BRIEF®2

Behavior Rating Inventory of Executive Function®, Second Edition

Interpretive Report for Clinicians

Teacher Form

by Peter K. Isquith, PhD, Gerard A. Gioia, PhD, Steven C. Guy, PhD, Lauren Kenworthy, PhD, and PAR Staff

Generated by

PARiConnect

Client name :	Sample Client
Client ID :	1234
Gender :	Male
Age :	16
Grade :	11th
Test date :	02/15/2022
Test form :	Teacher Form
Rater name :	Sample Rater
Relationship to student :	Teacher
Knows student :	Moderately Well
Has known student for :	6 months
Class taught :	Science
Student receiving special educational services? :	No

This report is intended for use by qualified professionals only and is not to be shared with the examinee or any other unqualified persons.

PAR **16204 N. Florida Ave. | Lutz, FL 33549 | 1.800.331.8378 | parinc.com**

Contents

Validity

Before examining the Behavior Rating Inventory of Executive Function, Second Edition (BRIEF2) Teacher Form profile, it is essential to carefully consider the validity of the data provided. The inherent nature of rating scales (i.e., relying on a third party for ratings of an adolescent's behavior) carries potential rating and score biases. The first step is to examine the protocol for missing data. With a valid number of responses, the BRIEF2 Inconsistency, Negativity, and Infrequency scales provide additional information about the validity of the protocol.

Missing items

The respondent completed 63 of a possible 63 BRIEF2 items. For reference purposes, the summary table for each scale indicates the respondent's actual rating for each item. **There are no missing responses in the protocol, providing a complete data set for interpretation**.

Inconsistency

Scores on the Inconsistency scale indicate the extent to which the respondent answered similar BRIEF2 items in an inconsistent manner relative to the clinical samples. For example, a high Inconsistency score might be associated with the combination of responding Never to the item "Small events trigger big reactions" and Often to the item "Becomes upset too easily." Item pairs comprising the Inconsistency scale are shown in the following summary table. *T* scores are not generated for the Inconsistency scale. Instead, the absolute value of the raw difference scores for the eight paired items are summed, and the total difference score (i.e., the Inconsistency score) is compared with the cumulative percentile of similar scores in the combined clinical sample and used to classify the protocol as either Acceptable, Questionable, or Inconsistent. **The Inconsistency score of 1 is within the Acceptable range, suggesting that the rater was reasonably consistent in responding to BRIEF2 items**.

Item #	Inconsistency item	Response	Diff
3	When given three things to do, remembers only the first or last	Often	0
19	***Remaining content redacted for sample report***	Often	
4		Often	0
20		Often	
5		Sometimes	1
33		Often	
6		Sometimes	0
14		Sometimes	
12		Often	0
32		Often	
16		Often	0
39		Often	
22		Sometimes	0
56		Sometimes	

Item #	Inconsistency item	Response	Diff
60		Never	0
63		Never	

Negativity

The Negativity scale measures the extent to which the respondent answered selected BRIEF2 items in an unusually negative manner relative to the clinical sample. Items comprising the Negativity scale are shown in the following summary table. A higher raw score on this scale indicates a greater degree of negativity, with less than 3% of respondents scoring 5 or above in the clinical sample.

As with the Inconsistency scale, *T* scores are not generated for this scale. **The Negativity score of 0 is within the acceptable range, suggesting that the respondent's view of Sample is not overly negative and that the BRIEF2 protocol is likely to be valid**.

Item #	Negativity item	Response
2	Resists or has trouble accepting a different way to solve a problem with schoolwork, friends, tasks, etc.	Sometimes
11	***Remaining content redacted for sample report***	Sometimes
31		Sometimes
34		Sometimes
37		Sometimes
43		Sometimes
45		Sometimes
49		Sometimes

Infrequency

The Infrequency scale measures the extent to which the respondent endorsed items in an atypical fashion. The scale includes three items that are likely to be endorsed in one direction by most respondents. Marking Sometimes or Often to any of the items is highly unusual, even in cases of severe impairment.

Items comprising the Infrequency scale are shown in the following summary table. A higher raw score on this scale indicates a greater degree of infrequency, with less than 1% of respondents scoring 1 or greater in the standardization sample. As with the Inconsistency and Negativity scales, *T* scores are not generated for this scale. **The Infrequency score of 0 is within the acceptable range, reducing the likelihood of an atypical response pattern**.

Item #	Infrequency item	Response
18	Forgets his/her name	Never
36	***Remaining content redacted for sample report***	Never
54		Never

Introduction

The BRIEF2 is a questionnaire completed by parents and teachers of school-aged children as well as adolescents ages 11 to 18 years. Parent and teacher ratings of executive functions are good predictors of an adolescent's functioning in many domains, including the academic, social, behavioral, and emotional domains. As is the case for all measures, the BRIEF2 should not be used in isolation as a diagnostic tool. Instead, it should be used in conjunction with other sources of information, including detailed history, other BRIEF2 and behavior ratings, clinical interviews, performance test results, and, when possible, direct observation in the natural setting. By examining converging evidence, the clinician can confidently arrive at a valid diagnosis and, most importantly, an effective treatment plan. A thorough understanding of the BRIEF2, including its development and its psychometric properties, is a prerequisite to interpretation. As with any clinical method or procedure, appropriate training and clinical supervision are necessary to ensure competent use of the BRIEF2.

This report is confidential and intended for use by qualified professionals only. This report should not be released to the parents or teachers of the adolescent being evaluated. If a summary of the results specifically written for parents and teachers is desired, the BRIEF2 Feedback Report can be generated and given to the interested parents and teachers. In addition, the BRIEF2 Intervention Handouts, designed specifically for parents and teachers, explain the importance of executive functioning and provide recommendations and resources to help support and improve the executive functions.

T scores are used to interpret the level of executive functioning as reported by parents and teachers on the BRIEF2 rating forms. These scores are linear transformations of the raw scale scores (M = 50, SD = 10). *T* scores provide information about an individual's scores relative to the scores of respondents in the standardization sample. Percentiles represent the percentage of adolescents in the standardization sample with scores at or below the same value. **For all BRIEF2 clinical scales and indexes, *T* scores from 60 to 64 are considered mildly elevated, and *T* scores from 65 to 69 are considered potentially clinically elevated. *T* scores at or above 70 are considered clinically elevated.**

In the process of interpreting the BRIEF2, review of individual items within each scale can yield useful information for understanding the specific nature of the adolescent's elevated score on any given clinical scale. In addition, certain items may be particularly relevant to specific clinical groups. Placing too much interpretive significance on individual items, however, is not recommended due to lower reliability of individual items relative to the scales and indexes.

Overview

Sample's teacher completed the Teacher Form of the Behavior Rating Inventory of Executive Function, Second Edition (BRIEF2) on 02/15/2022. There are no missing item responses in the protocol. Responses are reasonably consistent. The respondent's ratings of Sample do not appear overly negative. There were no atypical responses to infrequently endorsed items. In the context of these validity considerations, ratings of Sample's executive function exhibited in everyday behavior reveal some areas of concern.

