily, such as instruction in the use of a homework planner for modeling use to develop a plan and delineate timelines and required materials. The modeling will be faded with check-ins provided daily and additional support for students who may continue to struggle.

These type of universal or Tier 1 interventions will ensure that lagging skills in plan management, time management or organization are not affecting student learning and students are able to develop systems for success across the learning context. Additional Tier 2 interventions will be provided during lunch and learn and/or study hall for students who require more intensive support or intervention for managing materials, timelines, or developing plans for

success as identified by PLC teams, when assessing CFA data and daily performance on the homework planner.

In addition, while this plan will need to remain fluid and cyclical, it is imperative that this plan work as a building block to develop a stronger foundation for closing student achievement gaps for the lagging skills students' exhibit, which may impact learning, such as EF. Data will be collected in the spring of 2022 to assess staff growth in their understanding and implementation of EF and RTI interventions in the classroom utilizing the comparative results from the self-assessment rubric presented in the fall of 2021.

Finally, a follow up Fall 2022 student self-assessment utilizing the ESQ-R will assess student growth in the areas of time management, plan management, and organization following a school year of directed lessons in advisory times, daily practice in classes, and focused intervention in lunch and learn and/or study hall. This data and reflective practices by PLC's and WUHS leadership will allow WUHS to assess growth as well as to develop additional needs for improvement as the district works towards closing achievement gaps and improving teaching and learning practices.

## Appendices

### Appendix A: Professional Development Schedule for the 2020-2021 School Year

**August 24, 2021:** Whole group professional development on executive functioning skills during teacher call back/PD day #1. All staff will complete a digital self-assessment rubric (Appendix A) to establish a baseline of an individual teacher understanding of EF. Whole group Kahoot! On EF to assess knowledge and whole group discussion regarding the impact of learning.

**August 25, 2021:** Day #2 of call back will include a brief, whole group viewing of a YouTube video defining EF and its impact on learning. This will be followed by whole group discussion of the impact on learning, and clarification on where resources for coaching, instructional strategies and interventions will be housed in Google shared drive for staff to utilize and infuse into practice.

**August 26, 2021:** WUHS will provide a brief overview refresher to staff using a whole group Google Slides presentation on RTI, clarifying the RTI process at WUHS and resources related to EF. Documents and resources regarding instructional strategies and Tier 1 and 2 interventions will be reviewed, clarification on coaching process for PLC's to infuse tools and strategies, Q&A.

**August 27, 2021:** Teacher work day, WUHS leadership will schedule times to meet with PLC's to assist with instructional strategies, interventions, and to provide resources/coaching as needed throughout the day.

**September 15, 2021:** Freshmen will participate in a whole group mini-lesson defining

executive functioning provided via google drive (shared team folder) to staff from WUHS leadership. Incoming Freshmen will then take the ESQ-R during advisory to determine baselines for EF skills.

**October 2, 2021:** Scheduled make up day for Freshmen & upperclassman to take the ESQ-R during advisory, if missed September date.

**January 4, 2022:** Professional Development date for all staff. Whole group module titled *An In-Depth Look at Executive Functions* by [LD@school](#) online resource (Appendix G). This module will be completed as a whole group PD session with breakout times in PLC's to complete the post learning self-assessment and reflect on Trimester 1 success, limitations, barriers, followed by whole group sharing/reflection.

**March 18, 2022:** All WUHS students will repeat the ESQ-R self-assessment. This data will be utilized to assess progress in development and understanding of EF skills and to determine additional needs for learning and teaching. Data to be reviewed by WUHS Leadership.

**May 19, 2022:** Staff will repeat the EF self-assessment rubric during the morning all staff meeting. WUHS Leadership will share data and results with staff regarding the student ESQ-R self-assessment follow up from March 18.

**June 11, 2022:** All staff meeting in a.m. to reflect on goals, progress, further needs, and provide data regarding student and staff growth as well as to communicate further needs & celebrate successes.

