5-2023

Executive Functioning in Students with Emotional and Behavioral Disorders

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Executive Functioning in Students with Emotional and Behavioral Disorders

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A Starred Paper

Submitted to the Graduate Faculty of

St. Cloud State University

in Partial Fulfillment of the Requirements

for the Degree

Master of Science in Special Education

August 2023

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Chapter I

Introduction

Executive system dysfunction may occur in conjunction with disorders of both emotionality and behavior. Because of these deficits, students with emotional and behavioral problems may be unable to fully regulate their emotions or to consider multiple dimensions of a problem. They may also be unable to deploy behavioral self-control in various situations. As a result, academic achievement and social adjustment may be adversely affected.

Executive functioning has been widely investigated. Lezak et al. (2012) identifies four areas of executive function: a) volition, b) planning and decision making, c) purposive actions, and d) effective performance. All four components are important for initiating adaptive behavior and for inhibiting maladaptive behavior. Educational leaders must be well-versed in the barriers that executive dysfunction presents to these crucial constructs and the impact it can have on the students, especially if unaddressed.

Historical Overview

Neuropsychologists and psychologists have studied executive functions for more than four decades. Working memory is a key substrata element of executive functioning, and it was first investigated by Baddeley and Hitch (1974). They described the processes and systems relevant to activation, viz. bringing to mind, maintenance, viz. holding in mind, and processing of mental information during the performance of a task.

Sepp et al. (2019) expands the model of a multi-component working memory and increases the importance of executive function. The Seppian multi-modal model attempts to account for results beyond the temporary activation of information in short-term memory storage. In addition, he shows that the human motor system plays an essential role in the learning

process, especially with the involvement of gestures and other human movements that have proven to be helpful in an educational setting (Sepp et al., 2019).

Historically, an array of substrata processes and higher order processes have been included under the aegis of executive functions. Metacognition is a higher order cognitive process, and it is associated with the abilities to initiate and to inhibit behavior. Flavell (1979) describes metacognition as the ability to evaluate one's thinking independently. Fleming (2014) extends the definition to "Metacognition is an internal tribunal that rules on the soundness of our mental representations, such as a memory or judgment." Metacognition is the way the mind can find and compensate for its weaknesses. Metacognition is linked with an individual's ability to evaluate their own performance and to determine if a task has been completed. Baker and Brown (1984) divide metacognition into two categories: knowledge about cognition and regulation of cognition. Knowledge about understanding focuses on one's awareness and appraisal of one's cognitive process, and the regulation of cognition facilitates self-regulation and strategies leading to the achievement of self-regulation. Verezub and Wang (2008) argues metacognition is an essential component of executive function.

Statement of the Problem

This review examines executive function and dysfunction in emotional and behavioral disorders. The educational and psychological consequences of executive dysfunction are reviewed. Approaches for improving executive functions are addressed.

Rationale

A number of practical consequences and theoretical implications may arise from the results of this review. By teaching students means for improving their executive function skills, their academic performance may be improved. Because executive system dysfunction is often

associated with maladaptive behaviors, students may learn to control their behavior through metacognitive and self-generated means. Finally, the use of interventions based on executive dysfunction may improve classroom climates and management by attenuating maladaptive behavioral episodes.

Glossary

Executive functions have been widely investigated in the fields of psychology, of neurology, and of education. Because these areas have different foci and outcomes, the theoretical and operational definitions of terms related to executive function and dysfunction have slightly variant denotations and connotations. In this section, I define key vocabulary as it is used in this review. The glossary is organized alphabetically.

Executive Function refers to a set of mental processes governed by the brain's pre-frontal cortex used to produce adaptive, goal-directed behaviors and override more automatic responses. Executive Function includes working memory, response inhibition, attention shifting (i.e., cognitive flexibility), and attention control. (Cuartas et al., 2022)

Executive dysfunction is a behavioral symptom that disrupts a person's ability to manage their own thoughts, emotions and actions. It's most common with certain mental health conditions, especially addictions, behavioral disorders, brain development disorders and mood disorders. (Cleveland Clinic, 2022)

Chapter II

Review of the Literature

This review examines the executive function and executive dysfunction in the context of emotional and behavioral disorders. In Chapter I, executive functions were defined both operationally and theoretically. Relations among executive dysfunction and disorders of emotionality and behavior were promulgated as the foci for the review. Chapter II reviews research addressing these constructs that appears in education and psychology literature. Chapter III summarizes the findings from the analysis, and the implications will be described.

Scope of the Review

Various techniques were used to identify studies addressing the relations between executive functions and disorders of emotionality and behavior. Identifying appropriate search descriptors is complex because the constructs are multifaceted and are broad in scope. Selecting key identifiers is also complicated because many conditions are comorbid, and the sets of concomitant maladaptive behaviors are diverse. For the search, the initial stage of principal descriptors included aggressive behaviors, cognitive flexibility, planning., inhibitory control, oppositional defiance, conduct disorder, working memory, and decision making.