The overall index, the GEC, was **clinically elevated (GEC *T* = 78, %ile = 97)**. The BRI, ERI, and CRI were all **elevated (BRI *T* = 85, %ile = 98; ERI *T* = 67, %ile = 93, CRI *T* = 75, %ile = 97)**, suggesting self-regulatory problems in multiple domains.

Within these summary indicators, all of the individual scales are valid. One or more of the individual BRIEF2 scales were elevated, suggesting that Sample exhibits difficulty with some aspects of executive function. Concerns are noted with their ability to resist impulses, be aware of their functioning in social settings, adjust well to changes in environment, people, plans, or demands, react to events appropriately, get going on tasks, activities, and problem-solving approaches, sustain working memory, plan and organize their approach to problem-solving appropriately, be appropriately cautious in their approach to tasks and check for mistakes and keep materials and their belongings reasonably well organized.

Current models of self-regulation suggest that behavior regulation and/or emotion regulation, particularly inhibitory control, emotional control, and flexibility, underlie most other areas of executive function. Essentially, one needs to be appropriately inhibited, flexible, and well modulated emotionally for efficient, systematic, and organized problem-solving to take place. Sample's elevated scores on scales reflecting problems with fundamental behavioral and/or emotional regulation suggest that more global problems with self-regulation are having a negative effect on active cognitive problem-solving. Behavior and emotion regulation concerns do not negate the meaningfulness of the elevated CRI score. Instead, one must simultaneously consider the influence of the underlying self-regulation issues and their unique problems with cognitive problem-solving skills.

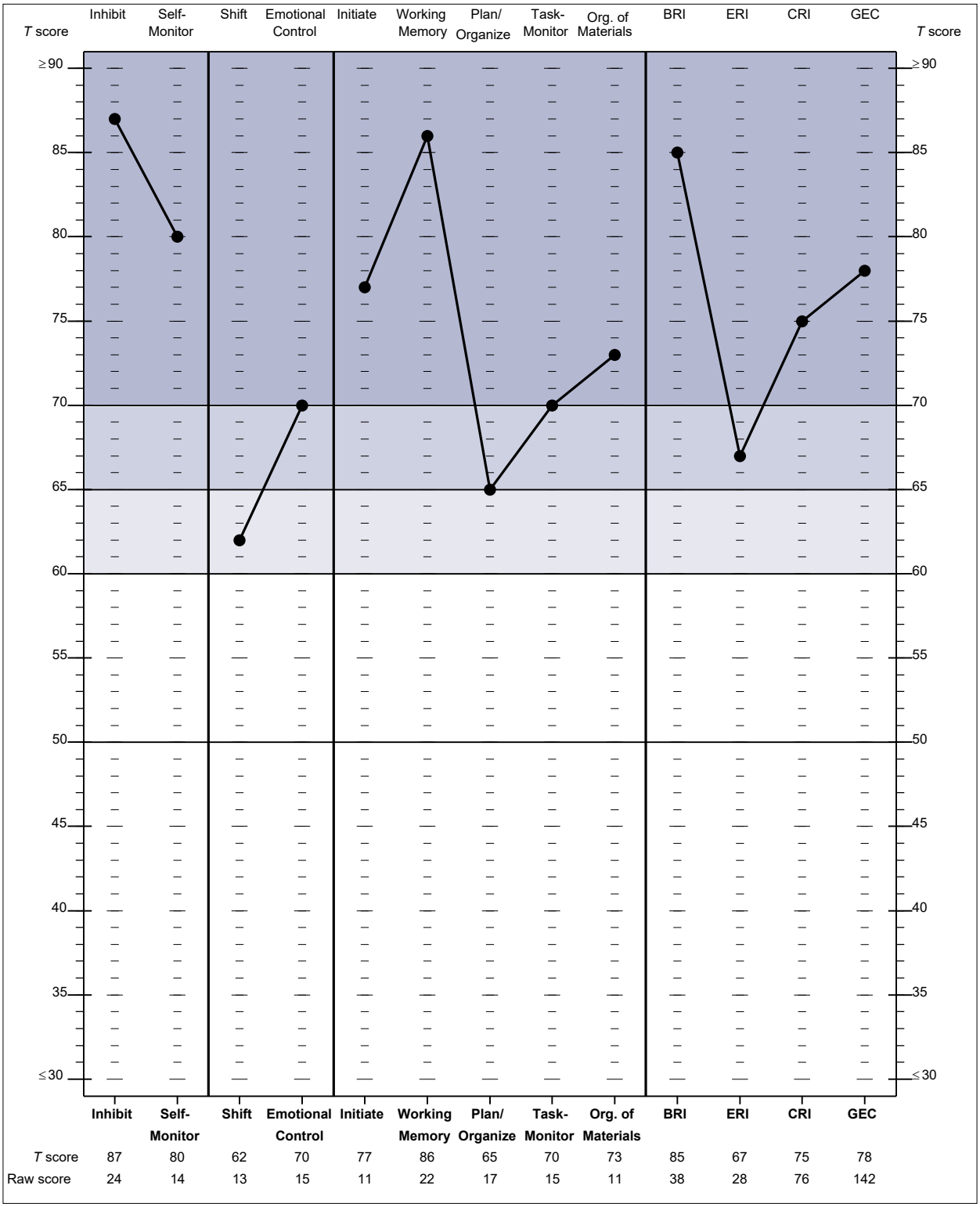
BRIEF2 Teacher Form Score Summary Table and Profile

Index/scale	Raw score	*T* score	Percentile	90% CI
Inhibit	24	87	> 99	83-91
Self-Monitor	14	80	98	75-85
Behavior Regulation Index (BRI)	38	85	98	82-88
Shift	13	62	89	57-67
Emotional Control	15	70	95	66-74
Emotion Regulation Index (ERI)	28	67	93	63-71
Initiate	11	77	97	72-82
Working Memory	22	86	99	81-91
Plan/Organize	17	65	92	60-70
Task-Monitor	15	70	95	66-74
Organization of Materials	11	73	96	67-79
Cognitive Regulation Index (CRI)	76	75	97	73-77
Global Executive Composite (GEC)	142	78	97	76-80

Validity scale	Raw score	Percentile	Protocol classification
Negativity	0	≤ 98	Acceptable
Inconsistency	1	≤ 98	Acceptable
Infrequency	0	99	Acceptable

Note: Male, age-specific norms have been used to generate this profile. For additional normative information, refer to Appendixes A–C in the BRIEF2 Professional Manual.

Profile of BRIEF2 *T* Scores



Note: Male, age-specific norms have been used to generate this profile. For additional normative information, refer to Appendixes A–C in the BRIEF2 Professional Manual.

Clinical Scales

The BRIEF2 clinical scales measure the extent to which the respondent reports problems with different types of behavior related to the nine domains of executive functioning. The following sections describe the scores obtained on the clinical scales and the suggested interpretation for each individual clinical scale.

