Tasks of Executive Control™

TEC™

Client Report

Developed by

Peter K. Isquith, PhD, Robert M. Roth, PhD, Gerard A. Gioia, PhD, and PAR Staff

Client Information

Client Name:	Sample Client
Client ID:	Website SR/CR
Gender:	Male
Age:	10
Date of Birth:	01/25/1998
Current Grade:	5th
Handedness:	Right
Test Date:	08/12/2008
Test Form:	Form 1
Test Description:	ADHD Evaluation
Prepared for:	Examiner Example, PhD

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Introduction

The Tasks of Executive Control (TEC) is a measure of an individual's cognitive response to increasing working memory load and inhibitory control demand. Although the TEC systematically increases working memory load and inhibitory control demand as the task progresses, it is important to note that the outcome measures (i.e., scores) reflect these processes indirectly. Thus, there are no pure "working memory" or "inhibit" scores. Rather, an individual's working memory and inhibitory control capacity are reflected in his or her performance on the TEC via several response accuracy, response time, and response consistency scores. These scores are commonly used to measure effects of manipulating working memory and inhibitory control.

Performance on the TEC should be interpreted within the context of other measures administered as part of a comprehensive clinical assessment battery, along with consideration of developmental history, self and collateral reports, and behavioral observations. Furthermore, there is no single score or profile of performance on any given test or battery that is of sufficient sensitivity and specificity to enable it to be used on its own to establish a diagnosis (e.g., attention-deficit/hyperactivity disorder [ADHD], traumatic brain injury, any other disorder or illness). Instead, diagnosis is made by the clinician based on relevant patient history, direct observations of behavior and performance, and test findings. The primary purpose of TEC interpretation is to provide information about certain aspects of an individual's executive functioning, not to establish a given diagnosis.

The TEC assesses an individual's performance in considerable detail by capturing several aspects of each stimulus presentation and each response, resulting in hundreds of variables that are stored within each protocol. To facilitate interpretation, individual scores are grouped according to whether they reflect composite aspects of performance across tasks (i.e., Factor scores), specific unidimensional characteristics of performance across tasks (i.e., Summary scores), or change in performance as working memory load and inhibitory control demand increase across tasks (i.e., Task scores). Scores also are grouped according to what they measure. Specifically, several scores that help gauge response accuracy, including the number of correct responses (i.e., Correct), number of omissions (i.e., Omissions), number of incorrect responses (i.e., Incorrect), and number of commission errors (i.e., Commissions), are provided. Another set of scores helps evaluate response time; these scores include Response Time (RT) and, to assess response time variability, the standard deviation of the Response Time (RTSD) and the Intra-Individual Coefficient of Variation (ICV). The ICV measures response time variability while also accounting for an individual's RT (i.e., RTSD divided by mean RT). Finally, several of the scores are provided separately for Target (i.e., Red) and Standard (i.e., Blue) stimuli.

Sample's performance is compared to typically developing peers of the same age and gender in the standardization sample. All scores are scaled so that higher *T* scores indicate poorer performance. A *T* score of 60 or above is considered to have potential clinical meaning. Please see the TEC Professional Manual for detailed information on the rationale for the test, administration and scoring, interpretation, standardization, development, and psychometric properties.

Validity of TEC Administration

Valid interpretation of the TEC requires that the tasks be administered correctly and with timing that follows the prescribed parameters. The TEC software self-verifies the accuracy of computer administration. Results of the verification indicate that there were no problems with the accuracy or timing of task administration.

Valid interpretation of the TEC also requires that all recommended tasks for a given age are completed in sequential order (i.e., children ages 5-7 years must complete Tasks 1 though 4; children and adolescents ages 8-18 years must complete Tasks 1 through 6). Sample completed the recommended number of tasks for his age group in sequential order.

In addition, valid interpretation of the TEC requires that the client exert adequate effort on the tasks. Behavioral observations should be considered when determining whether appropriate effort was put forth during TEC administration. Further, responding accurately to fewer than 20 Standard (i.e., Blue button) or fewer than 2 Target (i.e., Red button) stimuli on a given task may suggest inadequate effort or difficulty understanding task demands. Validity of the resulting scores, particularly for the given task, may be questionable. In regards to the Standard stimuli there was no evidence of inadequate effort on any of the tasks, suggesting that results are interpretable. In regards to the Target stimuli there was also no evidence of inadequate effort on any of the tasks, likewise suggesting that results are interpretable.

Approach to Interpreting TEC Performance

The TEC yields numerous scores that may be of clinical value in understanding aspects of an individual's executive functions. This Client Report follows a " top down" approach that moves from interpretation of general performance across the TEC as a whole to interpretation of performance within each task. First, Factor scores are reviewed. Factor scores reflect broad composite aspects of performance and provide a picture of an individual's executive functions at a very general level. After reviewing Factor scores, Summary scores are interpreted. Summary scores are average scores for individual accuracy and response time measures computed across all TEC tasks administered. Thus, although Summary scores reflect general performance across the TEC, they also allow one to determine whether specific aspects of performance are problematic, such as accuracy in responding to Standard stimuli, response time to Target stimuli, or Commissions. Finally, a review of Task scores provides the user with a detailed picture of the impact of each level of working memory load and inhibitory control demands on accuracy and response time. Interpretation involves evaluating the individual's *absolute level* (*T* scores) of performance at each increase in working memory load and the degree to which their performance *changes* (SRB change scores) from one working memory load increase to the next (with and without inhibitory control demand).

Factor Scores

Factor scores provide a statistically based way to summarize global performance across tasks on the TEC. Four factors define the underlying structure of the TEC across the six subtests (i.e., 0-Back/No Inhibit [0B], 0-Back/Inhibit [0BI], 1-Back/No Inhibit [1B], 1 Back/Inhibit [1BI], 2-Back/No Inhibit [2B], 2-Back/Inhibit [2BI]). These factors are Sustained Accuracy, Selective Attention, Response Speed, and Response Variability. Sample's Factor scores are shown graphically in the following Bar Graph and Table.