Focus of the Review

This paper examines the relations among executive system dysfunction, behavior disorders, and emotionality. Three main foci guide the analysis. Initially, the primary and ancillary constructs within the domain of executive functions are reviewed. These constructs include cognitive flexibility, planning, inhibitory control, working memory, and decision making. Second, the effects of executive dysfunction on affect and behavior are addressed. Finally, interventions and strategies for improving executive function skills are examined.

Presentation of the Studies

In this section, studies addressing the academic and behavioral consequences of executive dysfunction and studies addressing interventions targeting executive system dysfunction are presented. The studies are analyzed individually. The principal findings and the concomitant consequences of the findings are included in the summaries.

Gagne, Chang, Kwok, Fang, and Spann (2019)

Gagne and his colleagues examined the relations among low levels of inhibitory control (IC), behavioral problems, maternal depression, and anxiety within families. According to their report, children with age-appropriate levels of IC regulate their behaviors in situations when required, but children exhibit low IC behave impulsively and exhibit poorer cognitive control (Gagne et al., 2019). Children who had lower IC levels experienced more cognitive and socio-emotional difficulties. The behavioral manifestations included externalizing behaviors and ADHD. Inhibitory Control was assessed using a multi-method approach; the instruments included parent-report questionnaires, a modified Stroop task, two structured behavioral assessment episodes, and a post-visit observer rating completed by experimenters.

The findings suggest that inhibitory control is affected by developmental and social factors. First, older children have more advanced IC abilities. Second, when matched for age, girls have significantly more IC than boys. All of the IC ratings are negatively correlated to externalizing behaviors and ADHD. Gagne and colleagues in their 2019 study argue that inhibitory control difficulties when extant in preschool portend later externalizing maladaptive behaviors. Behavioral manifestations of attention problems also arose in conjunction with executive function deficits. Parental ratings and IC assessment yielded consistent results for maladaptive behaviors associated with inhibitory control difficulties.

Modecki, Zimmer, and Guerra (2017)

Many adolescents engage in externalizing behaviors; such behaviors include aggression, substance use, and delinquency. A wide range of programs has been developed to prevent externalizing behaviors before they emerge. These programs are meant to teach young people skills to help them successfully navigate away from anti-social engagement and manage daily challenges. Modecki and her colleagues proposed three core skills for preventing or significantly reducing externalizing behaviors. These skills are emotional regulation, coping, and decision making. Children and adolescents vary in their levels for these skills, and the abilities continue to develop until at least the early to mid-20s. These skills can be improved coaching, instruction, and practice.

Modecki et al. (2017) define emotional regulation as organizing skills that scaffold other psychological processes to facilitate biological or social adjustment or attainment of personal goals. Effective decision-making is defined as the capacity to anticipate real world scenarios, pay attention to relevant cues, consider perspective, and make meaningful choices across various situations and contexts. Coping is the means that adolescents use to regulate their emotions, cognitions, physiology, and behavior.

All of those three skills are associated with executive functions. Deficits in executive control affect how youths process and direct emotional information, make decisions when considering potential choices, and cope with the overload of emotional, social, and cognitive information. Youths who externalize their difficulties behaviorally are less able to downregulate their emotional vitality effectively, having difficulties coping with stressors, exhibit poor proactive responses, and make bad decisions. Coping is not just as a response to situations or events that are overly stressful such as threats and losses, but it also includes overcoming

challenges that arise from difficulties with social and emotional factors and from the vagaries of adolescence.

The researchers developed programs that targeted two or more skills in an attempt to attenuate maladaptive behaviors. Each program provides evidence of effectiveness for improving emotional regulation, coping, decision making, and reducing externalizing behaviors. The illustrative programs describe work with youths aged seven or eight years through late adolescence. Because those three skills develop over time, a clear mandate for prevention is to begin before the emergence of adolescent externalizing problems. The team says the skill-building programs with significant impact have been implemented during the elementary and middle school years. These programs generally are implemented within primary developmental contexts for youths, most frequently families, schools, and communities.

Parenting programs are effective in preventing and reducing youth externalizing behaviors. A program that has had success was Coping Power. The program targets highly aggressive children and their caregivers to diminish child externalizing behaviors and improve a range of skills, including emotional regulation, coping, and decision making. This year-long program reduced biased attributions of others' behaviors, distorted perception, failure to compromise, and emotion-based, nonverbal solutions. Parents learn necessary childrearing skills as well.