Inhibit

The Inhibit scale assesses inhibitory control and impulsivity. This can be described as the ability to resist impulses and the ability to stop one's own behavior at the appropriate time. Sample's score on this scale is **clinically elevated (*T* = 87, %ile = > 99)** as compared to their peers. Adolescents with similar scores on the Inhibit scale typically have marked difficulty resisting impulses and considering consequences before acting. They are often perceived as (1) being less in control of themselves than their peers, (2) having difficulty staying in place in line or in the classroom, (3) interrupting others or calling out in class frequently, and (4) requiring higher levels of adult supervision. Often, caregivers and teachers are particularly concerned about the verbal and social intrusiveness and the lack of personal safety observed in adolescents who do not inhibit impulses well. Such adolescents may display high levels of physical activity, inappropriate physical responses to others, a tendency to interrupt and disrupt group activities, and a general failure to "look before leaping."

In the contexts of the classroom and assessment settings, adolescents with inhibitory control difficulties often require a higher degree of external structure to limit their impulsive responding. They may start an activity or task before listening to instructions, before developing a plan, or before grasping the organization or gist of the situation.

Examination of the individual items that compose the Inhibit scale may be informative and may help guide interpretation and intervention.

Item #	Inhibit item	Response
1	Is fidgety	Often
10	***Remaining content redacted for sample report***	Often
16		Often
24		Often
30		Often
39		Often
48		Often
58		Often

Self-Monitor

The Self-Monitor scale assesses awareness of the impact of one's own behavior on other people and outcomes. It captures the degree to which an adolescent is aware of the effect that their behavior has on others and how it compares with standards or expectations for behavior.

Sample's score on the Self-Monitor scale is **clinically elevated**, suggesting marked difficulty with monitoring their behavior in social settings **(*T* = 80, %ile = 98)**. Adolescents with similar scores tend to show limited awareness of their behavior and the impact it has on their social interactions with others.

Item #	Self-Monitor item	Response
4	Is unaware of how his/her behavior affects or bothers others	Often
13	***Remaining content redacted for sample report***	Often
20		Often
26		Sometimes
59		Often

Shift

The Shift scale assesses the ability to move freely from one situation, activity, or aspect of a problem to another as the circumstances demand. Key aspects of shifting include the ability to make transitions, tolerate change, problem solve flexibly, switch or alternate attention between tasks, and change focus from one task or topic to another. Mild deficits may compromise efficiency of problem-solving and result in a tendency to get stuck or focused on a topic or problem, whereas more severe difficulties can be reflected in perseverative behaviors and marked resistance to change. Sample's score on the Shift scale is **mildly elevated** compared with peers **(*T* = 62, %ile = 89)**. This suggests that Sample has some difficulties adjusting to changes flexibly, such as changes in environment, plans, place, or demands. Difficulties with shifting or adjusting to change can compromise efficiency in problem-solving. Caregivers often describe adolescents who have this level of difficulty with shifting set as somewhat rigid or inflexible. Such adolescents often prefer consistent routines. In some cases, they are viewed as unable to drop certain topics of interest or unable to move beyond a specific disappointment or unmet need.

On formal assessment, adolescents with difficulties shifting cognitively are often observed as not easily changing from one task to the next or sometimes from one question to the next. They sometimes require additional explanations or demonstration to grasp the demands of a novel task when first presented. They may also carry over a problem-solving approach, a response style, or information from a previous task that is no longer appropriate. This latter tendency can be seen as perseverating on content or response style from one item to the next within a task.

Item #	Shift item	Response
2	Resists or has trouble accepting a different way to solve a problem with schoolwork, friends, tasks, etc.	Sometimes
11	***Remaining content redacted for sample report***	Sometimes
17		Sometimes
31		Sometimes
40		Never
49		Sometimes
60		Never
63		Never

Emotional Control

The Emotional Control scale measures the impact of executive function problems on emotional expression and assesses an adolescent's ability to modulate or regulate their emotional responses. Sample's score on the Emotional Control scale is **clinically elevated** compared with peers **(*T* = 70, %ile = 95).** This score suggests marked concerns with regulation or modulation of emotions. Sample likely overreacts to events and likely demonstrates sudden outbursts, sudden and/or frequent mood changes, and excessive periods of emotional upset.

Poor emotional control is often expressed as emotional lability, sudden outbursts, or emotional explosiveness. Adolescents with difficulties in this domain often have overblown emotional reactions to seemingly minor events. Caregivers and teachers of such adolescents frequently describe an adolescent who cries easily or laughs hysterically with small provocation or an adolescent who has temper tantrums of a frequency or severity that is not age appropriate.

Item #	Emotional Control item	Response
6	Has explosive, angry outbursts	Sometimes
14	***Remaining content redacted for sample report***	Sometimes
22		Sometimes
27		Sometimes
34		Sometimes
43		Sometimes
51		Never
56		Sometimes

Initiate

The Initiate scale reflects an adolescent's ability to begin a task or activity and to independently generate ideas, responses, or problem-solving strategies. Sample's score on the Initiate scale is **clinically elevated** compared with peers **(*T* = 77, %ile = 97).** This suggests that Sample has marked difficulties getting going on tasks, activities, and problem-solving approaches. Poor initiation typically does not reflect noncompliance or disinterest in a specific task. Adolescents with initiation problems typically want to succeed at and complete a task, but they have trouble getting started. Caregivers of such adolescents frequently report observing difficulties getting started on homework or chores, along with a need for extensive prompts or cues to begin a task or activity. Adolescents with initiation difficulties are at risk for being viewed as unmotivated. In the context of psychological assessment, initiation difficulties are often demonstrated in the form of slow speed of output despite prompts to work quickly and difficulty generating ideas such as for word and design fluency tasks. There is often a need for additional prompts from the examiner to begin tasks in general. Alternatively, initiation deficits may reflect depression, and this should particularly be examined if this finding is consistent with the overall affective presentation of the adolescent.

Item #	Initiate item	Response
9	Is not a self-starter	Sometimes
38	***Remaining content redacted for sample report***	Often
50		Often
55		Often

Working Memory

The Working Memory scale measures online representational memory—that is, the capacity to hold information in mind for the purpose of completing a task; encode information; or generate goals, plans, and sequential steps to achieve goals. Working memory is essential to carrying out multistep activities, completing mental manipulations such as mental arithmetic, and following complex instructions. Sample's score on the Working Memory scale is **clinically elevated** compared with peers **(*T* = 86, %ile = 99)**. This suggests that Sample has marked difficulty holding an appropriate amount of information in mind or in active memory for further processing, encoding, and/or mental manipulation. Further, Sample's score suggests difficulties sustaining working memory, which has a negative impact on their ability to remain attentive and focused for appropriate lengths of time. Caregivers describe adolescents

with fragile or limited working memory as having trouble remembering things (e.g., phone numbers or instructions) even for a few seconds, losing track of what they are doing as they work, or forgetting what they are supposed to retrieve when sent on an errand. They often miss information that exceeds their working memory capacity such as instructions for an assignment. Clinical evaluators may observe that Sample cannot remember the rules governing a specific task (even as they work on that task), rehearses information repeatedly, loses track of what responses they have already given on a task that requires multiple answers, and struggles with mental manipulation tasks (e.g., repeating digits in reverse order) or solving arithmetic problems that are orally presented without writing down figures.

Appropriate working memory is necessary for sustaining performance and attention. Parents of adolescents with difficulties in this domain report that they cannot stick to an activity for an age-appropriate amount of time and that they frequently switch or fail to complete tasks. Although working memory and the ability to sustain attention have been conceptualized as distinct entities, the behavioral outcomes of these two domains are often difficult to distinguish.