\*Weekly support will be provided to PLC's by WUHS Leadership in addition to whole group dates for coaching & collaboration to infuse, clarify, troubleshoot, review data regarding EF

instructional strategies, interventions, and to assess data from CFA's to determine needs for Tier 2 interventions. 1:1 classroom coaching and collaboration will be determined on an as needed basis as determined by teacher request or student achievement gaps on CFA's.

### Appendix B: Staff-Digital Self-Assessment Rubric on EF

#### Executive Functioning -Assessment of my understanding

Rate yourself 1-4 in regards to how well you understand EF and it's impact on student learning.  
1=little or no knowledge 2=emerging 3=proficient 4=advanced

\* Required

Email \*

Your email

Name \*

Your answer

I can name at least four executive functioning skills. \*

Choose

I can explain two school-related situations where a student would likely rely heavily upon their executive functioning skills. \*

Choose

I can describe how a learning disability in reading/writing/math may manifest itself in the classroom and provide Tier 1 instructional strategies. \*

Choose

I am confident in assessing students' learning skills and work habits, and can also help students develop these essential skills (time management, plan management, and organization in my subject area). \*

Choose

I am familiar with the eight pillars of executive functioning and can provide teaching and learning strategies in my classroom. \*

Choose

I am able to provide Tier 1 (universal design) instructional strategies in my daily lessons that focus on time management, organization and plan management. \*

Choose

Submit

Appendix C: Kahoot! Quizlet on Executive Functioning

Kahoot! Quizlet on Executive Functioning (Rbalimtas. (n.d.).

This screenshot shows the Kahoot! quiz interface for a quiz titled "Duplicate of Executive Functioning Skills Review". The quiz contains 10 questions. The questions and their correct answers are as follows:

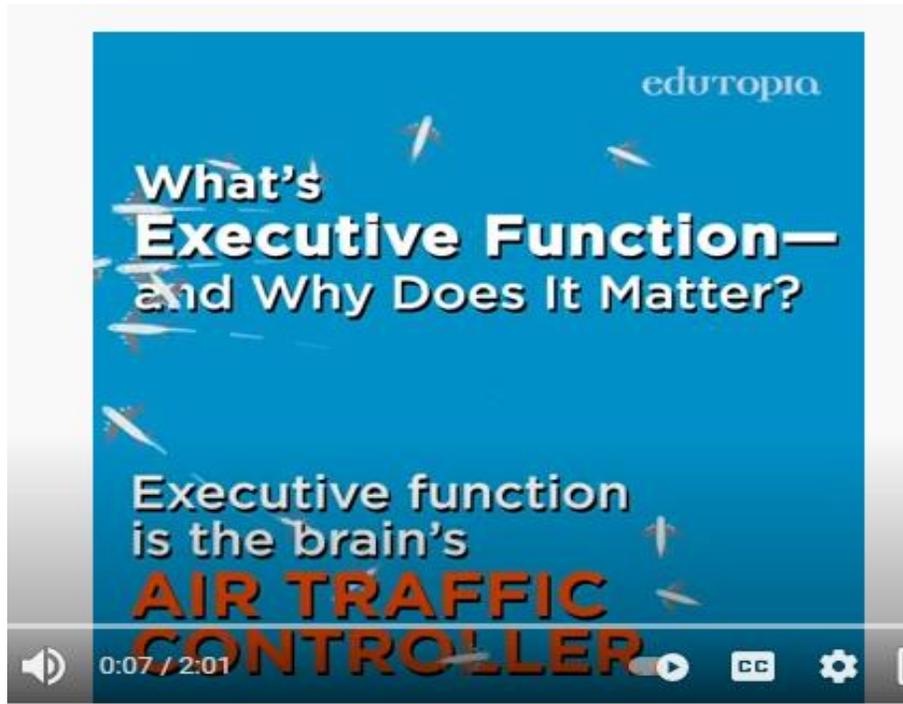
- 1- Quiz: Which executive functioning skill helps us make transitions and solve problems? Correct answer: response inhibition.
- 2- Quiz: Which executive functioning skill controls impulses? Correct answer: sustained attention.
- 3- Quiz: Moves freely from one activity or aspect of a problem to another as the situation changes? Correct answer: working memory.
- 4- Quiz: Handling frustration or difficult tasks is part of...? Correct answer: flexibility.
- 5- Quiz: Remembering routines is part of...? Correct answer: emotional control.
- 6- Quiz: Knowing what to focus on and what to ignore is part of...? Correct answer: sustained attention.
- 7- Quiz: Appropriately stops and modulates one's own behavior at the proper time or place? Correct answer: working memory.
- 8- Quiz: (Question partially obscured)
- 9- Quiz: The intensity of one's emotions matches the intensity of the event is...? Correct answer: inhibition.
- 10- Quiz: Recalling directions, retaining the steps to a task is...? Correct answer: working memory.