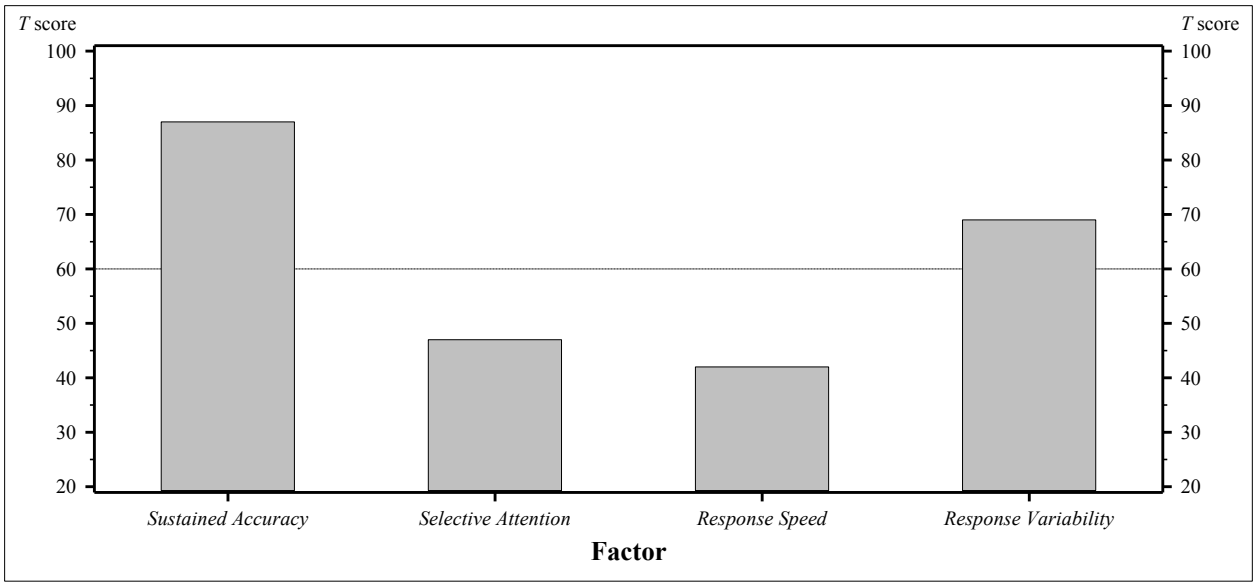
Sustained Accuracy is defined by five accuracy measures and two response time measures for Standard stimuli. Sample's elevated score on this factor suggests he has difficulty maintaining accuracy in responding to the Standard (i.e., frequent) stimuli across tasks while also modulating or controlling his speed of response. It may be informative to examine the contributing Summary scores and underlying Task scores, specifically the Standard Correct Summary score (and related Task scores) and the Standard RT Summary score (and related Task scores).

Selective Attention is defined by a combination of Target Correct (i.e., selective responses), and Commissions (i.e., inhibitory control). It captures the ability to selectively coordinate responses to both the Standard and Target stimuli, applying the task rules that are held in working memory while responding quickly. This factor can be viewed as a reflection of coordinated and controlled selective attention. Sample's Selective Attention score was within normal limits, suggesting that he demonstrated appropriate ability to selectively attend to the Target (i.e., infrequent) stimuli and to inhibit impulsive responding while maintaining a controlled speed of responding.

Response Speed is defined by 9 of the 12 RT variables for correct responses to Standard and Target stimuli across the six tasks. Sample responded to the tasks at an average or better speed.

Response Variability is defined by the response time variability (as measured by the ICV) for 10 of the 12 tasks (i.e., Target stimuli for the first four tasks; Standard stimuli for all six tasks). Sample's Response Variability score was significantly elevated, suggesting that his response speed was more variable than expected. It may be helpful to examine the contributing Summary scores and underlying Task scores, namely the Standard ICV Summary score (and related Task scores).

Bar Graph of Factor *T* Scores Obtained on the TEC



Factor Raw Scores, *T* Scores, Percentiles, and CIs Obtained on the TEC

Factor	Raw score	*T* score	Percentile	90% CI	Interpretation
Sustained Accuracy	-15.55	87	> 99	84 - 90	Elevated
Selective Attention	-4.06	47	38	41 - 53	Typical
Response Speed	5.67	42	21	40 - 44	Typical
Response Variability	-15.52	69	97	65 - 73	Elevated

Note. CI = Confidence Interval.