Item #	Working Memory item	Response
3	When given three things to do, remembers only the first or last	Often
12	***Remaining content redacted for sample report***	Often
19		Often
25		Often
28		Often
32		Often
41		Sometimes
46		Sometimes

Plan/Organize

The Plan/Organize scale measures an adolescent's ability to manage current and future-oriented task demands. The scale has two components: Plan and Organize. The Plan component captures the ability to anticipate future events, to set goals, and to develop appropriate sequential steps ahead of time to carry out a task or activity. The Organize component refers to the ability to bring order to information and to appreciate main ideas or key concepts when learning or communicating information. Organization also plays an important role in memory and recall. Adolescents with difficulties in this area often complain that they are poor test takers or have poor memory. How they organize information when memorizing impacts their ability to retrieve the materials, especially during testing. Sample's score on the Plan/Organize scale is **potentially clinically elevated** compared with peers **(*T* = 65, %ile = 92)**. This suggests that Sample has difficulty with planning and organizing information, which has a negative impact on their approach to problem-solving.

Planning involves developing a goal or end state and then strategically determining the most effective method or steps to attain that goal. Evaluators can observe planning when an adolescent is given a problem requiring multiple steps (e.g., assembling a puzzle or completing a maze). Sample may underestimate the time required to complete tasks or the level of difficulty inherent in a task. They may often wait until the last minute to begin a long-term project or assignment for school, and may have trouble carrying out the actions needed to reach their goals.

Organization involves the ability to bring order to oral and written expression and to understand the main points expressed in presentations or written material. Organization also has a clerical component that is demonstrated, for example, in the ability to efficiently scan a visual array or to keep track of a homework assignment. Sample may approach tasks in a haphazard fashion, getting caught up in the details and missing the big picture. They may have good ideas that they fail to express on tests and written assignments. They may often feel overwhelmed by large amounts of information and may have

difficulty retrieving material spontaneously or in response to open-ended questions. They may, however, exhibit better performance with recognition (multiple-choice) questions.

Item #	Plan/Organize item	Response
7	Does not plan ahead for school assignments	Often
15	***Remaining content redacted for sample report***	Sometimes
23		Sometimes
35		Often
44		Sometimes
52		Sometimes
57		Never
61		Sometimes

Task-Monitor

The Task-Monitor scale assesses task-oriented monitoring or work-checking habits. The scale captures whether an adolescent assesses their own performance during or shortly after finishing a task to ensure accuracy or appropriate attainment of a goal. Sample's score on the Task-Monitor scale is **clinically elevated**, suggesting marked difficulty with task monitoring **(*T* = 70, %ile = 95)**. Adolescents with similar scores tend not to be cautious in their approach to tasks or assignments and often do not notice and/or check for mistakes. Caregivers often describe adolescents with task-oriented monitoring difficulties as rushing through their work, as making careless mistakes, and as failing to check their work. Clinical evaluators may observe the same types of behavior during formal assessment.

Item #	Task Monitor item	Response
5	Work is sloppy	Sometimes
21	***Remaining content redacted for sample report***	Sometimes
29		Sometimes
33		Often
42		Often
62		Often

Organization of Materials

The Organization of Materials scale measures orderliness of work, play, and storage spaces (e.g., desks, lockers, backpacks, and bedrooms). Caregivers and teachers typically can provide an abundance of examples describing an adolescent's ability to organize, keep track of, or clean up their belongings. Sample's score on the Organization of Materials scale is **clinically elevated** compared with peers **(*T* = 73, %ile = 96).** Sample is described as having marked difficulty (1) keeping their materials and belongings reasonably well organized, (2) having their materials readily available for projects or assignments, and (3) finding their belongings when needed. Adolescents who have significant difficulties in this area often do not function efficiently in school or at home because they do not have ready access to what they need and must spend time getting organized rather than producing work. Pragmatically, teaching an adolescent to organize their belongings can be a useful, concrete tool for teaching greater task organization.

Item #	Organization of Materials item	Response
8	Cannot find things in desk	Often
37	***Remaining content redacted for sample report***	Sometimes
45		Sometimes

Item #	Organization of Materials item	Response
47		Sometimes
53		Sometimes

Indexes and Global Executive Composite

Behavior Regulation, Emotion Regulation, and Cognitive Regulation Indexes

The Behavior Regulation Index (BRI) captures the adolescent's ability to regulate and monitor behavior effectively. It is composed of the Inhibit and Self-Monitor scales. Appropriate behavior regulation is likely to be a precursor to appropriate cognitive regulation. It enables the cognitive regulatory processes to successfully guide active, systematic problem-solving and more generally supports appropriate self-regulation.

The Emotion Regulation Index (ERI) represents the adolescent's ability to regulate emotional responses and to shift set or adjust to changes in environment, people, plans, or demands. It is composed of the Shift and Emotional Control scales. Appropriate emotion regulation and flexibility are precursors to effective cognitive regulation.

The Cognitive Regulation Index (CRI) reflects the adolescent's ability to control and manage cognitive processes and to problem solve effectively. It is composed of the Initiate, Working Memory, Plan/Organize, Task-Monitor, and Organization of Materials scales and relates directly to the ability to actively problem solve in a variety of contexts and to complete tasks such as schoolwork.

Examination of the indexes reveals that the BRI is **clinically elevated (*T* = 85, %ile = 98)**, the ERI is **potentially clinically elevated (*T* = 67, %ile = 93)**, and the CRI is **clinically elevated (*T* = 75, %ile = 97)**. This suggests difficulties with all aspects of executive function including inhibitory control, self-monitoring, emotion regulation, flexibility, and cognitive regulatory functions including the ability to sustain working memory and to initiate, plan, organize, and monitor problem-solving.

Global Executive Composite

The Global Executive Composite (GEC) is an overarching summary score that incorporates all of the BRIEF2 clinical scales. Although review of the BRI, ERI, CRI, and individual scale scores is strongly recommended for all BRIEF2 profiles, the GEC can sometimes be useful as a summary measure. In this case, at least two summary indexes are substantially different, with *T* scores separated by an unusually large number of points relative to the standardization sample, where differences of this magnitude occurred less than 10% of the time. Thus, the GEC may not adequately reflect the overall profile or severity of executive function problems. With this in mind, Sample's ***T* score of 78 (%ile = 97)** on the GEC is **clinically elevated** compared with the scores of their peers, suggesting significant difficulty in one or more areas of executive function.

Comparison to Children and Adolescents with Attention-Deficit/Hyperactivity Disorder

Children and adolescents with attention-deficit/hyperactivity disorder (ADHD) have difficulties with executive functions related to working memory, planning and organization, and inhibitory control. Numerous studies have shown children and adolescents with ADHD have a signature BRIEF profile with elevations across most BRIEF scales and peaks on the Working Memory and Inhibit scales. Executive dysfunction is not, however, synonymous with a diagnosis of ADHD. Further, problems with inhibitory control and working memory are not unique to the diagnosis of ADHD and may be seen in many developmental and acquired conditions. Executive functions are neuropsychological constructs, whereas ADHD is a neuropsychiatric diagnosis based on a cluster of observed symptoms.