This screenshot shows another Kahoot! quiz interface for a quiz titled "Duplicate of Executive Functioning Skills Review". The quiz contains 10 questions. The questions and their correct answers are as follows:

- 1- Quiz: Which executive functioning skill helps us make transitions and solve problems? Correct answer: response inhibition.
- 2- Quiz: Which executive functioning skill controls impulses? Correct answer: sustained attention.
- 3- Quiz: Moves freely from one activity or aspect of a problem to another as the situation changes? Correct answer: working memory.
- 4- Quiz: Handling frustration or difficult tasks is part of...? Correct answer: flexibility.
- 5- Quiz: Remembering routines is part of...? Correct answer: emotional control.
- 6- Quiz: Knowing what to focus on and what to ignore is part of...? Correct answer: sustained attention.
- 7- Quiz: Appropriately stops and modulates one's own behavior at the proper time or place? Correct answer: working memory.
- 8- Quiz: (Question partially obscured)
- 9- Quiz: The intensity of one's emotions matches the intensity of the event is...? Correct answer: inhibition.
- 10- Quiz: Recalling directions, retaining the steps to a task is...? Correct answer: working memory.

Appendix D: YouTube Video Resource

You Tube Video: What's Executive Function—and Why Does it Matter? (2019)



Appendix E: Google Slides-RTI: Tier 1, Tier 2, Instruction and Interventions

<p><b>Overview of RTI-Tier 1/Tier 2</b></p> <p>A guide by Holly George in collaboration with WUHS Learning</p>	<p><b>Important Terms to Know</b></p> <p><b>Intervention</b> A change in instructing a student in the area of learning or behavior difficulty to try to improve performance and achieve adequate progress.</p> <p><b>Progress Monitoring</b> A scientifically based practice used to assess students' academic performance and evaluate the effectiveness of instruction or CFA's.</p>	<p><b>Tier 1: Screening and Group Interventions</b></p> <ul style="list-style-type: none"> <li>All students receive supplemental instruction or interventions during the students' regular school day in the regular classroom.</li> <li>UDL Instructional Strategies/Modifications.</li> </ul>	<p><b>Coaching, Collaboration, Resources and Interventions</b></p> <ul style="list-style-type: none"> <li>Coaching and Collaboration of the interventionist, content area teacher, and general education teacher.</li> <li>Resources and Interventions: Universal Design for Learning (UDL) and differentiated instruction.</li> <li>Interventions: Small group interventions, individual interventions, and peer tutoring.</li> <li>Coaching: Coaching and Collaboration of the interventionist, content area teacher, and general education teacher.</li> <li>Collaboration: Collaboration of the interventionist, content area teacher, and general education teacher.</li> <li>Resources: Coaching and Collaboration of the interventionist, content area teacher, and general education teacher.</li> <li>Interventions: Coaching and Collaboration of the interventionist, content area teacher, and general education teacher.</li> </ul>
<p><b>What is Response to Intervention?</b></p> <ul style="list-style-type: none"> <li>The RTI process is a multi-step approach to providing services and interventions to students who struggle with learning at increasing levels of intensity.</li> <li>Students progress is closely monitored at each stage of intervention and results are used to make decisions about the need for further intervention.</li> </ul>	<p><b>Benefits of RTI</b></p> <ul style="list-style-type: none"> <li>Reduces the time a student waits before receiving additional instructional services.</li> <li>Increases the number of students who succeed within general education through universal, Tier 1 instructional strategies.</li> <li>Provides critical information about the instructional needs of the student.</li> <li>Reduces the overall number of students referred for special education services.</li> </ul>	<p><b>Tier 2: Targeted Interventions</b></p> <ul style="list-style-type: none"> <li>These services are provided in addition to the UDL/Tier 1 instructional strategies provided in the general curriculum. These interventions are typically provided in small group settings during lunch and Learn, Study, Mail or Resource, however with push in services, these interventions can be integrated into the whole group/Gen Ed for exposure for everyone and continuity in regards to.</li> </ul>	<p><b>References:</b></p> <ul style="list-style-type: none"> <li>U.S. Department of Education. (2010). <i>Response to Intervention: A Practical Guide for Schools</i>. Washington, DC: U.S. Department of Education.</li> </ul>
<p><b>WHY RTI?</b></p> <ul style="list-style-type: none"> <li>The use of an RTI process helps to ensure that a student receives the appropriate size and type of instruction designed to meet their instructional environment.</li> <li>RTI services help determine whether a student has a learning disability and make more effective supports and services to meet their learning.</li> <li>The primary goal is student success.</li> </ul>	<p><b>A Three-Tier Model</b></p> <ul style="list-style-type: none"> <li>All stages of the RTI process should focus on discovering ways to make the student more successful rather than focusing on the student's lack of success.</li> <li>Universally Designed instructional strategies and includes intervention strategies/evidence-based practices.</li> </ul> <p><b>3 Tiers of Support</b></p>		