Programs in schools and communities tend to focus on a range of social and emotional skills. Many programs highlight different skills. Most programs improve emotional regulation and decision-making, and some address coping skills by teaching children and youth how to deal with challenging situations in daily life. Modecki and her colleagues reviewed two programs: Promoting Alternative Thinking Strategies (PATHS) and Life Skills Training (LST). PATHS is a

school-based program delivered by teachers to reduce children's externalizing behaviors with interventions that target emotional regulation, coping, and decision-making skills. PATHS is across a whole school year and has two weekly sessions. The program parallels our construal of coping and suggests that a child's internal regulation and behavior should match their coping skills. LST is another classroom-based program that teaches adolescents to deal with challenges they confront daily. With all of the program's skills learned, but without proper support, the program's children and adolescents will still struggle. So, adults must be there to help continue to refine these new and continual skills.

Van Nieuwenhuijzen, Van Rest, Embregts, Vriens, Oostermeijer, Van Bokhoven, I., and Matthys (2017)

In this study, the authors examined the relation between executive function and social information processing in adolescents who exhibited aggressive behavior. The interventions focused on executive functions including inhibition, focus attention, and working memory. Multiple social information processing steps including encoding, interpretation, response generation, evaluation, and selection were also targeted. A specific focus for the study was the relations among executive functions are related to social information processing variables. The participants in the study were adolescents. Of the total sample, 46% were male, and 51 percent were of an ethnic minority. The mean IQ for the sample was 86. All participants were Dutch and were currently living in residential or criminal justice facilities for adolescents with externalizing behavior problems and problematic parenting and family situations.

Clinicians evaluated the aggressive and rule-breaking behaviors of the participants using a child behavior checklist. The participants completed 32 articles on the same scale via self-report. To measure the executive function, subtests from the Amsterdam Neuropsychological

Test were done on all the participants. From the ANT, the researchers decided to look at focused attention, inhibition, and working memory. Scores were obtained using the SIP test to assess the social information processing steps of encoding, interpretation, response generation, evaluation, and response selection.

The research results showed that the model of age, intelligence score, and inhibition variables predicted positive evaluation of aggressive responses when examining multivariable relations. After controlling for age and intelligence score, premature responses and low reaction time on inhibition tasks were unique contributors. The authors also report that a combination of age intelligence-focused attention and inhibition predicted aggressive response selection. After controlling those in the youth who had problems with focused attention and inhibition, they were more likely to select an aggressive response. These results indicate first that positive evaluation of aggressive response is predicted by inhibition and second that the selection of aggressive response is predicted by problems in both inhibitions and focused attention even after controlling for age and IQ. The present study shows no relation between executive function and the early information processing steps but does with later information steps.

Limitations in the study were extant. The scores self-report assessments were inconsistent with the clinical evaluations. The participants systematically rated their behaviors and pathologies at lower levels than the clinicians. Information on the severity of their aggressive problems or how long they needed to stay at their institutions was also not reported.

Monette, Bigras, and Guay (2015)

Monette and colleagues identify working memory, flexibility, and inhibition as the principal components of executive functioning. In children with cerebral damage, executive functioning deficits are linked with medical conditions, traumatic brain injury, and prenatal

exposure to teratogenic agents. Children raised in socially or physically deprived environments also exhibit executive functioning deficits. Executive function deficits are also documented in neurodevelopmental disorders such as Autism Spectrum Disorder, Tourette Syndrome, and ADHD. However, executive functioning weaknesses have been reported less consistently in children with disruptive behavior disorders, such as conduct disorder and oppositional defiant disorder.

Because of these diagnostic and etiological differences, the authors used different methods of intervention for the population exhibiting disruptive behavior disorders and examined the efficacy of early intervention during the the preschool years. The participants in this study are from a more comprehensive longitudinal study of the effects of an intervention program targeting externalizing behaviors, i.e., inattention, impulsivity, hyperactivity, aggressive behaviors, and oppositional behaviors, in kindergarteners. The researchers formed two groups. One group was composed of individuals who exhibited high levels of disruptive behavior disorder behaviors, and the other group was composed of individuals who exhibited high level of both disruptive behavior and ADHD related behaviors. The researchers did make a third sample group of children within the kindergarten age group. Behavior was assessed via teacher questionnaires, familial questionnaires, and behavioral observation.

One researcher helped the parents fill out the questionnaire, and the other administered the various tests to the children in a separate room. The specific focus for the analysis was working memory. They used backward word span and backward block span to evaluate working memory. They also looked at flexibility inhibition and inhibition via card sorts, fruit Stroope, and the Knock and Tap test the three areas. The teachers completed the Achenbach System of Empirically Based Assessment (ASBEA). The researchers found from all those assessments that

kindergartners with high levels of disruptive behaviors in lower levels of ADHD symptoms demonstrate weaker inhibition capacities than typically developing children. Kindergartners with high disruptive behaviors and ADHD symptoms have weaker inhibition and working memory capacities than their typically developing peers. These results support the idea that an inhibition weakness characterizes children with disruptive behavior disorders and that this weakness is already present in preschool years.