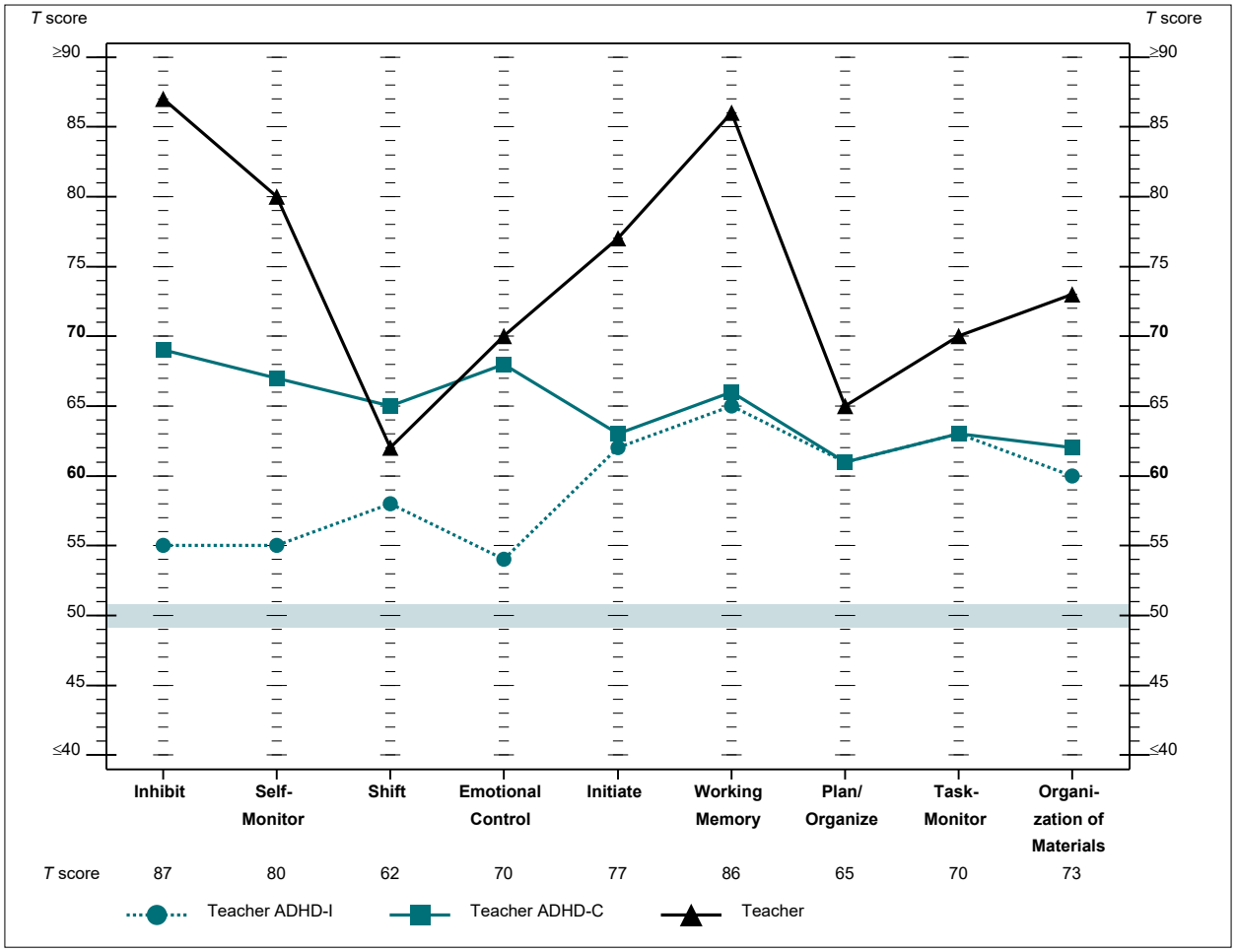
Within this context, the following analysis can help increase confidence in clinical decision-making regarding the presence or absence of ADHD. As with any instrument, the BRIEF2 should not be used in isolation or as the sole basis of a diagnosis. Information from the BRIEF2 is most helpful when combined with other information such as parent and teacher ratings on broadband scales, review of history, clinical interviews, observations, and performance assessment.

The BRIEF2 offers three approaches that may be used to increase confidence in diagnostic decision-making when ADHD is suspected.

- First, Sample's BRIEF2 Teacher Form ratings are plotted against established profiles of children and adolescents diagnosed with ADHD, predominantly inattentive (ADHD-I) and combined (ADHD-C) presentations. Given the infrequency of the hyperactive/impulsive (ADHD-HI) presentation, there is no profile for this group.
- Second, *T* scores from the BRIEF2 Teacher Form Working Memory and Inhibit scales are used to indicate the likelihood of an ADHD diagnosis and determine which presentation is most likely.
- Third, a checklist aligns Sample's BRIEF2 Teacher Form item ratings to *DSM-5* ADHD inattentive and hyperactive/impulsive criteria. This checklist allows direct comparison between BRIEF2 items and *DSM-5* diagnostic criteria to assist in determining whether the adolescent exhibits criteria for diagnosis.

ADHD Profile

The BRIEF2 shows clear and consistent scale profiles in individuals diagnosed with ADHD. Sample's teacher *T* scores are plotted alongside scores of teachers of children and adolescents diagnosed with ADHD-I and those diagnosed with ADHD-C to facilitate visual comparison. It is important to note similarities between Sample's profile and the ADHD skylines as well as inconsistencies. For example, high elevations on the Shift or Emotional Control scales might suggest the presence of other concerns.



Likelihood of ADHD

When an adolescent is referred with a question about the appropriateness of an ADHD diagnosis, the BRIEF2 Working Memory scale *T* score is most helpful in predicting the likelihood that the adolescent would be diagnosed with ADHD. The BRIEF2 Inhibit scale *T* score can then be helpful in distinguishing between children and adolescents with likely ADHD-I and those with ADHD-C. Refer to the BRIEF2 ADHD Form Professional Manual Supplement for more information about the classification statistics for the Working Memory and Inhibit scales.

In this case, Teacher ratings of Sample's working memory (*T* = 86, %ile = 99) and inhibitory control (*T* = 87, %ile = > 99) are clinically elevated. This suggests that, in the school environment, Sample exhibits clinically significant difficulties with sustained attention and working memory as well as impulsivity and/or hyperactivity. **This pattern is like that seen in adolescents diagnosed with ADHD-C.**

DSM-5 ADHD Symptom Checklist

Ratings on individual BRIEF2 items can be compared with *DSM-5* symptoms of inattention, hyperactivity, and impulsivity. Identifying items consistent with ADHD diagnostic criteria that are highly endorsed on the BRIEF2 (e.g., "Often a problem") helps highlight behaviors that are particularly problematic for Sample. This can facilitate qualitative description of behavioral characteristics and can help identify priority targets for intervention and accommodation.