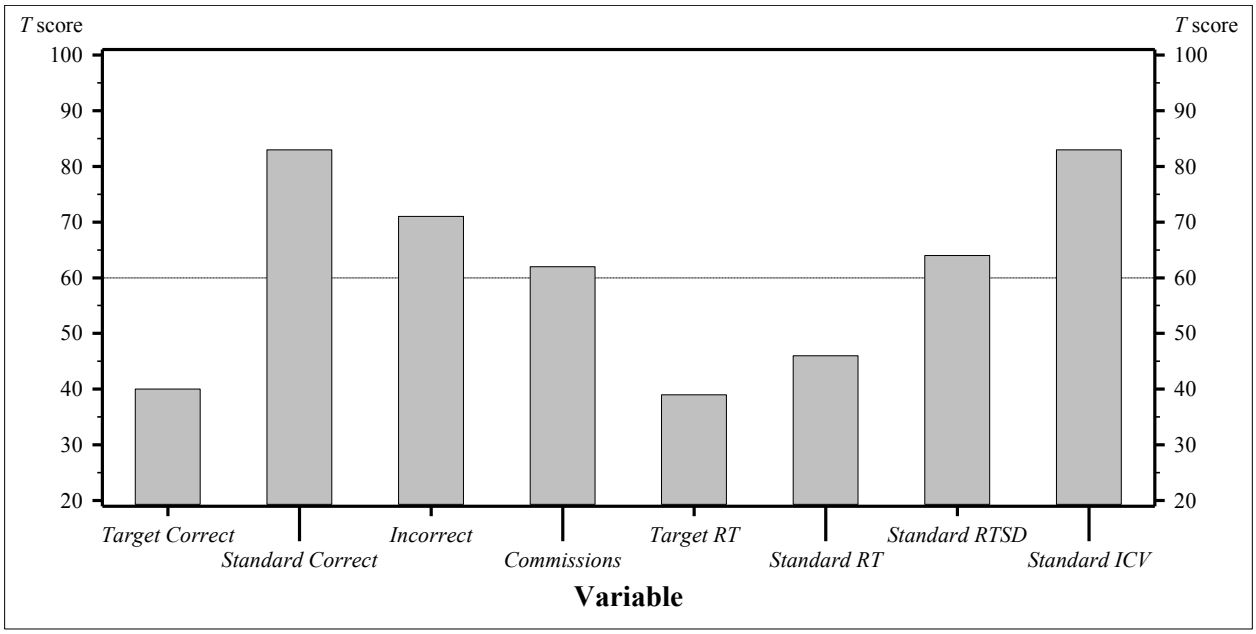
Summary Scores

The TEC also presents Summary scores, which provide a level of interpretation that is more unidimensional than that reflected by Factor scores. Whereas Factor scores are composites of different but complementary individual Task scores, Summary scores reflect an individual's average performance for each accuracy and response time variable across all tasks completed and facilitate the examination of overall level of performance for these variables (i.e., Target Correct, Standard Correct, Incorrect, Commissions, Target RT, Standard RT, Standard RTSD, Standard ICV). The raw number of Target Omissions and Standard Omissions also are presented. When scores for a particular TEC measure (e.g., Target RT) are at a consistent level across tasks (i.e., within normal limits; not elevated), the Summary score may adequately capture performance. In contrast, when Task scores vary by level (i.e., one or more-but not all-scores are elevated), it is important to examine individual Task scores, including the significance of change across tasks (see the Task scores discussion in the next section). Summary scores are shown graphically in the following bar graph and table.

Overall, Sample showed good accuracy when responding to the Target (i.e., Red) stimuli but poor accuracy in responding to the Standard (i.e., Blue) stimuli. This suggests that he had some difficulty distributing his attention appropriately, emphasizing attention to the infrequent Target stimuli while sacrificing attention to the frequent Standard stimuli. There were a greater number of Incorrect responses than expected, with frequent pressing of the wrong button, suggesting less caution in responding than expected. Sample made an excessive number of Commissions (i.e., any response in the presence of a signal not to respond), likely suggesting problems with inhibitory control.

With regard to response time, Sample's overall speed of responding was within normal limits. In terms of response variability (RTSD) he was more variable than expected in his speed of responding across tasks. Another way to look at variability is via the ICV, which accounts for slower response time (RT). In this case, Sample showed greater variability in response speed than expected.

Bar Graph of Summary *T* Scores Obtained for Accuracy and Response Time Variables on the TEC



Note. RT = Response Time; RTSD = Standard Deviation of Response Time; ICV = Intra-Individual Coefficient of Variation.

Summary Raw Scores, *T* Scores, Percentiles, and CIs Obtained for Accuracy and Response Time Variables on the TEC

Variable	Mean raw score	*T* score	Percentile	90% CI	Interpretation
Accuracy					
Target Correct (% Correct)	11.50 (58%)	40	16	35 - 45	Typical
Standard Correct (% Correct)	45.33 (63%)	83	> 99	80 - 86	Elevated
Target Omissions	0.33				Typical
Standard Omissions	3.67				Typical
Incorrect	29.17	71	98	67 - 75	Elevated
Commissions	11.00	62	88	57 - 67	Elevated
Response time					
Target RT	352.55	39	14	36 - 42	Typical
Standard RT	421.88	46	34	44 - 48	Typical
Standard RTSD	230.66	64	92	62 - 66	Elevated
Standard ICV	0.56	83	> 99	75 - 91	Elevated

Note. RT = Response Time; RTSD = Standard Deviation of the Response Time; ICV = Intra-Individual Coefficient of Variation; CI = Confidence Interval.Only raw scores and ranges are reported for Omission variables. No *T* scores, percentiles, or confidence intervals (CIs) were calculated. % Correct scores are calculated as the mean percentage of correct responses per task (e.g., for Standard stimuli, (0B % Correct + 0BI % Correct + …+ 2BI % Correct)/6 and not as the number of total correct responses divided by the total possible responses.)

Task Scores

Inspecting the pattern of elevations in Task scores is the most detailed level of analysis of TEC performance and is essential for understanding the impact of working memory and inhibitory control demands on performance. Within each section of the TEC Client Report, *absolute level* of performance (*T*-score elevations) and the degree of performance *change* (SRB change scores) is discussed for each increase in working memory load with and without inhibitory demand. Each SRB change score compares Sample's raw score on a more demanding task (e.g., 1B) against performance predicted using his raw score on a less demanding task (e.g., 0B). SRB change scores are expressed in z-score units, with scores greater than +1.28 indicating performance that is significantly better than expected at the 80% confidence level, and scores less than -1.28 indicating performance that is significantly worse than expected. More detailed information on the interpetation and creation of the SRB change scores is available in chapters 3 and 5 of the TEC Professional Manual.

Following the interpetive text, each section presents a figure showing the pattern of change in Sample's *T* scores as working memory load increased, both without (i.e., 0B, 1B, 2B) and with (i.e., 0BI, 1BI, 2BI) demand for inhibitory control. Below each figure, predicted raw scores and SRB change scores are provided in a table to help the clinician detect statistically significant and clinically meaningful change. Finally, a table including Raw scores, *T* scores, percentiles, and confidence intervals is provided within each section for each accuracy and response time measure by task.