Ellis, Weiss, & Lochman (2009)

In this study, the authors examined the relations among executive functioning deficits, appraisal processing distortions, and aggressive behavior. Executive functions were previously linked to several psychological processes within a foundation for practical problem solving along the lines of selective attention planning, planning, the ability to shift cognitive sets, rule use, inhibitory control, recall of salient information, and working memory. Further, deficits in executive functions and aggressive behavior have been observed throughout childhood. Youth exhibiting high levels of aggressive behavior often experience difficulties with disinhibition, sequential and recall memory, the ability to use feedback to correct responses effectively, and cognitive preservation.

Although previous research linked executive functioning and social information processing difficulties to aggressive behavior, relatively little attention had been paid on how deficits in these two conceptually related risk domains are associated with subtypes of aggression and how they function together. Using a cognitive processing framework, the researchers examined three models involving unique and interactive relations between executive function deficits, social information processing distortions, and subtypes of aggressive behavior. The first of these models predicts appraisal processing, encoding, and attributing action distortions and

executive function deficits associated with reactive but not proactive aggressive behaviors. The second model focuses on interactions among social information processing and executive function deficits about their subtype of aggressive behavior. The third problem-solving model suggests that executive function processing operates sequentially, interactively, and hierarchically to influence behavior. Thus, Ellis and colleagues examined the effects of mediational role of response inhibition on planning ability and reactive aggressive behavior.

The participants were boys because they generally exhibit more anti-social behavior than age matched girls. Eighty-three male elementary students enrolled in 4th and 5th grade in eight elementary schools were selected for the study. Each participant was accompanied to the evaluation by their caretaker. The review started with each child completing the Welsh layers abbreviated intelligence scale and then a battery of neuropsychological tests were administered. The participants then completed the tribulation instrument's recall task and intent. The results from these assessments were consistent with previous research. The results suggested that deficits in executive functions are related to behavioral difficulties, specifically reactive aggression but not proactive aggression. The research team also found that social information processing deficits interact with risk factors to predict aggressive behavior. They also found results supporting the position that, unlike reactive aggression, proactive aggression does not primarily result from cognitive or emotional processing difficulties or biases. The results extend these findings to executive functions.

One limitation of the study is that anti-social behavior is seen in the male population. It is more important to get a well-rounded view of all children. I think this study should have had both males and females in this study to help get a better idea of executive functioning deficits in all children.

Chapter III

Summary and Conclusion

This review has examined the executive functioning in students with Emotional Behavioral Disorders. Working memory, inhibition, flexibility, planning, and disruptive behavior were specific foci. In Chapter I, the executive function were defined, and the historical background of its beginning was reviewed. In Chapter 2, studies investigating the relations between executive functioning deficits in students and maladaptive behavior were reviewed. In Chapter III, the principal findings are summarized, and the theoretical and practical implications of the findings are described.

Summary

Executive functioning deficits and externalized maladaptive behaviors are associated. Young children and adolescents with lower inhibition control exhibit more frequent and more severe maladaptive behaviors. Thus, many individuals with this profile are at risk for developing emotional and behavioral disorders.

Recommendation for Further Research

Although all the research was done well, more research needs to investigate executive functioning deficits and emotional lability. Many studies address externalized behaviors in the absence of interpreting affective factors. Myriad studies describe disruptive behavior disorders combined with ADHD or ASD, but few studies have a principal focus on emotional disorders. Although many students labeled with emotional behavior disorders do have a comorbidity of ADHD, it is important to dive deeper into just conduct disorders or oppositional defiance disorders. More research needs to be done to review if a child has executive functioning weakness or potentially a disruptive behavior disorder. The research findings show that there might be a correlation between having more executive functioning weaknesses and actual

aggressive behaviors. So, it might be helpful to look and do more research in that area rather than mislabeling children as having behavior problems versus functioning executive deficits. More research needs to occur in that area, especially at the younger preschool age and more early intervention needs to be looked at to help those children through executive functioning weaknesses.

Implications for Practice

I benefitted from reading and reviewing the research on executive functions and behavior. In my practice as a special education teacher, I will help my students develop their working memory flexibility and inhibition skills. I primarily work with students from kindergarten through 3rd grade. So especially looking at that inhibition or impulsivity, it is important to note how to help students work through those deficits and make them more successful. Focusing more on interventions that involve taking on other people's perspectives and not being so rigid will also be helpful in everyday practice.

Realizing that a child's prefrontal lobe is not fully developed and naturally has more weaknesses will help an educator better understand where the child needs to be by taking a step back and thinking of where they are developmental versus where they are supposed to be developmental. Moreover, they are taking a deeper look into whether a child might have executive functioning weaknesses or not.

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