Inattentive symptoms				
***DSM-5* symptom**	✓	**Item**	**Response**	✓
a. Often fails to give close attention to details or makes careless mistakes in schoolwork, at work, or during other activities (e.g., overlooks or misses details, work is inaccurate).		29. Makes careless errors	Sometimes	
b. Often has difficulty sustaining attention in tasks or play activities (e.g., has difficulty remaining focused during lectures, conversations, or lengthy reading).	✓	***Remaining content redacted for sample report***	Often	✓
c. Often does not seem to listen when spoken to directly (e.g., mind seems elsewhere, even in the absence of any obvious distraction).	✓		Sometimes	
			Often	✓
d. Often does not follow through on instructions and fails to finish schoolwork, chores, or duties in the workplace (e.g., starts tasks but quickly loses focus and is easily sidetracked).	✓		Often	✓
e. Often has difficulty organizing tasks and activities (e.g., difficulty managing sequential tasks; difficulty keeping materials and belongings in order; messy; disorganized work; has poor time management; fails to meet deadlines).	✓		Often	✓
			Often	✓
f. Often avoids, dislikes, or is reluctant to engage in tasks that require sustained mental effort (e.g., schoolwork or homework; for older adolescents and adults, preparing reports, completing forms, reviewing lengthy papers).			Sometimes	
g. Often loses things necessary for tasks or activities (e.g., school materials, pencils, books, tools, wallets, keys, paperwork, eyeglasses, mobile telephones).			Sometimes	
h. Is often easily distracted by extraneous stimuli (for older adolescents and adults, may include unrelated thoughts).	✓		Often	✓
i. Is often forgetful in daily activities (e.g., doing chores, running errands; for older adolescents and adults, returning calls, paying bills, keeping appointments).			Sometimes	

Hyperactive/impulsive symptoms				
***DSM-5* symptom**	✓	**Item**	**Response**	✓
a. Often fidgets with or taps hands or feet or squirms in seat.	✓	1. Is fidgety	Often	✓
b. Often leaves seat in situations when remaining seated is expected (e.g., leaves his or her place in the classroom, in the office or other workplace, or in other situations that require remaining in place).	✓	***Remaining content redacted for sample report***	Often	✓
c. Often runs about or climbs in situations where it is inappropriate. (Note: In adolescents or adults, may be limited to feeling restless.)	✓		Often	✓
d. Often unable to play or engage in leisure activities quietly.	✓		Often	✓
e. Is often "on the go," acting as if "driven by a motor" (e.g., is unable to be or uncomfortable being still for extended time, as in restaurants, meetings; may be experienced by others as being restless or difficult to keep up with).	✓		Often	✓
f. Often talks excessively.				
g. Often blurts out an answer before a question has been completed (e.g., completes people's sentences; cannot wait for turn in conversation).	✓		Often	✓
h. Often has difficulty waiting his or her turn (e.g., while waiting in line).				
i. Often interrupts or intrudes on others (e.g., butts into conversations, games, or activities; may start using other people's things without asking or receiving permission; for adolescents and adults, may intrude into or take over what others are doing).	✓		Often	✓

Comparison to Children and Adolescents with Autism Spectrum Disorder

Children and adolescents with autism spectrum disorder (ASD) have difficulties with executive functions related to flexibility, planning, organization, and other aspects of metacognition. Numerous studies have shown that children and adolescents with ASD have a signature BRIEF profile with elevations across most BRIEF scales and a peak on the Shift scale. Parent and teacher ratings on the BRIEF2 in large numbers of clinically referred children and adolescents with well-defined ASD diagnoses showed similar patterns of elevations on most scales, with a prominent peak on the Shift scale. Though the BRIEF2 is not intended as a stand-alone diagnostic instrument, it can be useful as part of a more comprehensive assessment for a wide range of clinical conditions. For adolescents with ASD, the BRIEF2 adds value to other measures of everyday functioning, social responsiveness, and ASD characteristics in the context of medical history in reaching a comprehensive diagnostic picture.

The BRIEF2 Teacher Form Shift scale exhibits good specificity for ruling out adolescents who do not have ASD. This is reflected in the positive predictive values of .92 for teacher ratings at or above 65 and .98 when using a cutoff of 70. In clinical samples, *T* scores of 65 or greater on the Shift scale discriminated between healthy controls and children and adolescents with ASD with 78% classification accuracy and with 69% accuracy when *T* scores were greater than or equal to 70. The lower classification accuracy is due to reduced sensitivity at higher *T* scores for teacher ratings. The likelihood of an adolescent being correctly identified as meeting criteria for a diagnosis of ADHD was 10 times greater (positive likelihood ratio = 10.83) with a Shift *T* score of 65 or greater, while the likelihood of an adolescent with an ASD being incorrectly ruled out was reduced by half (negative likelihood ratio = .41).

In this particular profile, Teacher ratings of Sample's cognitive and behavioral flexibility (*T* = 62, %ile = 89) are mildly elevated. This suggests that Sample exhibits some cognitive rigidity and adherence to routine and sameness, which is often seen in children and adolescents diagnosed with ASD. The base rate for *T* scores of 60 or greater was 70% in children and adolescents diagnosed with ASD but 12% in typically developing children and adolescents.

Executive Function Interventions

Introduction

Given the unique role of the executive functions in playing supervisor or conductor to guide and regulate behavior, emotion, and thought, a global approach to intervention can be considered. The general principles of many intervention models for enhancing executive functions are based largely on the pioneering work of Mark Ylvisaker and colleagues (Ylvisaker, 1998; Ylvisaker & Feeney, 1998; Ylvisaker et al., 1998). They advocated for positive everyday routines (i.e., making behaviors routine so they are less demanding of executive functions) in a contextualized (i.e., in the adolescent's real world so that it is meaningful), collaborative (i.e., together with, not for, the adolescent) assessment and treatment approach. These authors relied on a coaching model of intervention now widely regarded as an effective approach. Since then, numerous intervention studies have supported the use of an executive coaching approach for a wide variety of conditions across the life span. Several executive coaching programs have become widespread, such as Dawson and Guare's *Coaching Students with Executive Skills Deficits* (2012) and evidence-based programs such as Unstuck and On Target! to increase flexibility (Cannon et al., 2018) and Teen Online Problem Solving for students with brain injuries (Wade et al., 2018).

Goal of Intervention

The ultimate goal of executive function intervention is to establish regular behavioral and cognitive routines to maximize independent, goal-oriented problem-solving. Good outcomes might include demonstrating behavioral or emotional control, initiating activity, engaging in planful and well-organized problem-solving, or monitoring one's own social success or problem-solving outcomes.

In structuring an executive function intervention, we advocate the use of everyday executive routines in a meaningful, real-world, everyday context as opposed to teaching specific skills out of context. Given the difficulties with working memory seen in many individuals with executive dysfunction, using a written copy of the multistep executive routine is often helpful. The adolescent should become increasingly more active in formulating and carrying out the plans and reviewing their performance, further promoting internal executive control. The goal of executive function intervention is maximal independence, which necessitates the active involvement of the adolescent in each phase via a coaching model.