Response Accuracy

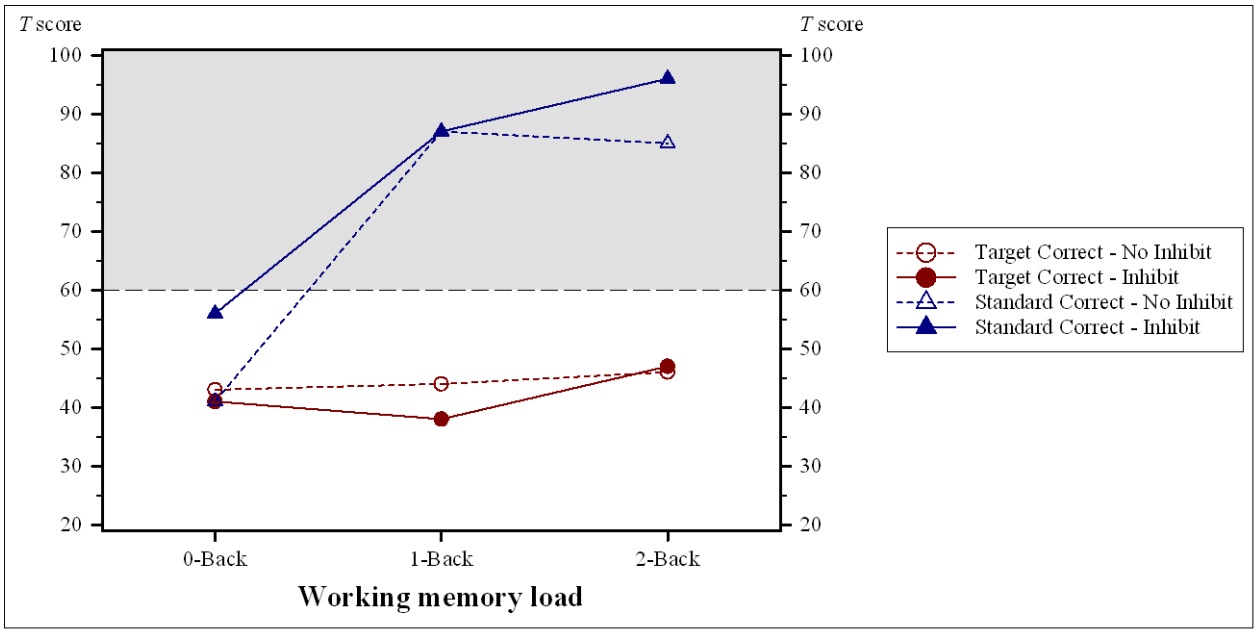
The primary measure of accuracy is the number of correct responses (i.e., Correct). This also is expressed as the percentage of correct responses (i.e., % Correct) made to either the Target (i.e., Red) or Standard (i.e., Blue) stimuli. In each of the TEC tasks, raw scores for Target Correct range from a low of 0 to a maximum of 20. Standard Correct raw scores range from 0 to 80 for No Inhibit tasks and from 0 to 64 for Inhibit tasks. Correct responses to either Target or Standard stimuli may be interpreted as reflecting an individual's ability to sustain attention to the task. Although both types of stimuli require continuous attention to the objects presented on-screen, the ability to accurately and rapidly respond to Target stimuli requires additional vigilance. That is, the examinee must hold the task-specific rules in working memory while sustaining attention to the task and remaining vigilant for the appearance of the infrequent stimuli.

Target Correct. *Without inhibitory demand,* Sample's Target Correct *T* scores on the 0B, 1B, and 2B tasks were within normal limits, suggesting good vigilance for the infrequent stimuli. His SRB change scores indicate that his ability to correctly respond to Target stimuli with each increase in working memory load (0B to 1B and 1B to 2B) was at the expected level given his predicted 1B and 2B scores. *With inhibitory demand,* his Target Correct *T* scores on the 0BI, 1BI, and 2BI tasks were within normal limits. His SRB change scores indicate that when working memory load was increased from 0-Back Inhibit to 1-Back Inhibit Sample's ability to correctly respond to Target stimuli was significantly better than expected given his predicted 1BI score, but with the additional load in the 2-Back Inhibit task, his ability was at the expected level given his predicted 2BI score.

Standard Correct. For the Standard Correct *T* scores *without inhibitory demand,* Sample's scores on the 1B and 2B tasks were elevated, whereas his score on the 0B task was within normal limits, suggesting some problems with sustained attention to the frequent stimuli. His SRB change scores indicate that his ability to respond to Standard stimuli when working memory load was increased from 0-Back to 1-Back and from 1-Back to 2-Back was was significantly worse than expected given his predicted 1B and 2B scores. *With inhibitory demand,* Sample's Standard Correct *T* scores on the 1BI and 2BI tasks were elevated, whereas his score on the 0BI task was within normal limits, suggesting some difficulty with sustained attention in the presence of an inhibitory cue. His SRB change scores indicate that with each increase in working memory load (0BI to 1BI and 1BI to 2BI) his ability to correctly respond to Standard stimuli was significantly worse than expected given his predicted 1BI and 2BI scores.

The following line graph shows *T* scores for Target Correct and Standard Correct across all levels of working memory load. The following tables show (a) SRB change scores for Target Correct and Standard Correct across tasks and (b) Task scores for Target Correct and Standard Correct for each level of working memory load both with and without inhibitory demand.

Line Graph of *T* Scores Obtained for Target Correct and Standard Correct Across TEC Tasks



Predicted Raw Scores, Obtained Raw Scores, and SRB Change Scores for Target Correct and Standard Correct Across TEC Tasks

	No Inhibit		Inhibit	
Variable	**0B-1B** **Predicted raw score (Obtained raw score) [SRB change score]**	**1B-2B** **Predicted raw score (Obtained raw score) [SRB change score]**	**0BI-1BI** **Predicted raw score (Obtained raw score) [SRB change score]**	**1BI-2BI** **Predicted raw score (Obtained raw score) [SRB change score]**
Target Correct	11 (11) [0.08]	7 (8) [0.51]	10 (13) [**1.49***]	10 (9) [-0.55]
Standard Correct	74 (45) [**-5.10***]	50 (36) [**-1.94***]	55 (35) [**-4.15***]	39 (25) [**-2.28***]

Note. SRB = Standardized regression-based; 0B = 0-Back/No Inhibit; 0BI = 0-Back/Inhibit; 1B = 1-Back/No Inhibit; 1BI = 1-Back/Inhibit; 2B = 2-Back/No Inhibit; 2BI = 2-Back/Inhibit. An asterisk (*) and bolded text indicates a significant SRB change score between tasks.

Task Scores Obtained for Target Correct and Standard Correct by Task on the TEC

Variable/Score	**No Inhibit**			**Inhibit**		
	0-Back (0B)	**1-Back (1B)**	**2-Back (2B)**	**0-Back (0BI)**	**1-Back (1BI)**	**2-Back (2BI)**
Target Correct						
Raw score (% Correct)	14 (70%)	11 (55%)	8 (40%)	14 (70%)	13 (65%)	9 (45%)
T score	43	44	46	41	38	47
Percentile	24	27	34	18	12	38
90% CI	34 - 52	35 - 53	36 - 56	33 - 49	30 - 46	38 - 56
Interpretation	Typical	Typical	Typical	Typical	Typical	Typical
Standard Correct						
Raw score (% Correct)	77 (96%)	45 (56%)	36 (45%)	54 (84%)	35 (55%)	25 (39%)
T score	41	87	85	56	87	96
Percentile	18	> 99	> 99	73	> 99	> 99
90% CI	35 - 47	80 - 94	79 - 91	49 - 63	81 - 93	90 - 102
Interpretation	Typical	Elevated	Elevated	Typical	Elevated	Elevated

Note. CI = Confidence Interval.