Appendix F: Planning Sheet for Designing Strategies to overcome

Executive Functioning: Tier 1 and Tier 2 Interventions:

Planning Sheet for Designing Strategies to overcome Executive Functioning: Tier 1 and Tier 2 Interventions:

Lesson/Assignment:	Executive Skill:	Obstacle:	Possible Strategy:
Ex: Math	Subtraction and regrouping	<ul style="list-style-type: none"> <li>• Organization</li> <li>• Working memory</li> </ul>	<ul style="list-style-type: none"> <li>• Use graph paper</li> <li>• Use a checklist with numbered steps</li> </ul>
English	Drafting an Essay	<ul style="list-style-type: none"> <li>• Plan management</li> <li>• Organization</li> <li>• Time management</li> <li>• Ineffective study strategies</li> </ul>	<ul style="list-style-type: none"> <li>• Use/model a graphic organizer</li> <li>• Use homework scheduler</li> <li>• Break tasks into smaller parts</li> <li>• Model highlighting of keywords/terms</li> </ul>

Appendix G: Daily Homework Planner-Instructional Strategy

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**Smart but Scattered Kids.com** By Dr. Peg Dawson and Dr. Richard Guare

**Daily Homework Planner**

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**Student Name:** \_\_\_\_\_ **Week of:** \_\_\_\_\_

Teachers: If the student has no missing assignments this week or from previous weeks, please ✓ the appropriate boxes. If there are missing assignments, briefly provide a brief descriptor what's missing. If there will be long-term assignments due in the next 2 weeks, please write the due dates.

SUBJECT	THIS WEEK'S HOMEWORK	HOMEWORK FROM PREVIOUS WEEKS	UPCOMING LONG-TERM ASSIGNMENT DUE DATES (next two weeks)	COMMENTS



## Appendix I: PD Learning Module

Learning Module (Gendron, 2017)

- Understand executive functioning as it relates to LDs and ADHD;
- Understand the effects that executive functioning difficulties can have on various aspects of learning;
- Identify the indicators of executive functioning difficulties in your students, at all grade levels;
- Identify effective strategies to support students with their specific executive functioning difficulties as well as their overall executive functioning development;
- Deepen your understanding of the Learning Skills and Work Habits in Grades 1 to 12, as referenced in the Ontario Ministry of Education document, *Growing Success*, and how you can support the continued development of these skills;
- Identify tools that can be used with your students to gauge their executive functioning strengths and needs.

Upon completion, it is our hope that you will use what you learn here in your everyday and working life to help support the needs of students with LDs, as well as any other students who may struggle with the various aspects of executive functioning.

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