Develop Problem-Solving Routines

A critical feature of any intervention is to establish external environmental conditions that will enable the adolescent to develop automatic or habitual behavioral and cognitive routines. Approaching problem-solving as a routine reduces the demand on executive functions. For individuals just starting to learn executive control behaviors, young children, or individuals with extreme executive dysfunction, the focus of intervention may need to be more externalized or environmental (i.e., to organize and structure the external environment and to organize and provide cuing for behavioral strategies and routines). Many such individuals do not have the internal resources available to initiate behaviors without significant individualized structuring, cuing, and reinforcement. They often need help to know when and how to apply the appropriate problem-solving behavioral routine. Direct rewards and positive incentives are often necessary to motivate the adolescent to attend to and practice new behavioral routines. Once these behavioral routines are established, positive cuing becomes the crucial factor; cuing can then be faded as autonomy increases. Several basic tenets are advocated, including:

- Teaching explicit, goal-directed, problem-solving processes
- Implementing processes within positive, meaningful everyday routines
- Providing real-world relevance and meaning
- Involving everyday people (parents, teachers, and peers) as models and coaches
- Including the adolescent in the design of the intervention as much as possible

For example, an adolescent who does not show independent organization of writing might be taught a structured approach to developing a piece of writing that is within their grasp. Each day, they could be coached by teachers, aides, or parents to use this method to complete a homework assignment more successfully and efficiently, providing relevance and value that becomes self-reinforcing.

Designed to be used in conjunction with this report, BRIEF2 Interventions Handouts contain specific supports, accommodations, interventions, and functional goals (such as those that appear in individualized education programs, 504s, or other intervention plans) that can be provided to Sample, their parents, and their teachers.

Provide Structure and Support

Many adolescents with executive function difficulties do not yet possess the internalized routines needed for well-regulated problem-solving. Therefore, intervention often begins from an external support position with active modeling, coaching, and guidance by important everyday people, which, with regular practice, gradually transitions into an internal process for the adolescent as direct coaching and cuing are faded. The general intervention process includes:

- Externally modeling multistep problem-solving (i.e., executive) routines
- Externally guiding with the development of everyday executive routines
- Practicing using executive routines in everyday situations
- Fading external support and cuing internal generation and use of executive routines
- Coaching for generalization to new situations or new coaches
- Providing feedback throughout the process

Intervene Across Activities

It is possible to have an executive system focus for any and all activities, including classroom, therapy, social and recreational, and daily home living activities. This may require little time or effort once parents and school personnel develop coaching habits. For example, any activity can include:

- Goal setting: What do I need to accomplish?
- Self-awareness of strengths and weaknesses: How easy or difficult is this task or goal?
- Organization and planning: What materials do we need? Who will do what? In what order do we need to do these things? How long will it take?
- Flexibility and strategy use: When or if a problem arises, what other ways should I think about reaching the goal? Should I ask for assistance?
- Monitoring: How did I do?
- Summarizing: What worked and what didn't work? What was easy, what was difficult, and what will I do next time?

Example of an Executive Function Intervention System

The use of a general executive problem-solving routine that promotes (1) systematic goal definition; (2) planning; (3) action; (4) self-monitoring and evaluation; and (5) flexible, strategic adjustment of plans

and actions may serve as a general framework or vehicle within which specific executive function intervention methods and strategies can be incorporated. The goal-plan-do-review (GPDR) method is one such system (Ylvisaker et al., 1998). Several goal-oriented problem-solving methods may also serve as models (e.g., Braga et al., 2012; Chan & Fong, 2011; Kenworthy et al., 2014; Levine et al., 2000; Marlowe, 2000; Wade et al., 2004, 2005). The complexity of the problem-solving routine should be adapted to the competency of the adolescent. Visit parinc.com/BRIEF2GPDR to access a worksheet incorporating the GPDR system that can be used with Sample.

Application of Executive Function Interventions to the IEP/504 Process

In the school setting, all academic subjects and many social and communication situations meet the following conditions: (a) comprising novel learning or processing tasks; (b) necessitating goal-oriented performance; (c) requiring a delayed response; and (d) involving multiple steps over a period of time. As such, one can interweave the goals for promoting executive system functioning within these school activities. Therefore, for the adolescent with executive and organizational deficits, it's important to link the executive and organizational strategies directly to each academic content area (e.g., reading, writing, math, science) to promote success.

One's executive and organizational skills are increasingly in demand as curricula in higher grades become more complex. The relationship between these two factors is direct (i.e., greater complexity of learning necessitates greater use of efficient executive skills). Curricula in the later elementary grades and into middle and high school require the adolescent to derive information from increasingly complex text, reproduce this information in appropriately organized written form, and do so in an increasingly independent manner. Thus, tasks with which adolescents may have difficulty are those that (a) are long term (requiring planning); (b) require organization of many pieces of detailed information (e.g., a specific multistep task); and (c) must be completed in a certain time frame (requiring time management). It is important to incorporate active educational interventions into the translation of executive function interventions within the context of an individualized education plan (IEP) or a 504 plan, if appropriate.

Executive Function Interventions

Ratings of Sample's everyday functioning revealed some areas of concern. Recommendations for interventions, accommodations, and functional goals are offered according to the identified concerns. Although the interventions' efficacy has not been empirically demonstrated, the majority of interventions recommended are common and likely familiar to the intervention team. These recommendations are general and intended here as suggestions or ideas that may be tailored by the educational or treatment team to suit Sample's needs. *Refer to the BRIEF2 Interventions Handouts for specific supports, accommodations, interventions, and functional goals that can be provided to Sample, their parents, and their teachers. As with any intervention, clinical judgment is paramount*.

Inhibit

The ability to inhibit, resist, or not act on a thought or an impulse—and to stop one's own behavior at the appropriate time—is a foundation of self-regulation. Caregivers and teachers are often concerned about social intrusiveness or lack of personal safety with adolescents who do not inhibit impulses well. Such adolescents may display high levels of physical activity, inappropriate physical responses to others, a tendency to interrupt and disrupt group activities, and a general failure to consider the consequences of their behavior at the time. Impulsivity is often accompanied by other executive function difficulties, such as distractibility, poor self-monitoring, and difficulty sustaining attention.

Remaining content redacted for sample report

Self-Monitoring

Adolescents need to be aware of the impact of their behavior on others. Self-monitoring refers to the capacity to observe and evaluate one's behavior as others experience it, including understanding strengths and weaknesses, being aware of effectiveness in problem-solving, observing outcomes of intended behavior, and noticing their behavior's impact on others. Adolescents with poor self-monitoring may experience social difficulties.

Remaining content redacted for sample report

Shift (Flexibility)

The ability to shift flexibly between situations, activities, or aspects of a problem is an essential component of self-regulation. Some adolescents with mild difficulties shifting set may be described as inflexible, rigid in their thinking, or unable to change topics. More severe difficulties can be seen in resistance to change, perseverative or repetitive language and behavior, or emotional outbursts when confronted with change.

Remaining content redacted for sample report

Emotional Control

Regulation of emotion is foundational to other aspects of executive function. Adolescents need to be well modulated emotionally to plan, organize, and monitor their cognitive performance and to sustain working memory over time. At the same time, the executive functions, in particular inhibitory control, facilitate better emotion regulation. Difficulties with emotion regulation are often expressed as emotional lability (rapid changes in emotions) or emotional explosiveness, with overblown emotional reactions to seemingly minor events.