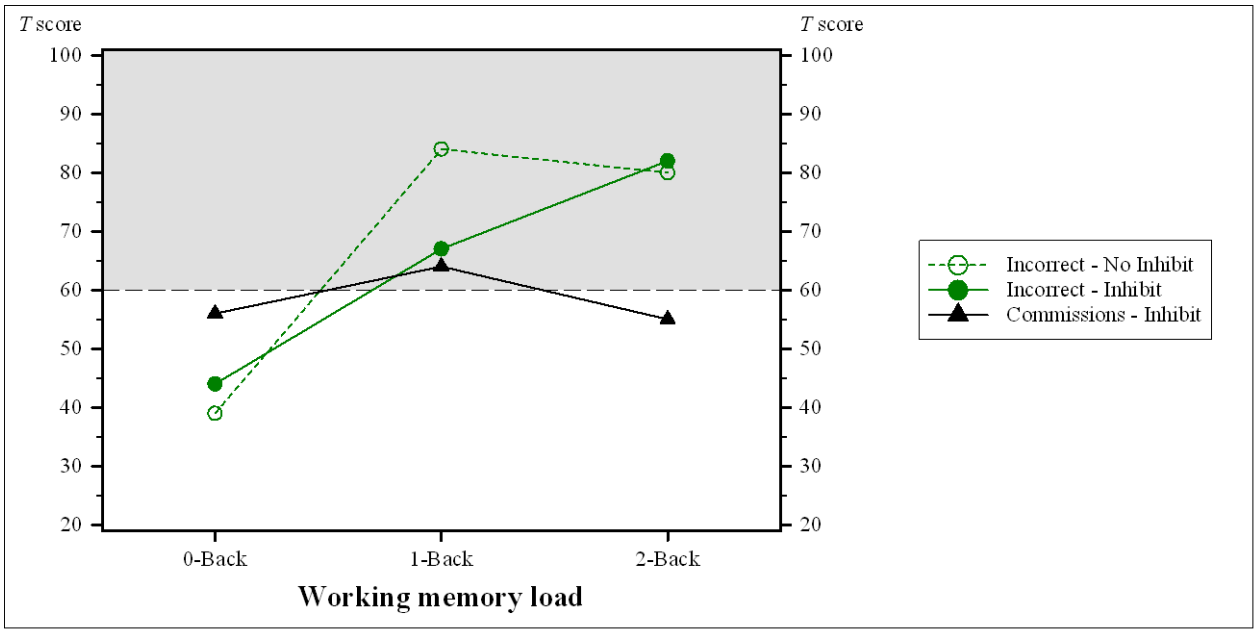
Omissions. Omissions are the number of Target or Standard stimuli for which Sample did not respond when a response was expected (i.e., there was no response). They occur very infrequently in the standardization sample and are not normally distributed. Thus, Target Omissions and Standard Omissions are reported separately as raw scores and noted in the Client Report if the overall number exceeds the 95th percentile. See the following Task score table for the number of Omissions for each task. *Without inhibitory demand,* Sample made a typical number of Omissions for Target stimuli. *With inhibitory demand,* Sample made a typical number of Omissions for Target stimuli. *Without inhibitory demand,* Sample made a typical number of Omissions for Standard stimuli. *With inhibitory demand,* Sample made a typical number of Omissions for Standard stimuli.

Incorrect Responses. The Incorrect score reflects the number of times the Red button was pressed when the Blue button response was expected, and vice versa. A high number of Incorrect responses suggests difficulty following the appropriate response rule. This response pattern may be associated with difficulty holding the rule consistently in mind (i.e., working memory) and/or failure to inhibit impulsive responses. *Without inhibitory demand,* Sample's Incorrect *T* scores were elevated on the 1B and 2B tasks, suggesting some difficulty with inhibitory control. His Incorrect *T* score was within normal limits, however, on the 0B task. His SRB change scores indicate that his number of Incorrect responses with each increase in working memory load (0B to 1B and 1B to 2B) was significantly worse (more errors) than expected given his predicted 1B and 2B scores. *With inhibitory demand,* his Incorrect *T* scores were elevated on the 1BI and 2BI tasks but his score was within normal limits on the 0BI task. His SRB change scores indicate that with each increase in working memory load (0BI to 1BI and 1BI to 2BI) his number of Incorrect responses was significantly worse (more errors) than expected given his predicted 1BI and 2BI scores.

Commissions. The Commissions score reflects the number of times any button is pressed in the presence of an inhibit cue (i.e., either a Standard or Target stimulus is shown in a box, signaling the need to inhibit responding). Only those tasks that include inhibit cues provide an opportunity to make Commissions and, thus, yield this measure (i.e., 0BI, 1BI, 2BI). In each of these three tasks, the Commissions raw score ranges from a low of 0 to a maximum of 16. Commissions are interpreted as impulsive responding or failure to inhibit. *With inhibitory demand,* Sample's Commissions *T* score was elevated on the 1BI task, suggesting some problems with inhibitory control. His Commissions *T* scores were within normal limits, however, on the 0BI and 2BI tasks. His SRB change scores indicate that when working memory load was increased from 0-Back Inhibit to 1-Back Inhibit his frequency of Commissions was significantly worse (more errors) than expected given his predicted 1BI score, but with the second increase in working memory load from 1-Back Inhibit to 2-Back Inhibit his frequency of Commissions was at the expected level given his predicted 2BI score.

The following line graph shows *T* scores for Incorrect responses and Commissions across levels of working memory load. Incorrect *T* scores are shown for No Inhibit and Inhibit conditions, whereas Commissions are shown only for the Inhibit condition, as they only can occur in the Inhibit condition. The following tables show (a) SRB change scores for Incorrect responses and Commissions and (b) Task scores for Target Omissions, Standard Omissions, Incorrect responses, and Commissions for each level of working memory load both with and without inhibitory demand.

Line Graph of *T* Scores Obtained for Incorrect Responses and Commissions Across TEC Tasks



Predicted Raw Scores, Obtained Raw Scores, and SRB Change Scores for Incorrect Responses and Commissions Across TEC Tasks

	No Inhibit		**Inhibit**	
Variable	**0B-1B** **Predicted raw score** **(Obtained raw score)** **[SRB change score]**	**1B-2B** **Predicted raw score** **(Obtained raw score)** **[SRB change score]**	**0BI-1BI** **Predicted raw score** **(Obtained raw score)** **[SRB change score]**	**1BI-2BI** **Predicted raw score** **(Obtained raw score)** **[SRB change score]**
Incorrect	13 (43) [**-6.03***]	35 (48) [**-2.28***]	15 (26) [**-2.82***]	23 (40) [**-3.76***]
Commissions			9 (13) [**-1.81***]	13 (11) [0.98]

Note. SRB = Standardized regression-based; 0B = 0-Back/No Inhibit; 0BI = 0-Back/Inhibit; 1B = 1-Back/No Inhibit; 1BI = 1-Back/Inhibit; 2B = 2-Back/No Inhibit; 2BI = 2-Back/Inhibit. An asterisk (*) and bolded text indicates a significant SRB change score between tasks. Commissions are shown only for the Inhibit tasks, as they cannot occur in the No Inhibit condition.

Task Scores Obtained for Target Omissions, Standard Omissions, Incorrect Responses, and Commissions by Task on the TEC

Variable/Score	No Inhibit			Inhibit		
	0-Back (0B)	1-Back (1B)	2-Back (2B)	0-Back (0BI)	1-Back (1BI)	2-Back (2BI)
Target Omissions						
Raw score (% of Targets)	0 (0%)	0 (0%)	1 (5%)	0 (0%)	0 (0%)	1 (5%)
Interpretation	Typical	Typical	Typical	Typical	Typical	Typical
Standard Omissions						
Raw score (% of Standards)	1 (1%)	1 (1%)	3 (4%)	6 (9%)	7 (11%)	4 (6%)
Interpretation	Typical	Typical	Typical	Typical	Typical	Typical
Incorrect						
Raw score	8	43	48	10	26	40
T score	39	84	80	44	67	82
Percentile	14	> 99	> 99	27	96	> 99
90% CI	32 - 46	77 - 91	72 - 88	37 - 51	60 - 74	74 - 90
Interpretation	Typical	Elevated	Elevated	Typical	Elevated	Elevated
Commissions						
Raw score				9	13	11
T score				56	64	55
Percentile				73	92	69
90% CI				48 - 64	57 - 71	47 - 63
Interpretation				Typical	Elevated	Typical

Note. CI = Confidence Interval. Commissions are shown only for the Inhibit tasks, as they cannot occur in the No Inhibit condition.

Response Time

The TEC captures response time for every correct response, and calculates the mean response time for each type of stimuli (i.e., Target, Standard) and response time variability expressed as both the standard deviation of the Response Time (RTSD) and the Intra-Individual Coefficient of Variation (ICV). Variability measures are standardized and reported only for Standard stimuli to provide the most stable measures within and between tasks.

Response Time (RT) refers to the average time, reported in milliseconds, taken by an individual to respond correctly to all stimuli and is presented separately for Target and Standard stimuli. RTs may reflect general speed of processing or decision-making and motor-response speed. When RT slows with increasing working memory load or inhibitory control demand conditions relative to the 0-Back/No Inhibit condition, it suggests significant impact of cognitive demand on speed of processing. Slow response time is one of the more sensitive measures of difficulties with cognitive processing.

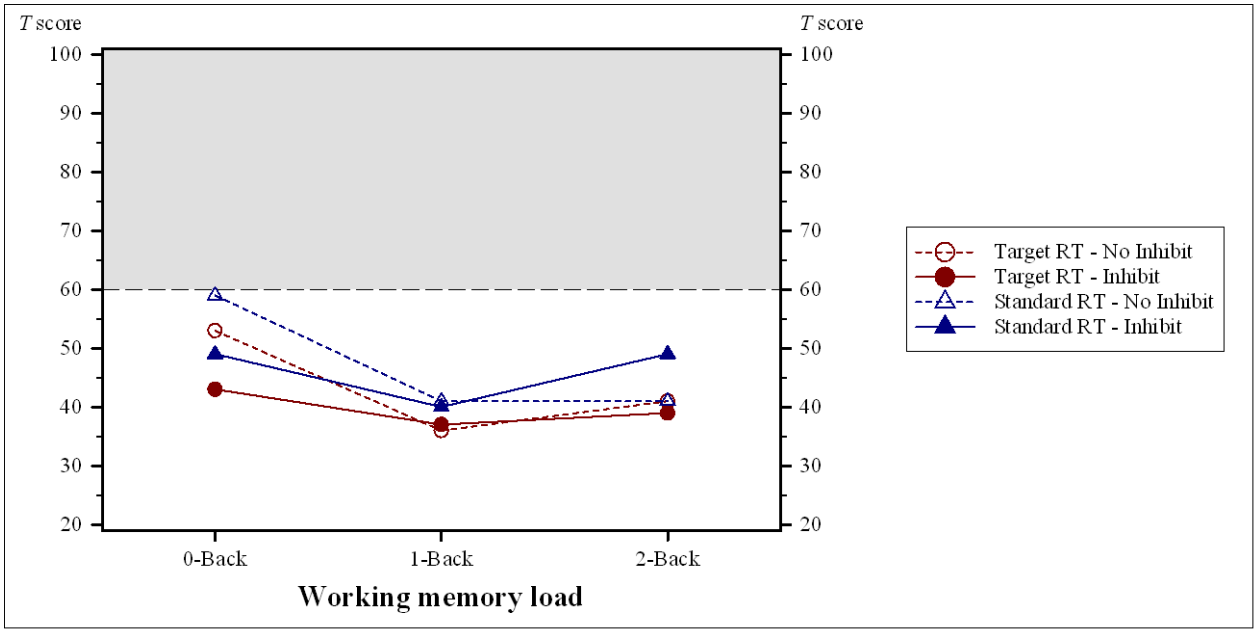
Target RT. *Without inhibitory demand,* Sample's RT *T* scores for Target stimuli (i.e., Target RT) on the 0B, 1B, and 2B tasks were within normal limits. His SRB change scores indicate that his Target RT with the first increase in working memory load (0B to 1B) was significantly better (faster) than expected given his predicted 1B score but with a further increase in working

memory load (1B to 2B) his Target RT was at the expected level given his predicted 2B score. *With inhibitory demand,* Sample's Target RT *T* scores on the 0BI, 1BI, and 2BI tasks were within normal limits. His SRB change scores indicate that when working memory load was increased from 0-Back Inhibit to 1-Back Inhibit his Target RT was significantly better (faster) than expected given his predicted 1BI score, but with the second increase in working memory load from 1-Back Inhibit to 2-Back Inhibit his Target RT was at the expected level given his predicted 2BI score.