Remaining content redacted for sample report

Initiation

Initiation refers to the ability to get started on a task or activity and to independently generate ideas, responses, or problem-solving strategies. Poor initiation typically does not reflect noncompliance or disinterest in a specific task. Adolescents with initiation difficulties typically want to succeed but cannot get started on their own. This can be exhibited in a number of ways: (1) behaviorally, such that they cannot get started on physical activities; (2) socially, such that they have difficulty calling friends or going

out to be with friends; (3) academically, such that they have trouble getting started on homework or assignments; or (4) cognitively, such that they have difficulty coming up with ideas or generating plans. Basic tenets of intervention include providing additional external structure, prompting and cuing, and helping with organization and planning. It is important to appreciate that different tasks place varying demands on initiation. Tasks that are inherently motivating often require less internal initiation than tasks that are less motivating. Similarly, more complex tasks may require greater initiation.

Remaining content redacted for sample report

Working Memory

Working memory is the capacity to hold information actively in mind to enable adolescents to think about problems for a period of time, focus on a goal, and carry out multistep activities. It is closely related to sustaining attention and concentration on a task. Adolescents with working memory difficulties may have problems remembering things even for a few seconds. They may lose track of what they are doing, forget what they went to get, or struggle with mental problem-solving. Adolescents with poor working memory often struggle to sustain their attention and concentration long enough to complete tasks.

Remaining content redacted for sample report

Planning

Planning encompasses the ability to anticipate future events, set goals, and develop appropriate steps ahead of time to carry out a task or activity. It requires imagining a goal or end state, strategically determining the most effective approach, and sequencing a series of steps to attain the goal. Adolescents with planning difficulties may not start assignments in a timely fashion or may start projects without thinking through the materials or steps needed.

Remaining content redacted for sample report

Organization

Adolescents who have difficulty organizing their thinking, behavior, or work may have difficulty grasping key points or the main idea of new information. They may show problems forming written or spoken communication and may struggle to keep their tasks and schoolwork in order. They may have good ideas but be unsuccessful in expressing them and may feel overwhelmed by large tasks or amounts of information.

Remaining content redacted for sample report

Task Monitoring

Task monitoring refers to an adolescent's ability to attend to their own work output. Adolescents with difficulties in this area often miss minor errors they've made, such as math operation signs, spelling, or details in text. Such adolescents often make minor errors that interfere with showing their actual abilities.

Remaining content redacted for sample report

Organization of Materials

Some adolescents have difficulty maintaining order or organizing their environment and belongings, such as their room, backpack, desk, and homework papers. This can interfere with their ability to function efficiently when they do not have their materials readily available. Teaching adolescents to organize their belongings can be a useful, concrete tool for facilitating better performance in school and reducing stress at home.

Remaining content redacted for sample report

References

Braga, L. W., Rossi, L., Moretto, A. L. L., da Silva, J. M., & Cole, M. (2012). Empowering preadolescents with ABI through metacognition: Preliminary results of a randomized clinical trial. *NeuroRehabilitation*, *30*(3), 205–212. https://doi.org/10.3233/NRE-2012-0746

Cannon, L., Kenworthy, L., Alexander, K. C., Werner, M. A., & Anthony, L. G. (2018). *Unstuck and on target! An executive function curriculum to improve flexibility, planning, and organization* (2nd ed.). Brookes. https://www.parinc.com/Products/Pkey/470

Chan, D. Y. K., & Fong, K. N. K. (2011). The effects of problem-solving skills training based on metacognitive principles for children with acquired brain injury attending mainstream schools: A controlled clinical trial. *Disability and Rehabilitation*, *33*(21–22), 2023–2032. https://doi.org/10.3109/09638288.2011.556207

Dawson, P., & Guare, R. (2012). *Coaching students with executive skills deficits*. Guilford Press.

Kenworthy, L., Anthony, L. G., Alexander, K. C., Werner, M. A., Cannon, L., & Greenman, L. (2014). *Solving executive function challenges: Simple ways to get kids with autism unstuck and on target.* Brookes. https://www.parinc.com/Products/Pkey/422

Levine, B., Robertson, I. H., Clare, L., Carter, G., Hong, J., Wilson, B. A., Duncan, J., & Stuss, D. T. (2000). Rehabilitation of executive functioning: An experimental–clinical validation of Goal Management Training. *Journal of the International Neuropsychological Society*, *6*(3), 299–312. https://doi.org/10.1017/S1355617700633052

Marlowe, W. B. (2000). An intervention for children with disorders of executive functions. *Developmental Neuropsychology*, *18*(3), 445–454. https://doi.org/10.1207/S1532694209Marlowe

Wade, S. L., Taylor, H. G., Yeates, K. O., Kirkwood, M., Zang, H., McNally, K., Stacin, T., & Zhang, N. (2018). Online problem solving for adolescent brain injury: A randomized trial of 2 approaches. *Journal of Developmental & Behavioral Pediatrics*, *39*(2), 154–162. https://doi.org/10.1097/DBP.0000000000000519

Wade, S. L., Wolfe, C. R., Brown, T. M., & Pestian, J. P. (2005). Can a web-based family problem-solving intervention work for children with traumatic brain injury? *Rehabilitation Psychology*, *50*(4), 337–345. https://psycnet.apa.org/doi/10.1037/0090-5550.50.4.337

Wade, S. L., Wolfe, C. R., & Pestian, J. P. (2004). A web-based family problem-solving intervention for families of children with traumatic brain injury. *Behavior Research Methods, Instruments, & Computers*, *36*(2), 261–269. https://doi.org/10.3758/BF03195572

Ylvisaker, M. (Ed.). (1998). *Traumatic brain injury rehabilitation: Children and adolescents* (2nd ed.). Butterworth-Heinemann.

Ylvisaker, M., & Feeney, T. J. (1998). *Collaborative brain injury intervention: Positive everyday routines*. Singular.

Ylvisaker, M., Szekeres, S. F., & Feeney, T. J. (1998). Cognitive rehabilitation: Executive functions. In M. Ylvisaker (Ed.), *Traumatic brain injury rehabilitation: Children and adolescents* (2nd ed., pp. 221–269). Butterworth-Heinemann.

BRIEF2 Teacher Form Item Response Table

Item	Response	Item	Response	Item	Response
1	Often	22	Sometimes	43	Sometimes
2	Sometimes	23	Sometimes	44	Sometimes
3	Often	24	Often	45	Sometimes
4	Often	25	Often	46	Sometimes
5	Sometimes	26	Sometimes	47	Sometimes
6	Sometimes	27	Sometimes	48	Often
7	Often	28	Often	49	Sometimes
8	Often	29	Sometimes	50	Often
9	Sometimes	30	Often	51	Never
10	Often	31	Sometimes	52	Sometimes
11	Sometimes	32	Often	53	Sometimes
12	Often	33	Often	54	Never
13	Often	34	Sometimes	55	Often
14	Sometimes	35	Often	56	Sometimes
15	Sometimes	36	Never	57	Never
16	Often	37	Sometimes	58	Often
17	Sometimes	38	Often	59	Often
18	Never	39	Often	60	Never
19	Often	40	Never	61	Sometimes
20	Often	41	Sometimes	62	Often
21	Sometimes	42	Often	63	Never

End of Report