Standard RT. Sample's RT *T* scores for Standard stimuli (i.e., Standard RT) *without inhibitory demand* on the 0B, 1B, and 2B tasks were within normal limits. His SRB change scores indicate that his Standard RT with the first increase in working memory load (0B to 1B) was significantly better (faster) than expected given his predicted 1B score, but with a further increase in working memory load (1B to 2B) his Standard RT was at the expected level given his predicted 2B score. *With inhibitory demand,* Sample's Standard RT *T* scores were within normal limits across all levels of working memory load. His SRB change scores indicate that when working memory load was increased from 0-Back Inhibit to 1-Back Inhibit his Standard RT was significantly better (faster) than expected given his predicted 1BI score, but with the second increase in working memory load from 1-Back Inhibit to 2-Back Inhibit his Standard RT was significantly worse (slower) than expected given his predicted 2BI score.

The following line graph shows *T* scores for Target RT and Standard RT across levels of working memory load. The following tables show (a) SRB change scores for Target RT and Standard RT and (b) Target RT and Standard RT Task Scores for each level of working memory load both with and without inhibitory demand.

Line Graph of *T* Scores Obtained for Target RT and Standard RT Across TEC Tasks



Note. RT = Response Time.

Predicted Raw Scores, Obtained Raw Scores, and SRB Change Scores for Target RT and Standard RT Across TEC Tasks

	No Inhibit		Inhibit	
Variable	**0B-1B** **Predicted raw score (Obtained raw score) [SRB change score]**	**1B-2B** **Predicted raw score (Obtained raw score) [SRB change score]**	**0BI-1BI** **Predicted raw score (Obtained raw score) [SRB change score]**	**1BI-2BI** **Predicted raw score (Obtained raw score) [SRB change score]**
Target RT	473.56 (293.89) [**2.41***]	314.23 (321.40) [-0.07]	399.74 (268.21) [**1.49***]	306.33 (300.71) [0.06]
Standard RT	553.51 (376.80) [**3.95***]	366.80 (353.17) [0.32]	458.69 (368.64) [**2.42***]	363.51 (438.34) [**-1.84***]

Note. SRB = Standardized regression-based; RT = Response Time; 0B = 0-Back/No Inhibit; 0BI = 0-Back/Inhibit; 1B = 1-Back/No Inhibit; 1BI = 1-Back/Inhibit; 2B = 2-Back/No Inhibit; 2BI = 2-Back/Inhibit.
An asterisk (*) and bolded text indicates a significant SRB change score between tasks.

Task Scores Obtained for Target RT and Standard RT by Task on the TEC

Variable/Score	No Inhibit			Inhibit		
	0-Back (0B)	**1-Back (1B)**	**2-Back (2B)**	**0-Back (0BI)**	**1-Back (1BI)**	**2-Back (2BI)**
Target RT						
Raw score	491.32	293.89	321.40	439.81	268.21	300.71
T score	53	36	41	43	37	39
Percentile	62	8	18	24	10	14
90% CI	47 - 59	31 - 41	34 - 48	37 - 49	32 - 42	32 - 46
Interpretation	Typical	Typical	Typical	Typical	Typical	Typical
Standard RT						
Raw score	537.91	376.80	353.17	456.39	368.64	438.34
T score	59	41	41	49	40	49
Percentile	82	18	18	46	16	46
90% CI	55 - 63	37 - 45	36 - 46	45 - 53	36 - 44	45 - 53
Interpretation	Typical	Typical	Typical	Typical	Typical	Typical

Note. RT = Response Time; CI = Confidence Interval.

Standard Deviation of the Response Time (RTSD). RTSD is the standard deviation of the Response Time and reflects the degree of variability in RT. It is provided only for Standard stimuli. Variability in RT is one of the most sensitive measures of cognitive difficulty in children with a variety of diagnoses.

Without inhibitory demand, Sample's RTSD *T* scores were elevated on the 0B and 2B tasks but within normal limits on the 1B task. His SRB change scores indicate that his RTSD with the first increase in working memory load (0B to 1B was significantly better (less variable) than expected given his predicted 1B score, but with a further increase in working memory load (1B to 2B) his RTSD was significantly worse (more variable) than expected given his predicted 2B score. *With inhibitory demand,* Sample's RTSD *T* scores on the 1BI and 2BI tasks were elevated but within normal limits on the 0BI task. His SRB change scores indicate that with each increase

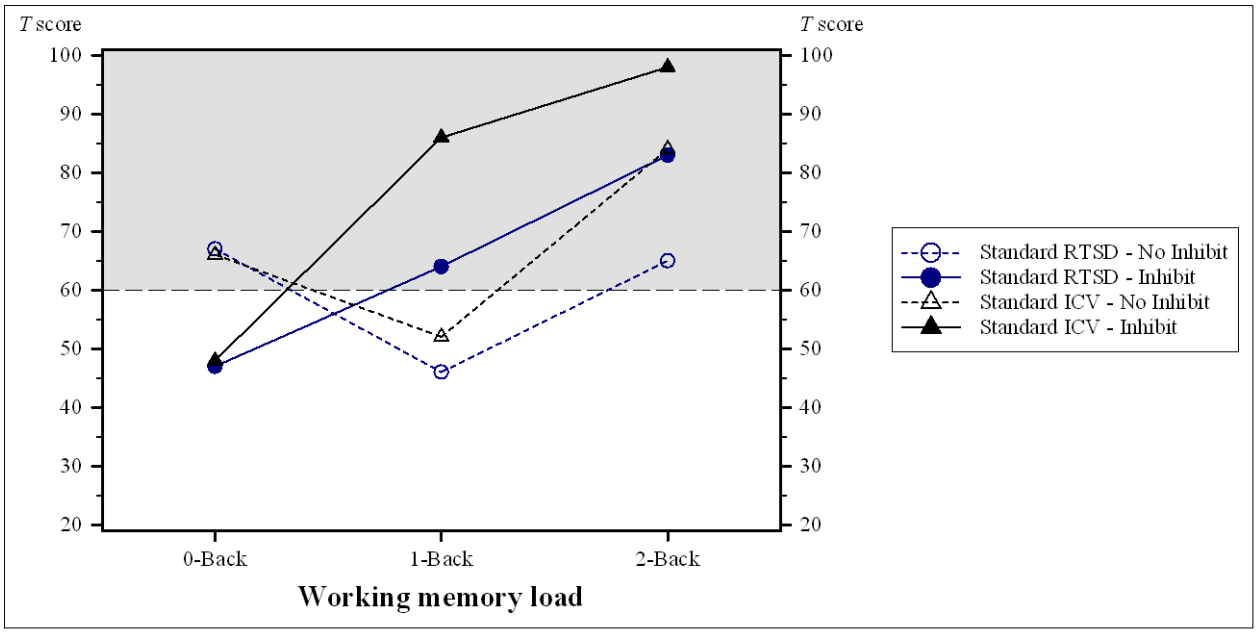
in working memory load (0BI to 1BI and 1BI to 2BI) his RTSD was significantly worse (more variable) than expected given his predicted 1BI and 2BI scores.

Intra-Individual Coefficient of Variation (ICV). The ICV, which is provided only for Standard stimuli, is calculated as the RTSD divided by RT. The ICV provides a measure of the consistency of RT within a task that takes into account the individual's average RT for that task. This can be especially relevant for individuals with long average RTs because longer RTs allow for greater variability, which is reflected in the RTSD. That is, a high degree of variability in the context of slow RT may be more normal when controlling for the lengthy RT, suggesting that the elevated variability is related to slow responding. In these cases, the ICV may be a more accurate reflection of true variability in RT. If both RTSD and ICV are elevated, it implies that both the RTSD and ICV are accurate reflections of variability and that elevated variability is not a byproduct of slow RT. A worsening ICV indicates more variability in responding, whereas an improving ICV indicates more consistency in responding.

Sample's ICV *T* scores (i.e., Standard ICV) *without inhibitory demand* on the 0B and 2B tasks were elevated, whereas his score on the 1B task was within normal limits, suggesting greater variability than expected in some task conditions. His SRB change scores indicate that his ICV with the first increase in working memory load (0B to 1B) was at the expected level given his predicted 1B score, but with a further increase in working memory load (1B to 2B) his ICV was significantly worse (more variable) than expected given his predicted 2B score. *With inhibitory demand,* Sample's Standard ICV *T* scores were greater than expected on the 1BI and 2BI tasks but within normal limits on the 0BI task. His SRB change scores indicate that with each increase in working memory load (0BI to 1BI and 1BI to 2BI) his ICV was significantly worse (more variable) than expected given his predicted 1BI and 2BI scores.

The following line graph shows *T* scores for Standard RTSD and Standard ICV across levels of working memory load. The following tables show (a) SRB change scores for Standard RTSD and Standard ICV and (b) Standard RTSD and Standard ICV Task Scores for each level of working memory load both with and without inhibitory demand.

Line Graph of *T* Scores Obtained for Standard RTSD and Standard ICV Across TEC Tasks



Note. RT = Response Time. RTSD = Standard Deviation of the Response Time; ICV = Intra-Individual Coefficient of Variation.

Predicted Raw Scores, Obtained Raw Scores, and SRB Change Scores for Standard RTSD and Standard ICV Across TEC Tasks

	No Inhibit		Inhibit	
Variable	**0B-1B** **Predicted raw score** **(Obtained raw score)** **[SRB change score]**	**1B-2B** **Predicted raw score** **(Obtained raw score)** **[SRB change score]**	**0BI-1BI** **Predicted raw score** **(Obtained raw score)** **[SRB change score]**	**1BI-2BI** **Predicted raw score** **(Obtained raw score)** **[SRB change score]**
Standard RTSD	207.66 (119.33) [**2.80***]	153.31 (272.20) [**-3.04***]	148.44 (235.47) [**-2.33***]	240.26 (413.01) [**-4.03***]
Standard ICV	0.36 (0.32) [0.72]	0.39 (0.77) [**-4.76***]	0.32 (0.64) [**-4.50***]	0.62 (0.94) [**-4.09***]

Note. SRB = Standardized regression-based; RTSD = Standard Deviation of the Response Time; ICV = Intra-Individual Coefficient of Variation. 0B = 0-Back/No Inhibit; 0BI = 0-Back/Inhibit; 1B = 1-Back/No Inhibit; 1BI = 1-Back/Inhibit; 2B = 2-Back/No Inhibit; 2BI = 2-Back/Inhibit. An asterisk (*) and bolded text indicates a significant SRB change score between tasks.

Task Scores Obtained for Standard RTSD and Standard ICV by Task on the TEC

Variable/Score	No Inhibit			Inhibit		
	0-Back (0B)	1-Back (1B)	2-Back (2B)	0-Back (0BI)	1-Back (1BI)	2-Back (2BI)
Standard RTSD						
Raw score	219.05	119.33	272.20	124.90	235.47	413.01
T score	67	46	65	47	64	83
Percentile	96	34	93	38	92	> 99
90% CI	61 - 73	39 - 53	57 - 73	40 - 54	57 - 71	76 - 90
Interpretation	Elevated	Typical	Elevated	Typical	Elevated	Elevated
Standard ICV						
Raw score	0.41	0.32	0.77	0.27	0.64	0.94
T score	66	52	84	48	86	98
Percentile	95	58	> 99	42	> 99	> 99
90% CI	58 - 74	44 - 60	75 - 93	40 - 56	78 - 94	90 - 106
Interpretation	Elevated	Typical	Elevated	Typical	Elevated	Elevated

Note. RTSD = Standard Deviation of the Response Time; ICV = Intra-Individual Coefficient of Variation; CI = Confidence Interval.

End of Report